

Route 156 West Corridor

In Monterey County, on State Route 156 from 0.18 mile east of the State Route 156/183 Separation to the U.S. Route 101/State Route 156 Separation and on U.S. Route 101 from 0.1 mile north of Pesante Road to 0.2 mile north of Messick Road

05-MON-156-PM R1.6/T5.2

05-MON-101-PM 94.6/96.8

05-316000

Project ID 0500000497

SCH# 1999111063

Final Environmental Impact Report/ Environmental Assessment with Finding of No Significant Impact



Prepared by the
State of California Department of Transportation

Volume I of II

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 the Caltrans under its assumption of responsibility pursuant to 23 U.S. Code 327.

January 2013



General Information About This Document

What's in this document?

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration, has prepared this Final Environmental Impact Report/Environmental Assessment, which examines the potential environmental impacts for the proposed project in Monterey County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, potential impacts from each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

The Draft Environmental Impact Report/Environmental Assessment was circulated to the public from June 30, 2009 to August 17, 2009. Comments were received from the public during this circulation period. The comments and Caltrans' responses to those comments are provided in Route 156 West Corridor Comments and Responses from Circulation of the Draft Environmental Document, Volume II of II.

A vertical line in the right margin of the page indicates where changes have been made to the document since the draft document was circulated. This information supersedes and/or clarifies information contained in the Draft Environmental Impact Report/Environmental Assessment.

Printing this document: To save paper, this document has been set up for two-sided printing (to print the front and back of a page). Pages without body text occur where needed throughout the document to maintain proper layout of the chapters and appendices.

<p>For individuals with sensory disabilities, this document is 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 Caltrans, Attn: G. William "Trais" Norris, III, Sierra Pacific Environmental Analysis Branch, 855 M Street, Suite 200, Fresno, CA 93721; 559-445-6447 Voice, or use the California Relay Service 1-800-735-2929 (TTY) or 1-800-735-2929 (Voice) or 711.</p>

SCH# 1999111063
05-MON-156/101-R1.6/T5.2/94.6-96.8
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On State Route 156 from 0.18 mile east of the State Route 156/183 Separation to the
U.S. Route 101/State Route 156 Separation and on U.S. Route 101 from 0.1 mile
north of Pesante Road to 0.2 mile north of Messick Road in Monterey County

**FINAL ENVIRONMENTAL IMPACT REPORT
/ENVIRONMENTAL ASSESSMENT**

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 U.S. Code 4332(2)(C) and 23 U.S. Code 327

THE STATE OF CALIFORNIA
Department of Transportation

1/31/13
Date of Approval


Christine Cox-Kovacevich
Chief, Central Region Environmental
California Department of Transportation
CEQA Lead Agency

**California Department of Transportation
Finding of No Significant Impact**

Route 156 West Corridor

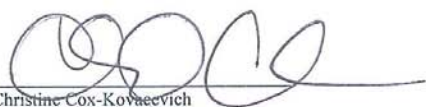
For

The California Department of Transportation (Caltrans) has determined that Alternative 11, Phase 1 just west of Castroville Boulevard (PM R1.8) to approximately Meridian Road (PM T4.81) for the Route 156 West Corridor project will have no significant impact on the human environment. This Finding of No Significant Impact is based on the attached Environmental Assessment, which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope and content of the attached Environmental Assessment and incorporated technical reports.

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 U.S. Code 327.

Date

1/31/13


Christine Cox-Kovacevich
Chief, Central Region Environmental
California Department of Transportation
NEPA Lead Agency

Summary

Effective July 1, 2007, Caltrans has been assigned environmental review and consultation responsibilities under the National Environmental Policy Act pursuant to 23 U.S. Code 327.

Overview of Project Area

The existing State Route 156 is a two-lane conventional highway with 12-foot lanes and 6-foot to 8-foot outside shoulders. There are at-grade intersections and several private driveways along the route. Left-turn lanes at the intersections allow motorists to turn onto county roads from State Route 156.

The existing U.S. Route 101 within the project limits is a four-lane expressway with 12-foot-wide lanes, 4- to 8-foot-wide outside shoulders, a 16- to 22-foot-wide median and three at-grade intersections that allow right-in, right-out turns. Two interchanges—one at the State Route 156 junction and one at San Miguel Canyon Road—sit in the project limits.

Purpose and Need

- Improve safety and operations
- Improve local road access to State Route 156
- Improve interregional traffic flow along State Route 156
- Relieve existing congestion and provide capacity for future increases in traffic volume

For the three-year period from January 2005 to December 2007, the total collision rate for State Route 156 was 20 percent higher than the state average, while the collision rates for northbound and southbound U.S. Route 101 were lower than the state average. There were 196 collisions on State Route 156, 69 collisions on northbound U.S. Route 101, and 95 collisions on southbound U.S. Route 101. State Route 156 between Cathedral Oaks Road and the U.S. Route 101/State Route 156 interchange had the highest concentration of traffic collisions.

Recent collision rate information (based on Traffic Accident Surveillance and Analysis System data from July 1, 2007 to June 30, 2010) shows the total collision rate for State Route 156 was 21 percent higher than the state average. There were 182 collisions on State Route 156. In contrast, collision rates for northbound and southbound U.S. Route 101 were lower than the state average, with 52 collisions on

northbound and 65 collisions on southbound U.S. Route 101. During this period, construction began on the Prunedale Improvement Project on U.S. Route 101. Temporary ramp and road closures, as well as reduced speed requirements associated with highway construction, may have contributed to the reduced collision numbers.

Construction of a new alignment for State Route 156 would divert interregional traffic away from the residential communities next to State Route 156 and U.S. Route 101. This would affect the existing access provided from State Route 156 to the Oak Hills subdivision; currently, Oak Hills residents or visitors must turn left, crossing in front of oncoming traffic to enter or exit the development. These turns are particularly difficult during the higher traffic volumes in summer, vacation and harvest season, and the weekday peak commuting hours.

Residents of the Monte del Lago mobile home park face a similar situation competing with recreational, truck and commuter traffic when traveling to Prunedale or Castroville for shopping, services, medical appointments and jobs.

Under Alternative 11 (one of the two build alternatives under consideration), a new alignment for State Route 156 would allow uninterrupted traffic flow for recreational travelers to the Monterey Peninsula. Also under Alternative 11, residents and communities next to State Route 156 and U.S. Route 101 would be provided a more direct travel route via the frontage road (the existing State Route 156) to shopping, services and jobs in Prunedale and Castroville. Under Alternative 12 (the other build alternative), the proposed diamond interchange at the existing at-grade intersection of State Route 156 and Cathedral Oaks Road would allow Oak Hills residents access to shopping, services and jobs in Prunedale and Castroville.

Proposed Action

Caltrans proposes to widen State Route 156 between U.S. Route 101 and west of Castroville Boulevard and rebuild the U.S. Route 101/State Route 156 interchange in Monterey County.

Two build alternatives—Alternatives 11 and 12—and a No-Build Alternative are proposed for this project. Alternative 11 would add two new lanes in both eastbound and westbound directions, while the existing highway would essentially function as a frontage road. Alternative 12 would use the existing highway for part of the alignment and would add two new lanes south of the existing highway. Both build alternatives would include improvements at the U.S. Route 101/State Route 156 and San Miguel Canyon interchanges, including new connectors to northbound and

southbound U.S. Route 101. The escalated project cost for Alternative 11 is \$268 million. The escalated project cost for Alternative 12 is \$296 million. The escalated costs of the project is found by determining the present value of a project and then applying an inflation factor that will determine the project cost at the time the actual expenditures are estimated to occur.

The Draft Environmental Impact Report/Environmental Assessment was circulated to the public from June 30, 2009 to August 17, 2009. Comments were received from the public during this circulation period. After circulation and public review of the document, Alternative 11 has been selected by Caltrans as the preferred alternative. Alternative 11 would improve local road access to State Route 156, improve interregional traffic flow and route continuity along State Route 156, relieve existing congestion, and provide capacity for future increases in traffic volume.

Due to funding constraints, the project would be built in two phases. Phase 1 will start just west of Castroville Boulevard (PM R1.8) and tie back into existing State Route 156 at Prunedale North Road (PM T4.81). Phase 2 will be constructed at a later date when funds become available; this work includes the U.S. Route 101 and State Route 156 interchange and work along U.S. Route 101 from Pesante Road to just north of Messick Road. The first phase would do the following:

- Convert the existing State Route 156 from a two-lane highway to a four-lane freeway on a new alignment with a 46-foot-wide median. At the east end of the project, the proposed four lanes would transition back to the existing State Route 156 before the U.S. Route 101/State Route 156 separation to the west. The traffic lanes would be 12 feet wide, and outside and inside shoulders would be 10 feet and 5 feet wide. The proposed State Route 156 would be designed based on a 70-mile-per-hour design speed.
- Convert the existing State Route 156 into a frontage road. At the west end, the frontage road would tie into the proposed realigned Castroville Boulevard, with minimal right-of-way impact; at the east end, it would connect to the existing Prunedale North Road.
- Realign Castroville Boulevard, and build a compact diamond interchange at the State Route 156 new alignment. New ramps are proposed with 12-foot-wide travel lanes, 4-foot-wide inside shoulders and 8-foot-wide outside shoulders.
- Build a bridge for eastbound and westbound traffic at Moro Cojo Slough.
- Install cross culverts, and build basins for drainage improvements.

Summary

- Relocate underground and aboveground utilities: gas, electrical, cable and telephone.
- Install replacement planting.
- Install Intelligent Transportation Systems, to include changeable message signs, highway advisory radio and surveillance loops.
- Install proposed soundwalls for noise abatement.
- Install maintenance vehicle pullouts.

The proposed project is in the 2010 Regional Transportation Plan (RTP) constrained project list for Monterey County. The project is included in the 2012 State Improvement Program with full funding for the project approval and environmental document phase. The Association of Monterey Bay Area Government's (AMBAG) 2010 Metropolitan Transportation Plan (MTP)/Metropolitan Transportation Improvement Program (MTIP), as amended October 2012, and the Transportation Agency of Monterey County (TAMC) 2010, as amended September 2012, includes the project as fiscally constrained in the amount of \$109,194,000 for Phase 1 only. AMBAG took board action to amend the MTP/MTIP on October 12, 2012 to incorporate the revised schedule and funding as listed in the MTP's list of "Revenue Constrained" projects. Concurrently TAMC, the Regional Transportation Planning Agency (RTPA) took board action to amend the Regional Transportation Planning Agency (RTP) on September 26, 2012. The amendments to the MTP/MTIP and the RTP, as described above, are consistent with the current State Transportation Improvement Program (STIP), as approved by the California Transportation Commission in April 2012, which programmed the next phases of the project development including Right of Way and Plans, Specifications and Estimates.

According to the Code of Federal Regulations, 23 CFR part 450 only projects included in the federally approved TIP will be eligible for federal funds administered by the FHWA. In metropolitan planning areas, transportation projects requiring funds administered by FHWA shall be included in the Metropolitan Transportation Plan (MTP) and the federal TIP (MTIP). The Metropolitan Planning Organization (MPO) responsible for the development of the MTP and federal TIP for the proposed project is the Association of Monterey Bay Area Governments (AMBAG). The 2012 STIP programmed the funding for the next phases of the project (Plans, Specification and Estimates and Right of Way).

The escalated cost for Alternative 11 is \$268 million, which includes Phase 1 and Phase 2. The Association of Monterey Bay Area Government's (AMBAG) 2010 Metropolitan Transportation Plan (MTP)/Metropolitan Transportation Improvement Program (MTIP) (as amended October 2012), and the Transportation Agency for Monterey County's (TAMC) 2010 RTP (as amended September 2012) include the project as fiscally constrained in the amount of \$109,194,000 (escalated cost) for Phase 1 only. AMBAG took board action to amend the MTP/MTIP on October 12, 2012 to incorporate the revised schedule and funding as listed in the MTP's list of "Revenue Constrained" projects. Concurrently TAMC, the Regional Transportation Planning Agency (RTPA) took board action to amend the Regional Transportation Planning Agency (RTP) on September 26, 2012. The amendments to the MTP/MTIP and the RTP, as described above, are consistent with the current State Transportation Improvement Program (STIP), as approved by the California Transportation Commission in April 2012, which programmed the next phases of the project development including Right of Way and Plans, Specifications and Estimates.

Future Traffic

State Route 156 between Castroville and Prunedale carries more traffic on weekends than on weekdays. Westbound weekend traffic is 10 percent to 15 percent higher, and eastbound weekend traffic is 5 percent to 10 percent higher, than weekday afternoon volumes. The traffic model of the Association of Monterey Bay Area Governments does not directly produce weekend travel estimates. Traffic forecasts for Friday evening and Sunday afternoon peak periods were based on the relationship between weekday evening peak and the weekend peak periods.

Current Traffic

Existing weekday morning traffic operates at a level of service D to a level of service E on State Route 156. Existing evening traffic operates at a level of service E to a level of service F on State Route 156. This traffic is commuting traffic from residential areas along State Route 156 to employment centers in Salinas and the Bay Area. Projected weekday morning traffic in 2036 shows a level of service E to level of service F on State Route 156. The projected weekday evening traffic in 2036 shows a level of service F on State Route 156.

Weekend recreational traffic to and from the Monterey Peninsula influences Friday evening and Sunday afternoon peak level of service values. Existing Friday evening traffic operates at a level of service E to a level of service F on State Route 156.

Existing Sunday afternoon traffic operates at a level of service F on State Route 156. Projected Friday evening and Sunday afternoon peak traffic in 2036 shows a level of service F on State Route 156.

Joint California Environmental Quality Act/National Environmental Policy Act Document

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 the California Environmental Quality Act and the National Environmental Policy Act. Caltrans is the lead agency under the California Environmental Quality Act. 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 U.S. Code 327.

Some impacts determined to be significant under the California Environmental Quality Act may not lead to a determination of significance under the National Environmental Policy Act. Because the National Environmental Policy Act is concerned with the significance of the project as a whole, it is quite often the case that a "lower level" document is prepared for the National Environmental Policy Act. One of the most commonly seen joint document types is an Environmental Impact Report/Environmental Assessment.

Following receipt of public comments on the Draft Environmental Impact Report/Environmental Assessment and circulation of the Final Environmental Impact Report/Environmental Assessment, Caltrans certified the Environmental Impact Report and issued Findings and a Statement of Overriding Considerations under the California Environmental Quality Act. Caltrans issued a Finding of No Significant Impact under the National Environmental Policy Act.

Project Impacts

Summary of Major Potential Impacts from Alternatives

Potential Impact		Alternative 11	Alternative 12	No-Build Alternative
Land Use	Consistent with: Castroville Community Plan	Consistent with: Castroville Community Plan (Phase 1)	Consistent with: Castroville Community Plan	Does not meet the goals of: Castroville Community Plan
	Consistent with: Monterey County General Plan 2010	Consistent with: Monterey County General Plan 2010 (Phase 1 and Phase 2).	Consistent with: Monterey County General Plan 2010	Monterey County General Plan 2010
	Monterey County's certified Local Coastal Program	Requires an amendment to: Monterey County's certified Local Coastal Program (Phase 1).	Consistent with: Monterey County's certified Local Coastal Program	Monterey County's certified Local Coastal Program
	Monterey County Regional Transportation Plan	Monterey County Regional Transportation Plan (Phase 1 and Phase 2).	Monterey County Regional Transportation Plan	Monterey County Regional Transportation Plan
	Elkhorn Slough Conservation Plan	Elkhorn Slough Conservation Plan (Phase 1).	Elkhorn Slough Conservation Plan	Consistent with: Elkhorn Slough Conservation Plan

Summary

Potential Impact	Alternative 11	Alternative 12	No-Build Alternative
<p>Coastal Zone</p>	<p>Farmland: Modifications to the design of Alternative 11 resulted in 118 acres acquired, 105 acres are designated agricultural preserve (Phase 1).</p> <p>Coastal jurisdictional Other waters: Temporary impacts 1.79 acres Coastal jurisdictional Other waters: Permanent impacts 0.68 acre Coastal jurisdictional Perennial wetlands: Temporary impacts 0.0 acre Coastal jurisdictional Perennial wetlands: Permanent impacts 0.95 acre Coastal jurisdictional seasonal wetlands: Temporary impacts 2.47 acres Coastal jurisdictional seasonal wetlands: Permanent impacts 0.0 acre (Coastal jurisdiction in Phase 1).</p> <p>For growth, utility service relocation, traffic/transportation, visual/aesthetics, hydrology/floodplain, water quality, air quality, plant species, animal species, threatened and endangered species, see this summary table under Alternative 11.</p> <p>For natural communities, see coast live oak woodland, riparian habitat for Alternative 11.</p> <p style="text-align: right;"><i>Route 156 West Corridor • viii</i></p>	<p>Farmland: Of the 98.02 acres acquired, 82 acres are designated coastal agricultural preserve</p> <p>Coastal jurisdictional Other waters: Temporary impacts 1.47 acres Coastal jurisdictional Other waters: Permanent impacts 0.64 acre Coastal jurisdictional Perennial wetlands: Temporary impacts 0.0 acre Coastal jurisdictional Perennial wetlands: Permanent impacts 0.0 acre Coastal jurisdictional seasonal wetlands: Temporary impacts 8.95 acres Coastal jurisdictional seasonal wetlands: Permanent impacts 0.61 acre</p> <p>For growth, emergency services, utility service relocation, traffic/transportation, visual/aesthetics, hydrology/floodplain, water quality, air quality, wetlands and other waters, plant species, animal species, threatened and endangered species, see this summary table under Alternative 12.</p> <p>For natural communities, see coast live oak woodland, riparian habitat for Alternative 12.</p> <p>Alternative 12.</p>	<p>No impact</p>

Summary

Potential Impact		Alternative 11			Alternative 12	No-Build Alternative
Wild and Scenic Rivers		No impact (Phase 1 and Phase 2).			No impact	No impact
Parks and Recreation		No impact (Phase 1 and Phase 2).			No impact	No impact
Growth		Could slightly increase growth pressures in Oak Hills and Castroville between Construction and 2036 (Phase 1).			Could slightly increase growth pressures in Oak Hills and Castroville between Construction and 2036	No impact
Farmlands/Timberlands		Total	Phase 1	Phase2	Acquisition: 98.02 acres of farmland, of which 53.8 acres are statewide or local importance No prime or unique farmland affected	No impact
		Acquisition: Initially 165 acres Modifications to Alternative 11 resulted in 118 acres of farmland, of which 85.5 acres are statewide or local importance. No Prime or unique farmland affected	Acquisition: Initially 165 acres Modifications to Alternative 11 resulted in 118 acres of farmland, of which 85.5 acres are statewide or local importance. No Prime of unique farmland affected	No acreage acquisitions for Phase 2		
Community Character and Cohesion		Not expected to result in any disruption or isolation of a community (Phase 1 and Phase 2).			Not expected to result in any disruption or isolation of a community	No impact
Relocation	Business displacements	35 business displacements (Phase 2).			35 business displacements	No impact
	Housing displacements	Full acquisition: 27 single-family homes (Phase 2) 1 mobile home (Phase 1), 9 mobile homes (Phase 2) 2 triplexes (Phase 2)			Full acquisition: 27 single-family homes 10 mobile homes 2 triplexes	No impact

Summary

Potential Impact		Alternative 11	Alternative 12	No-Build Alternative
	Farm displacements	5 partial acquisitions (Phase 1 only).	9 partial acquisitions	No impact
	Utility service relocation	Electric, underground gas, cable, telephone relocated at several locations (Phase 1 and Phase 2)	Electric, underground gas, cable, telephone relocated at several locations	No impact
Environmental Justice		Will not cause disproportionately high and adverse effects on any minority or low-income populations (Phase 1 and Phase 2),	Will not cause disproportionately high and adverse effects on any minority or low-income populations	No impact
Emergency Services		Should improve emergency service response times in areas currently experiencing congestion (Phase 1 and Phase 2). Traffic Management Plan would be developed to minimize emergency service delays during construction (Phase 1 and Phase 2).	Should improve emergency service response times in areas currently experiencing congestion Traffic Management Plan would be developed to minimize emergency service delays during construction	Increase delays in emergency service response times
Traffic and Transportation/ Pedestrian and Bicycle Facilities		Improvements to congestion, safety and local circulation (Phase 1 and Phase 2). Relocation of park and ride lot (Phase 2).	Improvements to congestion, safety and local circulation Relocation of park and ride lot	Potential for congestion and traffic accidents to increase over time
Visual/Aesthetics		Add 58.2 acres of impervious surface to project area (Phase 1 and Phase 2). Preserves existing oak trees on the south side of State Route 156 (Phase 1). Removal of hundreds of eucalyptus and oak trees south of McGuffie Road area (Phase 2 only). Removal of non-native and native trees at the new U.S. Route 101/State Route 156 interchange, along northbound slope and frontage road north of Vierra Canyon Road (Phase 2). Addition of engineered character to setting with six new bridge	Add 68 acres of impervious surface to project area Removes existing oak trees on the south side of State Route 156 Removal of hundreds of eucalyptus and oak trees south of McGuffie Road area Removal of non-native and native trees at the new U.S. Route 101/State Route 156 interchange, along northbound slope and frontage road north of Vierra Canyon Road	No impact

Summary

Potential Impact	Alternative 11	Alternative 12	No-Build Alternative
	structures, eight retaining walls and three proposed soundwalls (Phase 1 and Phase 2).	Addition of engineered character to setting with six new bridge structures, eight retaining walls and three proposed soundwalls	
Cultural Resources	No impact (Phase 1 and Phase 2).	No impact	No impact
Hydrology and Floodplain	Negligible transverse encroachment to Moro Cojo Slough (Phase 1). Negligible longitudinal encroachment to Prunedale Creek (Phase 2 only).	Negligible transverse encroachment to Moro Cojo Slough Negligible longitudinal encroachment to Prunedale Creek	No impact
Water Quality and Storm Water Runoff	Add 58.2 acres of impervious surface to project area based on modifications to Alternative 11 (Phase 1 and Phase 2). Best management practices incorporated in project to minimize increases in storm water discharges (Phase 1 and Phase 2).	Add 68 acres of impervious surface to project area Best management practices incorporated in project to minimize increases in storm water discharges	No impact
Geology/Soils/Seismic/ Topography	Extensive cuts, fills which are susceptible to erosion (Phase 1 and Phase 2). Areas next to creeks may be susceptible to liquefaction (Phase 1 and Phase 2).	Extensive cuts, fills which are susceptible to erosion Areas next to creeks may be susceptible to liquefaction	No impact
Paleontology	Minimal potential to encounter vertebrate, rare and unusual plant fossils (Phase 1 and Phase 2).	Minimal potential to encounter vertebrate, rare and unusual plant fossils	No impact
Hazardous Waste/Materials	Possible soil/groundwater contamination at gas stations north and south of Vierra Canyon Road near Prunetree Shopping Center (Phase 2).	Possible soil/groundwater contamination at gas stations north and south of Vierra Canyon Road near Prunetree Shopping Center	No impact
Air Quality	Temporary impacts from construction-generated dust (Phase 1 and Phase 2). No permanent impacts (Phase 1 and Phase 2).	Temporary impacts from construction-generated dust No permanent impacts	Potential for congestion to increase over time resulting in increased idling and emissions

Summary

Potential Impact	Alternative 11			Alternative 12	No-Build Alternative
Noise and Vibration	Permanent: CEQA—none NEPA—noise abatement measures recommended, 3 proposed soundwalls (Phase 2 only) Temporary: Evening or night construction noise (Phase 1 and Phase 2).			Permanent: CEQA—none NEPA—noise abatement measures recommended, 3 proposed soundwalls Temporary: Evening or night construction noise	No impact
Natural Communities	Total Central maritime chaparral: Permanent impact: 0.16 acre Temporary impact: 1.98 acres Coast live oak woodland: Permanent impact: 16.58 acres Temporary impact: 0 acre Riparian habitat: Permanent impact: 3.98 acres Temporary impact: 4.23 acres	Phase 1 Central maritime chaparral: 0.0 acre Coast live oak woodland: Permanent impact: 1.93 acres Temporary impact: 0 acre Riparian habitat: Permanent impact: 1.53 acres Temporary impact: 2.17 acres	Phase 2 Central maritime chaparral: Permanent impact: 0.16 acre Temporary impact: 1.98 acres Coast live oak woodland: Permanent impact: 14.63 acres Temporary impact: 0 acre Riparian habitat: Permanent impact: 2.45 acres Temporary impact: 2.06 acres	Central maritime chaparral: Permanent impact: 0.15 acre Temporary impact: 1.90 acres Coast live oak woodland: Permanent impact: 32.78 acres Temporary impact: 0 acre Riparian habitat: Permanent impact 5.24 acres Temporary impact 4.60 acres	No impact
Wetlands and Other Waters	Total Perennial jurisdictional wetlands Permanent impact: 0.95 acre Temporary impact: 0.0 acre	Phase 1 Perennial jurisdictional wetlands Permanent impact: 0.95 acre Temporary impact: 0.0 acre	Phase 2 Perennial jurisdictional wetlands Permanent impact: 0.0 acre Temporary impact: 0.0 acre	Perennial jurisdictional wetlands Permanent impact: 0.0 acre Temporary impact: 0.0 acre Seasonal jurisdictional wetlands Permanent impact: 0.91 acre Temporary impact: 8.95 acre Jurisdictional other waters Permanent impact: 1.18 acre Temporary impact: 8.95 acre	No impact

Summary

Potential Impact	Alternative 11			Alternative 12	No-Build Alternative
	Seasonal jurisdictional wetlands Permanent impact: 0.9 acre Temporary impact: 2.47 acres Jurisdictional other Waters: Permanent impact: 0.19 acre Temporary impact: 0.65 acre	Seasonal jurisdictional wetlands: Permanent impact: 0.87 acre Temporary impact: 2.46 acres Jurisdictional other Waters: Permanent impact: 0.14 acre Temporary impact: 0.40 acre	Seasonal jurisdictional wetlands: Permanent impact: 0.3 acre Temporary impact: .01 acres Jurisdictional other Waters: Permanent impact: 0.05 acre Temporary impact: 0.25 acre		
Plant Species	Possible loss of Pajaro manzanita plants and Monterey pine trees during construction (Phase 1 and Phase 2).			Possible loss of Pajaro manzanita plants and Monterey pine trees during construction	No impact
Animal Species	Southwestern pond turtle: Potential displacement of individuals from temporary loss of aquatic and riparian habitat during construction (Phase 1 and Phase 2). Permanent impacts not anticipated (Phase 1 and Phase 2). Migratory birds: No impacts if trees are removed outside of nesting season (Phase 1 and Phase 2).			Southwestern pond turtle: Potential displacement of individuals from temporary loss of aquatic and riparian habitat during construction Permanent impacts not anticipated Migratory birds: No impacts if trees are removed outside of nesting season	No impact
Threatened and Endangered Species-Animals	Total California tiger salamander: Permanent impact to aquatic habitat: 0.95 acre	Phase 1 California tiger salamander: Permanent impact to aquatic habitat: 0.94 acre	Phase 2 California tiger salamander: Permanent impact to aquatic habitat: 0.01 acre	California tiger salamander: Permanent impact to aquatic habitat: 8.94 acres No temporary impact to aquatic habitat Permanent impact to upland habitat: 45.46 acres Temporary impact to upland habitat: 28.93 acres	

Summary

Potential Impact	Alternative 11			Alternative 12	No-Build Alternative
	<p>Temporary impact to aquatic habitat: 2.46 acres Permanent impact to upland habitat: 17.59 acres Temporary impact to upland habitat: 35.46 acres</p> <p>Santa Cruz long-toed salamander Permanent impact to aquatic habitat: 0.95 acre Temporary impact to aquatic habitat: 2.46 acres Permanent impact to upland habitat: 40.03 acres Temporary impact to upland: 37.73 acres</p> <p>California red-legged frog: Permanent impact to habitat: 5.22 acres Temporary impact to habitat: 7.03 acres</p>	<p>Temporary impact to aquatic habitat: 2.45 acres Permanent impact to upland habitat: 13.09 acres Temporary impact to upland habitat: 29.45 acres</p> <p>Santa Cruz long-toed salamander Permanent impact to aquatic habitat: 0.95 acre Temporary impact to aquatic habitat: 2.46 acres Permanent impact to upland habitat: 40.03 acres Temporary impact to upland: 37.73 acres</p> <p>California red-legged frog: Permanent impact to habitat: 2.95 acres Temporary impact to habitat: 4.55 acres</p>	<p>Temporary impact to aquatic habitat: 0.01 acres Permanent impact to upland habitat: 4.50 acres Temporary impact to upland habitat: 6.01 acres</p> <p>Santa Cruz long-toed salamander Permanent impact to aquatic habitat: 0.0 acre Temporary impact to aquatic habitat: 0.0 acres Permanent impact to upland habitat: 0.0 acres Temporary impact to upland: 0.0 acres 1.0 California red-legged frog: Permanent impact to habitat: 2.27 acres Temporary impact to habitat: 2.48 acres</p>	<p>Santa Cruz long-toed salamander: Permanent impact to aquatic habitat: 8.94 acres</p> <p>No temporary impact to aquatic habitat</p> <p>Permanent impact to upland habitat: 45.46 acres Temporary impact to upland habitat: 28.93 acres</p> <p>California red-legged frog: Permanent impact to habitat: 14.49 acres Temporary impact to habitat: 5.47 acres</p>	

Summary

Potential Impact	Alternative 11	Alternative 12	No-Build Alternative
<p>Threatened and Endangered Species-Plants</p>	<p>Monterey spineflower: No permanent or temporary impacts; 6.4 acres of critical habitat with primary constituent elements will be permanently modified (Phase 2 only).</p> <p>Yadon's Rein-orchid: No permanent or temporary impacts (Phase 2 only).</p>	<p>Monterey spineflower: No permanent or temporary impacts; 6.4 acres of critical habitat with primary constituent elements will be permanently modified</p> <p>Yadon's Rein-orchid: No permanent or temporary impacts</p>	<p>No impact</p>
<p>Invasive Species</p>	<p>Implement Executive Order 13112 (Phase 1 and Phase 2).</p>	<p>Implement Executive Order 13112</p>	<p>No impact</p>
<p>Cumulative Impacts</p>	<p>Farmland and Visual Resources (Phase 1 and Phase 2).</p>	<p>Farmland and Visual Resources</p>	<p>No impact</p>

Coordination with Other Agencies

The following permits and agreements are required for the proposed Route 156 West Corridor project:

- U.S. Army Corps of Engineers Clean Water Act Section 404 permit
- State Water Quality Certification Section 401 permit
- California Department of Fish and Game 1602 Agreement
- Local Coastal Development permit from Monterey County with coordination with the California Coastal Commission
- U.S. Fish and Wildlife Service Section 7 Biological Opinion

The Route 156 West Corridor project may also require the following permit for the California tiger salamander:

- Incidental Take Permit pursuant to Section 2081 of the California Department of Fish and Game Code

Table of Contents

Summary.....	i
Table of Contents	xvii
List of Figures.....	xix
List of Tables.....	xx
List of Abbreviated Terms.....	xxii
Chapter 1 Proposed Project	1
1.1 Introduction.....	1
1.2 Purpose and Need	5
1.2.1 Purpose	5
1.2.2 Need.....	5
1.3 Alternatives.....	9
1.3.1 Build Alternatives.....	10
1.3.2 Comparison of Alternatives.....	12
1.3.3 Environmentally Superior Alternative	14
1.3.4 Identification of the Preferred Alternative	15
1.3.5 Alternatives Considered but Eliminated From Further Discussion.....	23
1.4 Permits and Approvals Needed.....	25
Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures	26
2.1 Human Environment	27
2.1.1 Land Use.....	27
2.1.1.1 Existing and Future Land Use.....	27
2.1.1.2 Consistency with State, Regional and Local Plans	36
2.1.1.3 Coastal Zone.....	38
2.1.2 Growth.....	48
2.1.3 Farmlands	51
2.1.4 Community Impacts	56
2.1.4.1 Community Character and Cohesion	56
2.1.4.2 Relocation	60
2.1.4.3 Environmental Justice	64
2.1.5 Utilities/Emergency Services	67
2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities	70
2.1.7 Visual/Aesthetics	84
2.2 Physical Environment.....	98
2.2.1 Hydrology and Floodplain.....	98
2.2.2 Water Quality and Storm Water Runoff.....	101
2.2.3 Geology/Soils/Seismic/Topography.....	106
2.2.4 Hazardous Waste or Materials.....	109
2.2.5 Air Quality.....	119
2.2.6 Noise and Vibration.....	135
2.3 Biological Environment.....	153
2.3.1 Natural Communities.....	153
2.3.2 Wetlands and Other Waters.....	158
2.3.3 Plant Species.....	167

Table of Contents

2.3.4	Animal Species	169
2.3.5	Threatened and Endangered Species	172
2.3.6	Invasive Species	186
2.4	Cumulative Impacts	188
Chapter 3	California Environmental Quality Act Evaluation	195
3.1	Determining Significance under the California Environmental Quality Act	195
3.2	Discussion of Significant Impacts	196
3.2.1	Less than Significant Effects of the Proposed Project.....	196
3.2.2	Significant Environmental Effects of the Proposed Project.....	197
3.2.3	Unavoidable Significant Environmental Effects	198
3.2.4	Climate Change under the California Environmental Quality Act	198
Chapter 4	Comments and Coordination	219
Chapter 5	List of Preparers.....	223
Chapter 6	Distribution List.....	227
Appendix A	California Environmental Quality Act Checklist.....	232
Appendix B	Alternative Mapping	242
Appendix C	Title VI Policy Statement.....	284
Appendix D	Summary of Relocation Benefits	286
Appendix E	Minimization and/or Mitigation Summary	290
Appendix F	References	306
Appendix G	U.S. Fish and Wildlife Service Species List	308
Appendix H	State Historic Preservation Officer Letter.....	314
Appendix I	Natural Resources Conservation Form AD 1006.....	316
Appendix J	Biology Mapping	318
Appendix K	Farmland Mapping	326
Appendix L	Census Mapping.....	330
Appendix M	Land Use Mapping.....	334
Appendix N	Cross Sections	338
Appendix O	Biological Opinion	342
	List of Technical Studies that are Bound Separately.....	372

List of Figures

Figure 1-1 Project Vicinity Map	3
Figure 1-2 Project Location Map	4
Figure 1.3 Map of Phase 1	xxi
Figure 2-1 Level of Service for Freeways	72
Figure 2-2 Level of Service for Two-lane Highways	72
Figure 2-3 Level of Service for Intersections Without Signals	73
Figure 2-4 Level of Service for Intersections With Signals	73
Figure 2-5 Existing view and proposed view of State Route 156, east of the existing intersection of Castroville Boulevard and State Route 156	86
Figure 2-6 Existing view and proposed view of State Route 156 east of Oak Hills Road looking eastbound.....	88
Figure 2-7 Existing and proposed view from Prunedale North Road, near the park and ride lot and the existing U.S. Route 101/State Route 156 interchange looking south.....	90
Figure 2-8 Existing and proposed view from U.S. Route 101 south of Berta Canyon Road looking northbound	91
Figure 2-9 Existing and proposed view of U.S. Route 101 north of Vierra Canyon Road looking east.....	92
Figure 2-10 Existing and proposed view of U.S. Route 101 south of Messick Road looking northbound.....	94
Figure 2-11 Noise Level Equivalentents	138
Figure 2-12 Receivers 12 and 15 and Barrier 2 near U.S. Route 101 and Messick Road (post miles highlighted in light green).....	147
Figure 2-13 Receivers 1, 8, 10 and 15 and Barrier 1 near U.S. Route 101, north of Vierra Canyon Road	148
Figure 2-14 Receivers 2, 3, 10, 11 and Barrier 3 near State Route 156, and U.S. Route 101/State Route 156 interchange (post miles highlighted in light green).....	148
Figure 2-15 Receivers 5 and 7 near State Route 156, east of Castroville Boulevard (post miles highlighted in light green).....	149
Figure 2-16 Receivers 4 and 13 at Charter Oak Road and Cathedral Oak Road and State Route 156 (post miles highlighted in light green)	149
Figure 2-17 Receivers 6, 9 and 14 in the vicinity of State Route 156 and Meridian Road (post miles highlighted in light green).....	150
Figure 2-18 Potential changes to Monterey Spineflower critical habitat primary constituent elements.....	182
Figure 3-1 California Greenhouse Gas Forecast	202
Figure 3-2 Possible Effect of Traffic Operation Strategies in Reducing On-Road CO2 Emission.....	203
Figure 3-3 Cascade of Uncertainties.....	208
Figure 3-4: Mobility Pyramid	211
Figure B-1 Alternative 11—State Route 156 and Castroville Boulevard.....	242
Figure B-2 Figure B-2 Alternative 11—State Route 156 and Cathedral Oak Road.....	244
Figure B-3 Alternative 11—State Route 156 and Oak Hills Road.....	246
Figure B-4 Alternative 11—State Route 156 and Meridian Road.....	248

Table of Contents

Figure B-5 Alternative 11—U.S. Route 101 north of Pesante Road250

Figure B-6 Alternative 11—U.S. Route 101/State Route 156 interchange near Vierra Canyon Road and Berta Canyon Road252

Figure B-7 Alternative 11—U.S. Route 101 near San Miguel Canyon Road254

Figure B-8 Alternative 12—State Route 156 and Castroville Boulevard.....256

Figure B-9 Alternative 12—State Route 156 and Cathedral Oak Road258

Figure B-10 Alternative 12—State Route 156 and Oak Hills Road.....260

Figure B-11 Alternative 12—State Route 156 and Meridian Road.....262

Figure B-12 Alternative 12—U.S. Route 101 north of Pesante Road264

Figure B-13 Alternative 12—U.S. Route 101/State Route 156 interchange near Vierra Canyon Road and Berta Canyon Road266

Figure B-14 Alternative 12—U.S. Route 101 and San Miguel Canyon Road268

Figure B-15 Preferred Alternative 11—State Route 156 and Castroville Boulevard.....270

Figure B-16 Preferred Alternative 11—State Route 156 and Cathedral Oaks Road.....272

Figure B-17 Preferred Alternative 11—State Route 156 and Oak Hills Road274

Figure B-18 Preferred Alternative 11—State Route 156 and Meridian Road.....276

Figure B-19 Preferred Alternative 11—U.S. Route 101 north of Pesante Road278

Figure B-20 Preferred Alternative 11—U.S. Route 101/State Route 156 interchange near Vierra Canyon Road and Berta Canyon Road280

Figure B-21 Preferred Alternative 11—U.S. Route 101 near San Miguel Canyon Road282

Figure J-1 Special-status Impacts for Castroville Boulevard and Moro Cojo Slough.....318

Figure J-2 Special-status impacts for Cathedral Oak Road and Oak Hills Drive.....320

Figure J-3 Special-status impacts for Meridian Area322

Figure J-4 Special-status impacts for U.S. Route 101/State Route 156 interchange area324

Figure K-1 Farmland Mapping326

Figure K-2 2010 Farmland Mapping328

Figure L-1 Census Mapping330

Figure L-2 2010 Census Mapping332

Figure M-1 Land Use Mapping334

Figure M-2 2011 Land Use Mapping336

Figure N-1 Alternative 11 and Alternative 12 Cross Sections338

Figure N-2 Cross sections for U.S. Route 101 and State Route 156340

List of Tables

Summary of Major Potential Impacts from Alternatives..... vii

Table 1.1 Collision Rates in the Proposed Project Area.....5

Table 1.2 Current and Future Traffic Volumes7

Table 1.3 Existing and No-Build Mainline Level of Service8

Table 1.4 Existing and No-Build Intersection Level of Service9

Table 1.5 Comparison of Alternatives13

Table of Contents

Table 1.6 Phases for the Route 156 West Corridor project	19
Table 1.6 Permits and Approvals.....	25
Table 2.1 Land Use Within Project Area.....	28
Table 2.2 Current and Planned Projects—Monterey County	29
Table 2.3 Current and Planned Projects—City of Monterey.....	30
Table 2.4 Current and Planned Projects—City of Marina.....	31
Table 2.5 Current and Planned Projects—City of Seaside	32
Table 2.6 Current and Planned Projects—Castroville	33
Table 2.7 Current and Planned Transportation Projects	33
Table 2.8 Coastal Jurisdictional Wetland and Other Waters Impacts	42
Table 2.9 Top Value Crops in Monterey County in 2011	52
Table 2.10 Farmland Conversion by Alternative.....	55
Table 2.11 Demographic Data	59
Table 2.12 Proposed Property Acquisitions.....	62
Table 2.13 Minority Population Distribution 2010.....	65
Table 2.14 Existing and No-Build Mainline Level of Service	75
Table 2.15 Existing and No-Build Intersection Level of Service	76
Table 2.16 Traffic Volumes	76
Table 2.17 Alternatives 11 and 12 Mainline Level of Service	79
Table 2.18 Alternatives 11 and 12 Intersection Level of Service.....	80
Table 2.19 Flood Zone Designations	99
Table 2.20 Distances and Peak Ground Accelerations	107
Table 2.21 Hazardous Waste Concerns	115
Table 2.22 North Central Coast Air Basin Air Quality Standards and Status	123
Table 2.23 Estimate of Disturbed Area and Daily Grading by Build Alternative.....	133
Table 2.24 Activity Categories and Noise Abatement Criteria	137
Table 2.25 Phase 1 Noise Impact Analysis for Alternatives 11 and 12.....	146
Table 2.25a Phase 2 Noise Impact Analysis for Alternatives 11 and 12.....	147
Table 2.26 Construction Equipment Noise Levels	151
Table 2.27 Potential Impacts to Wetlands and Other Waters of the U.S.....	163
Table 2.28 Anticipated Effects on Listed Animal Species	181
Table 2.29 Anticipated Effects on Listed Plant Species	182
Table 3.1 Analysis for CO ₂ with CTEMFAC V2.5—Mon-156 W (3.9 mi)	205
Table 3.2 Model Year 2015 Miles per Gallon	207
Table 3.3 Climate Change Strategies.....	212
Table 4.1 Agency Meeting Dates and Descriptions.....	220
Table 4.2 Native American Contacts.....	221

List of Abbreviated Terms

Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
FHWA	Federal Highway Administration
NEPA	National Environmental Policy Act
PM	post mile
U.S.	United States

Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans), the Federal Highway Administration and the Transportation Agency for Monterey County propose to widen State Route 156 between U.S. Route 101 and Castroville Boulevard and rebuild the U.S. Route 101/State Route 156 interchange in Monterey County. See Figures 1-1 and 1-2. Two build alternatives and a No-Build Alternative are being considered. One build alternative would convert the existing two-lane conventional highway to a four-lane freeway; the other would convert the existing two-lane conventional highway to a four-lane expressway.

Conventional highways do not have access control. Currently, properties along the highway have direct access to the eastbound and westbound lanes of State Route 156. Expressways and freeways have access controls, so not all properties along State Route 156 will have direct access to State Route 156. Frontage roads and interchanges connected to local roads would provide access to State Route 156.

State Route 156 is an east-west route beginning at State Route 1 in Castroville in Monterey County and ending at State Route 152 near Hollister in San Benito County. State Route 156 is a two-lane conventional highway within the project limits. It serves interregional and recreational traffic linking the Monterey Peninsula to the Bay Area and the Central Valley. State Route 156 goes through agricultural land for much of the route. U.S. Route 101 is a four-lane divided expressway serving interregional traffic, much of it tourist, trucking and commuting traffic. State Route 156 and U.S. Route 101 come together and share the same roadway for 8 miles between Prunedale and San Juan Bautista.

The proposed project is in the 2010 Regional Transportation Plan constrained project list for Monterey County. The project is included in the 2012 State Improvement Program with full funding for the project approval and environmental document phase. The Association of Monterey Bay Area Government's (AMBAG) 2010 Metropolitan Transportation Plan (MTP)/Metropolitan Transportation Improvement Program (MTIP) (as amended October 2012), and the Transportation Agency for Monterey County's (TAMC) 2010 RTP (as amended September 2012) include the project as fiscally constrained in the amount of \$109,194,000 for Phase 1 only.

AMBAG took board action to amend the MTP/MTIP on October 12, 2012 to incorporate the revised schedule and funding as listed in the MTP's list of "Revenue Constrained" projects. Concurrently TAMC, the Regional Transportation Planning Agency (RTPA) took board action to amend the Regional Transportation Planning Agency (RTP) on September 26, 2012. The amendments to the MTP/MTIP and the RTP, as described above, are consistent with the current State TIP, as approved by the California Transportation Commission in April 2012, which programmed the next phases of the project development including Right of Way and Plans, Specifications and Estimates.

Project Vicinity Map

West Corridor Project

State Route 156/US 101

05-MON-156-PM R1.6/T5.2

05-MON-101-PM 94.6/96.8

EA 05-316000

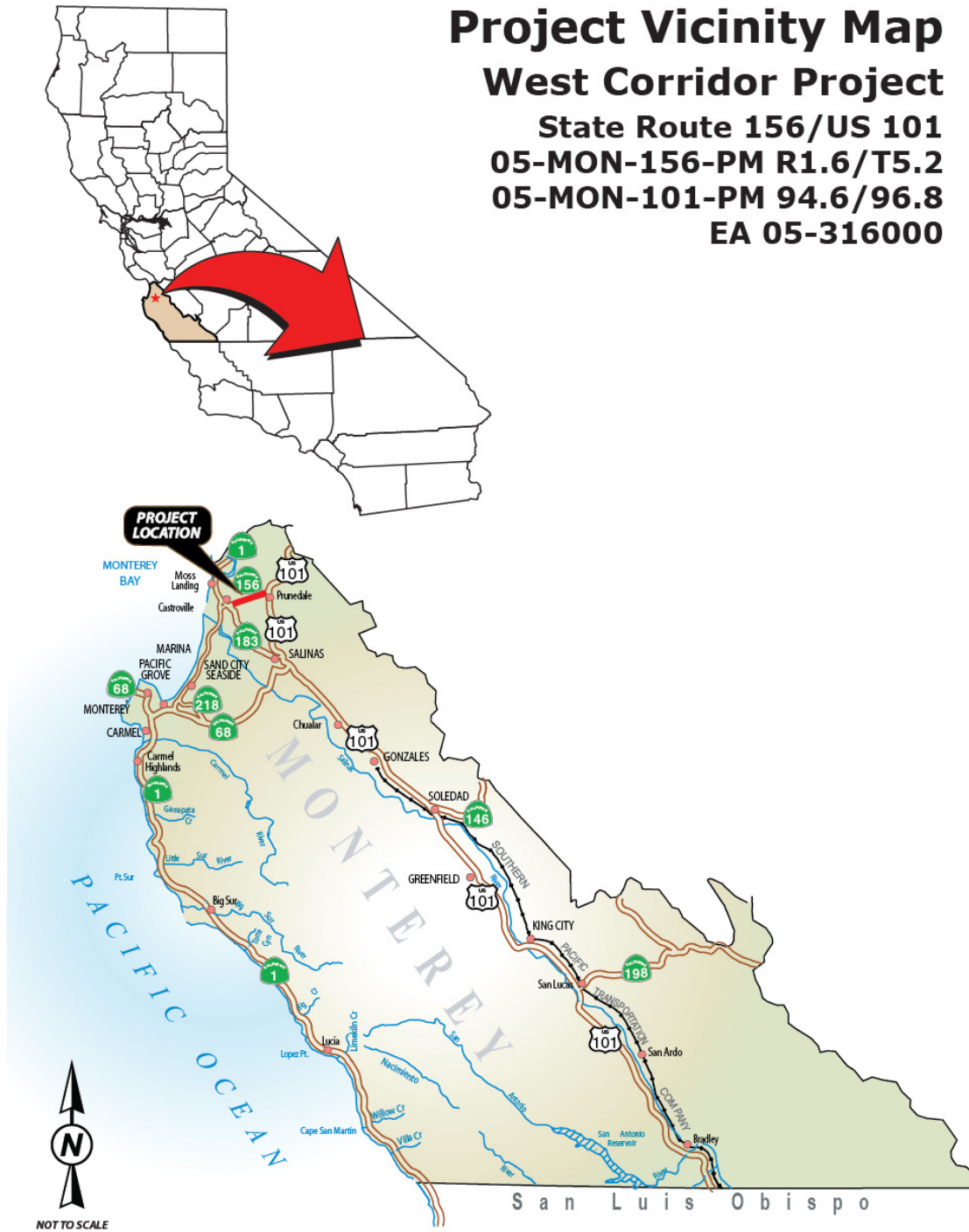


Figure 1-1 Project Vicinity Map

Project Location Map

West Corridor Project

State Route 156/US 101

05-MON-156-PM R1.6/T5.2

05-MON-101-PM 94.6/96.8

EA 05-316000

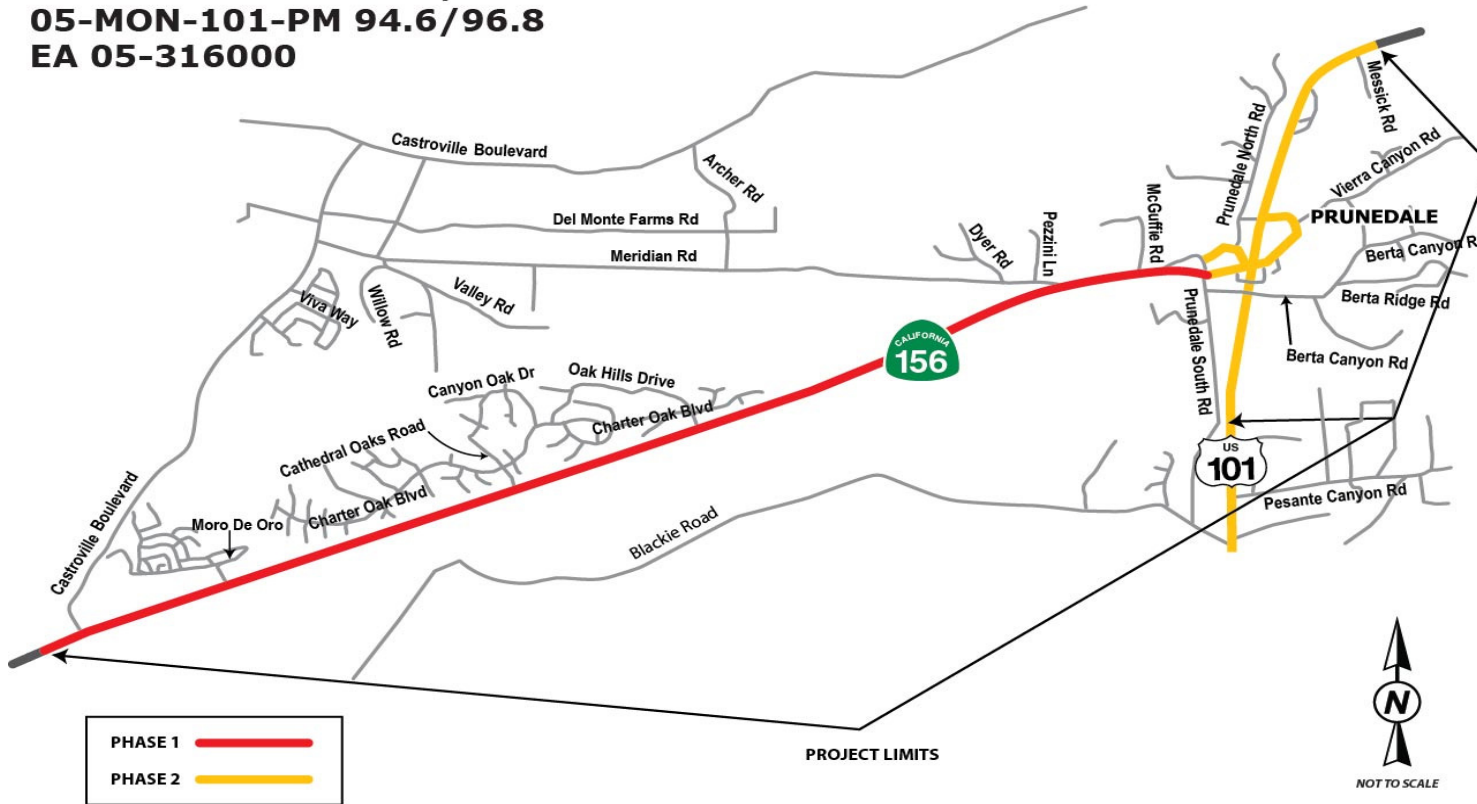


Figure 1-2 Project Location Map

1.2 Purpose and Need

The purpose and need section discusses the reasons for the proposed project and provides structure for the development of alternatives.

1.2.1 Purpose

The purpose of the proposed project is to:

- Improve safety and operations
- Improve local road access to State Route 156
- Improve interregional traffic flow and route continuity along State Route 156
- Relieve existing congestion and provide capacity for future increases in traffic volume

1.2.2 Need

Safety

Recent collision rate information (based on Traffic Accident Surveillance and Analysis System data from July 1, 2007 to June 30, 2010) shows the total collision rate for State Route 156 was 21 percent higher than the state average (see Table 1.1a). Collision rates for northbound and southbound U.S. Route 101 were lower than the state average. There were 182 collisions on State Route 156; there were 52 collisions on northbound and 65 collisions on southbound U.S. Route 101. During this period, construction began on the Prunedale Improvement project on U.S. Route 101. Temporary ramp and road closures, as well as reduced speed requirements associated with highway construction, may have contributed to the reduced collision numbers.

Table 1.1 Collision Rates in the Proposed Project Area

Accident Rates from July 1, 2007 to June 30, 2010 (expressed in accidents per million vehicles)						
Location	Fatal		Fatal and Injury		Totals*	
	Actual	State Average	Actual	State Average	Actual	State Average
State Route 156 post miles 1.4 to 5.4	0.000	0.023	0.38	0.37	1.09	0.86
Northbound U.S. Route 101 post miles 94.4 to 96.6	0.012	0.017	0.21	0.64	0.64	1.73
Southbound U.S. Route 101 post miles 94.4 to 96.6	0.000	0.017	0.26	0.64	0.80	1.73

Source: California Department of Transportation Office of Traffic Engineering 2011

* Totals include other factors, so the Total column will not be the sum of only the Fatal and Fatal + Injury columns

Local Road Access and Interregional Traffic Flow

The existing access provided from State Route 156 to the Oak Hills subdivision requires left turns that cross oncoming traffic going east or returning from the west. These turns are particularly difficult for the Oak Hills residents, who face higher traffic volumes in summer and during the vacation and harvest season, plus commuter traffic during peak travel periods.

Residents of the Monte del Lago mobile home park also face heavy recreational, truck and commuter traffic when traveling to Prunedale or Castroville for shopping, medical appointments, services and employment.

State Route 156 within the project limits is designated as a Terminal Access Route to the National Truck Network. Commodity exports, including agricultural products and quarry materials generate significant truck traffic along State Route 156 and U.S. Route 101. Almost the entire global artichoke crop is produced in California within the Castroville area. These commodities are moved mainly by truck to the San Francisco or Los Angeles areas via U.S. Route 101 or to the interstate system northeasterly on State Route 156. State Route 156 is a key statewide connector because, in conjunction with State Route 152, it is an important east-west corridor south of the Bay Area and north of San Luis Obispo.

Within the project limits, State Route 156 is a two-lane roadway. State Route 156 just west of Castroville Boulevard and next to the U.S. Route 101/State Route 156 interchange is a four-lane roadway. In Monterey County, the two-lane roadway of State Route 156 totals less than 4 miles. The lanes to be added under the Route 156 West Corridor project would make the roadway four lanes all the way—for a continuous four-lane route to and from the Monterey Peninsula.

Capacity and Congestion

Traffic volume and quality of traffic flow are used to analyze capacity and congestion issues:

- Traffic volumes are represented as average annual daily traffic counts, which are the average number of vehicles that pass a given point within a 24-hour period.
- Quality of traffic flow is represented as level of service. Level of service ranges from A to F. Level of service “A” indicates free-flowing traffic, while level of service “F” indicates gridlock and stop-and-go conditions.

A traffic analysis was performed for existing conditions (2006) and design year conditions (2036).

State Route 156 is a major recreational route where Friday and weekend traffic demand can be greater than weekday traffic. Weekend traffic volumes range from 10 to 15 percent higher than weekday afternoon volumes in the westbound direction and 5 to 10 percent higher in the eastbound direction (see Table 1.2).

Table 1.2 Current and Future Traffic Volumes

Location	2006 Average Annual Daily Traffic Volumes	2036 Projected Average Annual Daily Traffic Volumes	2006 Existing Sunday Evening Peak Hour Traffic Volumes	2036 Sunday Evening Peak Hour Traffic Volumes
Eastbound State Route 156 to northbound U.S. Route 101	11,802	12,500	1,133	1,770
Eastbound State Route 156 to southbound U.S. Route 101	1,771	2,188	170	370
Northbound U.S. Route 101 to westbound State Route 156	3,750	4,167	243	380
Southbound U.S. Route 101 to westbound State Route 156	9,219	9,896	885	1,230
Eastbound State Route 156 east of Cathedral Oaks	27,400	40,200	1,382	2,050
Westbound State Route 156 east of Cathedral Oaks	56,779	71,142	1,348	1,810

Source: California Department of Transportation Traffic Operational Analysis 2008

See Table 1.3 for existing and future (projected) level of service values along the mainlines of State Route 156 and U.S. Route 101. Existing weekday morning traffic operates at a level of service D to a level of service E on State Route 156. Existing evening traffic operates at a level of service E to a level of service F on State Route 156. This traffic represents the commuting traffic from residential areas along State Route 156 to employment centers in Salinas and the Bay Area. Projected weekday morning traffic in 2036 would operate at a level of service E to level of service F on State Route 156. Projected weekday evening traffic in 2036 would operate at a level of service F on State Route 156.

Weekend recreational traffic to and from the Monterey Peninsula influences Friday evening and Sunday afternoon peak level of service values. Existing Friday evening traffic operates at a level of service E to a level of service F on State Route 156.

Existing Sunday afternoon traffic operates at a level of service F on State Route 156. Projected Friday evening and Sunday afternoon peak traffic in 2036 would operate at a level of service F on State Route 156.

Existing northbound and southbound U.S. Route 101 peak morning and evening operates at a level of service B to level of service C. Existing Friday afternoon and Sunday evening traffic on southbound U.S. Route 101 operates at a level of service B to level of service C. Existing northbound U.S. Route 101 operates at a level of service C for Friday evening and level of service C to level of service D for Sunday afternoon. Projected weekday morning and evening and Sunday afternoon 2036 traffic would operate at a level of service C to level of service D on southbound U.S. Route 101. Projected Friday evening 2036 traffic would operate at a level of service D to level of service E on southbound U.S. Route 101. Projected weekday morning traffic would operate at a level of service C, and weekday evening traffic would operate at a level of service C to level of service D on northbound U.S. Route 101. Projected 2036 Friday evening traffic would operate at a level of service D and Sunday afternoon 2036 traffic would operate at a level of service E.

Table 1.3 Existing and No-Build Mainline Level of Service

Location	Mainline Level of Service							
	Existing 2006				No-Build Alternative 2036			
	Peak Weekday Morning	Peak Weekday Evening	Peak Friday Evening	Peak Sunday Afternoon	Peak Weekday Morning	Peak Weekday Evening	Peak Friday Evening	Peak Sunday Afternoon
State Route 156	D to E	E to F	E to F	F	F	F	F	F
Northbound U.S. Route 101	B to C	B to C	C	C to D	C	C to D	D	E
Southbound U.S. Route 101	B to C	B to C	B to C	B to C	C to D	C to D	D to E	C to D

Source: California Department of Transportation Traffic Operational Analysis 2008

See Table 1.4 for existing and future (projected) level of service values at the at-grade intersections in the project limits. Five at-grade intersections within the project limits operate at level of service F under existing and projected (2036) traffic conditions: Cathedral Oak Road/State Route 156, Oak Hills Road/State Route 156, Meridian Road/State Route 156 and McGuffie Road/State Route 156. Monte del Lago/State Route 156 existing weekday morning traffic operates at a level of service E but, for all other existing and projected 2036 traffic conditions, the intersection operates at a level of service F.

Table 1.4 Existing and No-Build Intersection Level of Service

Location	Intersection Level of Service							
	Existing 2006				No-Build Alternative 2036			
	Peak Weekday Morning	Peak Weekday Evening	Peak Friday Evening	Peak Sunday Afternoon	Peak Weekday Morning	Peak Weekday Evening	Peak Friday Evening	Peak Sunday Afternoon
Monte del Lago/State Route 156	E	F	F	F	F	F	F	F
Cathedral Oak Road/State Route 156	F	F	F	F	F	F	F	F
Oak Hills Road/State Route 156	F	F	F	F	F	F	F	F
Meridian Road/State Route 156	F	F	F	F	F	F	F	F
McGuffie Road/State Route 156	F	F	F	F	F	F	F	F

Source: California Department of Transportation Traffic Operational Analysis 2008

1.3 Alternatives

Caltrans evaluated reasonable alternatives that would feasibly attain the objectives of the project but would avoid or substantially lessen any significant environmental effects from the project. Evaluation criteria included project cost, environmental impacts, level of service and other traffic data.

Proposed Action

Caltrans proposes to widen State Route 156 between U.S. Route 101 and west of Castroville Boulevard and rebuild the U.S. Route 101/State Route 156 interchange in Monterey County.

Two build alternatives—Alternatives 11 and 12—and a No-Build Alternative are proposed for this project.

Project Purpose

The purpose of the project is to:

- Improve safety and operations
- Improve local road access to State Route 156
- Improve interregional traffic flow and route continuity along State Route 156

- Relieve existing congestion and provide capacity for future increases in traffic volume

Currently, State Route 156 is a two-lane conventional highway with 12-foot-wide lanes and 6- to 8-foot-wide outside shoulders. Along the route are seven at-grade intersections and several private driveways. Left-turn lanes at the intersections allow motorists to turn onto county roads from State Route 156.

The existing U.S. Route 101 within the project limits is a four-lane expressway with 12-foot-wide lanes, 4- to 8-foot-wide outside shoulders, a 16- to 22-foot-wide median and three at-grade intersections that allow right-in, right-out turns. Two interchanges—one at the State Route 156 junction and one at San Miguel Canyon Road—sit in the project limits.

1.3.1 Build Alternatives

Two build alternatives—Alternative 11 and Alternative 12—and a No-Build Alternative are being considered for the project. Escalated project costs are \$268 million for Alternative 11 and \$296 million for Alternative 12. The escalated cost of the project is found by determining the present value of a project and then applying an inflation factor that will determine the project cost at the time the actual expenditures are estimated to occur.

Common Design Features of the Build Alternatives

Alternatives 11 and 12 would include the following (see Appendix B for maps):

- Realign Castroville Boulevard and build a spread diamond interchange at the State Route 156 new alignment, with a compact diamond configuration on the north side and a spread diamond on the south side. New ramps are proposed with 12-foot-wide travel lanes, 4-foot-wide inside shoulders and 8-foot-wide outside shoulders.
- Build a modified partial-cloverleaf interchange in combination with a freeway-to-freeway interchange at the U.S. Route 101/State Route 156 separation, with branch connections for the southbound U.S. Route 101 to westbound State Route 156 and eastbound State Route 156 to northbound U.S. Route 101. New ramps and branch connectors are proposed with 12-foot-wide travel lanes, 4-foot-wide inside shoulders and 8-foot-wide outside shoulders.

- Extend San Miguel Canyon Road from the existing interchange at U.S. Route 101 and connect it to the proposed new interchange at U.S. Route 101/State Route 156 on an alignment parallel to the existing U.S. Route 101.
- Convert U.S. Route 101 from a four-lane expressway to a four-lane freeway with 12-foot-wide lanes, 10-foot-wide outside shoulders and 5-foot-wide inside shoulders within the project limits. The median just south of the northbound connector would be 32.5 feet wide. The median width would transition to 15.8 feet wide just north of the connector.
- Build an overcrossing at Messick Road for access to residential properties on the south side of U.S. Route 101 and close both at-grade intersections that are north of the San Miguel Canyon Road overcrossing.
- Build a bridge for eastbound and westbound traffic at Moro Cojo Slough.
- Install cross culverts, and build basins for drainage improvements.
- Extend the culvert south of Messick Road for Prunedale Creek.
- Connect Vierra Canyon Road to San Miguel Road as a “T” intersection.
- Build a retaining wall at southbound U.S. Route 101.
- Build a retaining wall from the eastbound State Route 156 off-ramp to southbound U.S. Route 101.
- Build a retaining wall at the northbound U.S. Route 101 branch connector.
- Build a retaining wall between the existing U.S. Route 101 and the proposed San Miguel Canyon realignment.
- Build two retaining walls at the existing San Miguel Canyon interchange.
- Relocate underground and aboveground utilities: gas, electrical, cable and telephone.
- Install replacement planting.
- Install Intelligent Transportation Systems to include changeable message signs, highway advisory radio and surveillance loops.
- Install proposed soundwalls for noise abatement.
- Install maintenance vehicle pullouts.

Unique Features of the Build Alternatives

Alternative 11

- Convert existing State Route 156 from a two-lane conventional highway to a four-lane freeway with 12-foot-wide traffic lanes, 10-foot-wide outside shoulders and 5-foot-wide inside shoulders on new alignment south of the existing State Route 156. The median would be 62 feet wide, and the design speed would be 70 miles per hour.
- Turn State Route 156 into a frontage road from Castroville Boulevard to Prunedale North Road.

Alternative 12

- Convert existing State Route 156 from a two-lane conventional highway to a four-lane expressway on the existing alignment by adding two lanes south of the existing State Route 156. The expressway would include 12-foot-wide travel lanes, 10-foot-wide outside shoulders and 5-foot-wide inside shoulders. The median would be 62 feet wide, and the design speed limit would be 70 miles per hour.
- Realign Cathedral Oaks Road, and build a compact diamond interchange at the new State Route 156 alignment. New ramps would have 12-foot-wide travel lanes, 4-foot-wide inside shoulders and 8-foot-wide outside shoulders.
- Connect Meridian Road to Prunedale North Road.

No-Build Alternative

The National Environmental Policy Act and the California Environmental Quality Act require consideration of a No-Build Alternative. The No-Build Alternative has the least environmental impact, but does not address the purpose and need of the project. Under the No-Build Alternative, State Route 156 and the U.S. Route 101/State Route 156 interchange would stay in their present conditions. No improvements would be made to State Route 156 or the U.S. Route 101/State Route 156 interchange. No measures would be taken to increase capacity, reduce congestion, or improve safety and operations. There would be no drainage improvements.

1.3.2 Comparison of Alternatives

Table 1.5 compares the effects of Alternatives 11 and 12 and the No-Build Alternative.

Table 1.5 Comparison of Alternatives

Evaluation Criteria	Alternative 11	Alternative 12	No-Build Alternative
Improve safety	Provides improvement to safety	Provides improvement to safety	Provides no improvement to safety
Improve local road access to State Route 156	Provides the local road access to State Route 156	Provides the local road access to State Route 156	Does not provide adequate local road access to State Route 156
Relieve existing congestion	Provides congestion reduction	Provides congestion reduction	Provides no congestion reduction
Provide for future demand	Effective in meeting future demand	Effective in meeting future demand	Does not accommodate future demand
Wetlands/Other Waters	Perennial jurisdictional wetlands: Permanent impact: 0.95 acre Temporary impact: 0 acre Seasonal jurisdictional wetlands: Permanent impact: 0.9 acre Temporary impact: 2.47 acres Jurisdictional other Waters: Permanent impact: 0.19 acre Temporary impact: 0.65 acre	Perennial jurisdictional wetlands: Permanent impact: 0 acre Temporary impact: 0 acre Seasonal jurisdictional wetlands: Permanent impact: 0.91 acre Temporary impact: 8.95 acres Jurisdictional other Waters: Permanent impact: 1.18 acres Temporary impact: 2.22 acres	No impacts to wetlands/other waters
Threatened/Endangered Species	<u>Animals</u> California tiger salamander: Permanent impact to aquatic habitat: 0.95 acre Temporary impact to aquatic habitat: 2.46 acres Permanent impact to upland habitat: 40.03 acres Temporary impact to upland habitat: 37.73 acres Santa Cruz long-toed salamander: Permanent impact to aquatic habitat: 0.95 acre Temporary impact to aquatic habitat: 2.46 acres Permanent impact to upland habitat: 40.03 acres Temporary impact to upland habitat: 37.73 acres California red-legged frog: Permanent impact to habitat: 5.22 acres Temporary impact to habitat: 7.03 acres <u>Plants</u> Monterey Spineflower: No permanent or temporary impacts. 6.4 acres of critical habitat with primary constituent elements will be permanently modified Yadon's Rein-orchid: No permanent or temporary impacts	<u>Animals</u> California tiger salamander: Permanent impact to aquatic habitat: 8.94 acres Temporary impact to aquatic habitat: 0 acres Permanent impact to upland habitat: 45.46 acres Temporary impact to upland habitat: 28.93 acres Santa Cruz long-toed salamander: Permanent impact to aquatic habitat: 8.94 acres Temporary impact to aquatic habitat: 0 acre Permanent impact to upland habitat: 45.46 acres Temporary impact to upland habitat: 28.93 acres California red-legged frog: Permanent impact to habitat: 14.49 acres Temporary impact to habitat: 5.47 acres <u>Plants</u> Monterey Spineflower: No permanent or temporary impacts. 6.4 acres of critical habitat with primary constituent elements will be permanently modified Yadon's Rein-orchid: No permanent or temporary impacts	No impact to threatened/endangered species

Evaluation Criteria	Alternative 11	Alternative 12	No-Build Alternative
Farmland	Acquisition: 165 acres of farmland, of which 85.5 acres are statewide or local importance No prime or unique farmland affected	Acquisition: 98.02 acres of farmland, of which 53.8 acres are statewide or local importance No prime or unique farmland affected	No acreage impacts to farmland
Soundwalls	Permanent: CEQA—none NEPA—noise abatement measures recommended, 3 proposed soundwalls Temporary: Evening or night construction noise	Permanent: CEQA—none NEPA—noise abatement measures recommended, 3 proposed soundwalls Temporary: Evening or night construction noise	No impact
Relocations	Business: 8 full acquisitions 27 partial acquisitions Residential: Full acquisition: 27 single-family homes 10 mobile homes 2 triplexes Farms: 5 partial acquisitions	Business: 8 full acquisitions 27 partial acquisitions Residential: Full acquisition: 27 single-family homes 10 mobile homes 2 triplexes Farms: 9 partial acquisitions	No residential, farm or business relocation
Cost	Escalated: \$268,000,000 Phase 1: \$109,194,000	Escalated: \$296,000,000	Maintenance and repair costs

Following receipt of public comments on the Draft Environmental Impact Report/Environmental Assessment and circulation of the Final Environmental Impact Report/Environmental Assessment, Caltrans certified the Environmental Impact Report and issued Findings and a Statement of Overriding Considerations under the California Environmental Quality Act. Caltrans issued a Finding of No Significant Impact under the National Environmental Policy Act.

1.3.3 Environmentally Superior Alternative

The California Environmental Quality Act requires the identification of the Environmentally Superior Alternative with the fewest adverse environmental impacts. The No-Build Alternative is not considered as the Environmentally Superior Alternative for the purposes of this discussion.

The build alternatives do not differ greatly in their environmental impacts. Alternatives 11 and 12 are similar in impacts to growth, relocations, emergency services, traffic and transportation, hydrology/floodplain, geology/soils, air quality, noise, plant and animal species.

Alternative 11 would have slightly less impact to wetlands and other waters, natural communities and threatened and endangered species than Alternative 12 would.

Alternative 12 would have fewer impacts to farmland and water quality than Alternative 11 would. Alternative 11 would preserve the existing oak trees on the south side of State Route 156. Alternative 12 would remove the existing oak trees on the south side of State Route 156. Alternative 12 acquires less farmland acres, and less paved area affecting visual resources and has less impervious surface area to contribute to storm water runoff. Alternative 11 would affect more land due to the addition of four new lanes south of the existing State Route 156 alignment.

Alternative 12 would use the existing State Route 156 and would add two lanes along the existing alignment. Alternative 12 is included in the Monterey County's certified Local Coastal Program. Alternative 11 is not included in the Monterey County's certified Local Coastal Program.

Based on these impacts, Alternative 12 would be the environmentally superior alternative.

1.3.4 Identification of the Preferred Alternative

After public circulation of the draft environmental document, Alternative 11, as modified, was selected as the preferred build alternative based on engineering and environmental analysis, and community and agency input. Alternative 11 would improve safety and operations, improve local road access to State Route 156, improve interregional traffic flow and route continuity along State Route 156, and relieve existing congestion and provide capacity for future increases in traffic volume.

Additional reasons for selecting Alternative 11:

- Construction can occur for the project without disrupting through traffic on the existing Route 156. Detours, limited access and out of direction travel would occur under Alternative 12
- Residents adjacent to the existing State Route 156 can still access the highway to tend to business in Castroville, Prunedale, and Salinas during construction of the project. Detours and access roads would need to be constructed under Alternative 12 in order for residents to access to shopping, services and jobs in Castroville, Prunedale and Salinas.
- Construction of a new alignment for State Route 156 would divert interregional traffic away from the residential communities next to State Route 156 and U.S. Route 101. Under Alternative 12, traffic would be moved closer to the residential development adjacent to State Route 156.

- The separate frontage road system using State Route 156 would allow better circulation for local traffic, pedestrians and bicyclists. This would not be available under Alternative 12.
- Fewer permanent impacts to Coast live oak woodland and Riparian habitat
- Fewer permanent impact to seasonal jurisdiction wetlands
- Fewer permanent impact to California tiger salamander aquatic and upland habitat
- Fewer permanent impact to Santa Cruz long-toed salamander aquatic and upland habitat
- Fewer permanent and temporary impact to California red-legged frog habitat

Alternative 11 was modified based on comments received during the public circulation of the draft environmental document. Modified design features for Alternative 11 include the following:

- Convert existing State Route 156 from a two-lane conventional highway to a four-lane freeway with 12-foot-wide traffic lanes, 10-foot-wide outside shoulders and 5-foot-wide inside shoulders on new alignment south of the existing State Route 156. The median would be 46 feet wide, and the design speed would be 70 miles per hour.
- Turn State Route 156 into a frontage road. At the west end, the frontage road would tie into the proposed realigned Castroville Boulevard with minimal right-of-way impact; at the east end, it would connect to the existing Prunedale North Road.
- Realign Castroville Boulevard, and build a compact diamond interchange at the State Route 156 new alignment. New ramps are proposed with 12-foot-wide travel lanes, 4-foot-wide inside shoulders and 8-foot-wide outside shoulders.
- Build an overcrossing at Messick Road for access to residential properties south of U.S. Route 101. On the east, the proposed overcrossing would begin at Messick Road and tie into Lavender Lane on the west. Building the overcrossing would close both at-grade intersections north of the San Miguel Canyon Road overcrossing.
- Build a frontage road connecting Berta Canyon Road and Vierra Canyon Road to separate residential and highway traffic. Berta Canyon Road would no longer directly connect to the rebuilt U.S. Route 101/State Route 156 interchange.

Due to funding constraints, the project would be built in two phases. Phase 1 will start just west of Castroville Boulevard (PM R 1.8) and tie back into existing State Route

156 at Prunedale North Road (PM T4.81). Phase 2 will be constructed at a later date when funds become available; this work includes the U.S. Route 101 and State Route 156 interchange and work along U.S. Route 101 from Pesante Road to just north of Messick Road. The first phase would do the following:

- Convert the existing State Route 156 from a two-lane highway to a four-lane freeway on a new alignment with a 46-foot-wide median. At the east end of the project, the proposed four lanes would transition back to the existing State Route 156 before the U.S. Route 101/State Route 156 separation to the west. The traffic lanes would be 12 feet wide, and outside and inside shoulders would be 10 feet and 5 feet wide. The proposed State Route 156 would be designed based on a 70-mile-per-hour design speed.
- Convert the existing State Route 156 into a frontage road. At the west end, the frontage road would tie into the proposed realigned Castroville Boulevard, with minimal right-of-way impact; at the east end, it would connect to the existing Prunedale North Road.
- Realign Castroville Boulevard, and build a compact diamond interchange at the State Route 156 new alignment. New ramps are proposed with 12-foot-wide travel lanes, 4-foot-wide inside shoulders and 8-foot-wide outside shoulders.
- Build a bridge for eastbound and westbound traffic at Moro Cojo Slough.
- Install cross culverts, and build basins for drainage improvements.
- Relocate underground and aboveground utilities: gas, electrical, cable and telephone.
- Install replacement planting.
- Install Intelligent Transportation Systems, to include changeable message signs, highway advisory radio and surveillance loops.
- Install proposed soundwalls for noise abatement.
- Install maintenance vehicle pullouts.

The proposed project is in the 2010 Regional Transportation Plan constrained project list for Monterey County. The project is included in the 2012 State Improvement Program with full funding for the project approval and environmental document phase. The Association of Monterey Bay Area Government's (AMBAG) 2010 Metropolitan Transportation Plan (MTP)/Metropolitan Transportation Improvement Program (MTIP) (as amended October 2012), and the Transportation Agency for Monterey County's (TAMC) 2010 RTP (as amended September 2012) include the

project as fiscally constrained in the amount of \$109,194,000 for Phase 1 only. AMBAG took board action to amend the MTP/MTIP on October 12, 2012 to incorporate the revised schedule and funding as listed in the MTP's list of "Revenue Constrained" projects. Concurrently TAMC, the Regional Transportation Planning Agency (RTPA) took board action to amend the Regional Transportation Planning Agency (RTP) on September 26, 2012. The amendments to the MTP/MTIP and the RTP, as described above, are consistent with the current State Transportation Improvement Program (STIP), as approved by the California Transportation Commission in April 2012, which programmed the next phases of the project development including Right of Way and Plans, Specifications and Estimates.

According to the Code of Federal Regulations, 23 CFR part 450 only projects included in the federally approved TIP will be eligible for federal funds administered by the FHWA. In metropolitan planning areas, transportation projects requiring funds administered by FHWA shall be included in the Metropolitan Transportation Plan (MTP) and the federal TIP (MTIP). The Metropolitan Planning Organization (MPO) responsible for the development of the MTP and federal TIP for the proposed project is the Association of Monterey Bay Area Governments (AMBAG). The 2012 STIP programmed the funding for the next phases of the project (Plans, Specification and Estimates and Right of Way).

The escalated cost for Alternative 11, which includes Phase 1 and Phase 2, is \$268 million. The escalated cost of the project is found by determining the present value of a project and then applying an inflation factor that will determine the project cost at the time the actual expenditures are estimated to occur. AMBAG's 2010 MTP/MTIP (as amended October 2012), and TAMC's 2010 RTP (as amended September 2012) include the project as fiscally constrained in the amount of \$109,194,000 for Phase 1 only. AMBAG took board action to amend the MTP/MTIP on October 12, 2012 to incorporate the revised schedule and funding as listed in the MTP's list of "Revenue Constrained" projects. Concurrently Transportation Agency of Monterey County (TAMC), the Regional Transportation Planning Agency (RTPA) took board action to amend the Regional Transportation Planning Agency (RTP) on September 26, 2012. The amendments to the MTP/MTIP and the RTP, as described above, are consistent with the current State TIP, as approved by the California Transportation Commission in April 2012, which programmed the next phases of the project development including both Right of Way and Plans, Specifications and Estimates.

See Table 1.6 for an outline of phases for the Route 156 West Corridor Project. See Figure 1.3 for map of Phase 1.

Table 1.6 Phases for the Route 156 West Corridor project

Phase 1	Phase 2
Will not build an interchange at U.S. Route 101/State Route 156 separation	Build a modified partial-cloverleaf interchange in combination with a freeway-to-freeway interchange at the U.S. Route 101/State Route 156 separation, with branch connections for the southbound U.S. Route 101 to westbound State Route 156 and eastbound State Route 156 to northbound U.S. Route 101. New ramps and branch connectors are proposed with 12-foot-wide travel lanes, 4-foot-wide inside shoulders and 8-foot-wide outside shoulders.
Will not extend San Miguel Canyon Road from the existing interchange	Extend San Miguel Canyon Road from the existing interchange at U.S. Route 101 and connect it to the proposed new interchange at U.S. Route 101/State Route 156 on an alignment parallel to the existing U.S. Route 101.
Will not Convert U.S. Route 101 from a four-lane expressway to a four-lane freeway	Convert U.S. Route 101 from a four-lane expressway to a four-lane freeway with 12-foot-wide lanes, 10-foot-wide outside shoulders and 5-foot-wide inside shoulders within the project limits. The median just south of the northbound connector would be 32.5 feet wide. The median width would transition to 15.8 feet wide just north of the connector.
Will not build an overcrossing at Messick Road	Build an overcrossing at Messick Road for access to residential properties south of U.S. Route 101. On the east, the proposed overcrossing would begin at Messick Road and tie into Lavender Lane on the west. Building the overcrossing would close both at-grade intersections north of the San Miguel Canyon Road overcrossing.
Will not build a frontage road connecting Berta Canyon Road	Build a frontage road connecting Berta Canyon Road and Vierra Canyon Road to separate residential and highway traffic. Berta Canyon Road would no longer directly connect to the rebuilt U.S. Route 101/State Route 156 interchange.
Realign Castroville Boulevard and build a tight diamond interchange at the State Route 156 new alignment, with a compact diamond configuration on the north side and a tight diamond on the south side. New ramps are proposed with 12-foot-wide travel lanes, 4-foot-wide inside shoulders and 8-foot-wide outside shoulders.	Will not build an interchange at Castroville Boulevard
Convert the existing State Route 156 from a two-lane highway to a four-lane freeway on a new alignment with a 46-foot-wide median. At the east end, the four lanes would transition back to the existing alignment	At the east end of the four-lane project, the proposed four lanes would intersect with the new interchange
Convert the existing State Route 156 into a frontage road. At the west end, the frontage road would tie into the proposed realigned Castroville Boulevard. At the east end of the frontage road, it would connect to the existing Prunedale North Road.	Will not build a frontage road.

Build bridge at Moro Coho Slough	Will not build a bridge at Moro Coho Slough
Install cross culverts, and build basins for drainage improvements.	Install cross culverts, and build basins for drainage improvements.
Relocate underground and aboveground utilities: gas, electrical, cable and telephone.	Relocate underground and aboveground utilities: gas, electrical, cable and telephone.
Phase 1	Phase 2
Install replacement planting	Install replacement planting
Install Intelligent Transportation Systems, to include changeable message signs, highway advisory	Install Intelligent Transportation Systems, to include changeable message signs, highway advisory
Radio and surveillance loops.	Radio and surveillance loops.
Install proposed soundwalls for noise abatement.	Install proposed soundwalls for noise abatement.
Install maintenance vehicle pullouts.	Install maintenance vehicle pullouts.

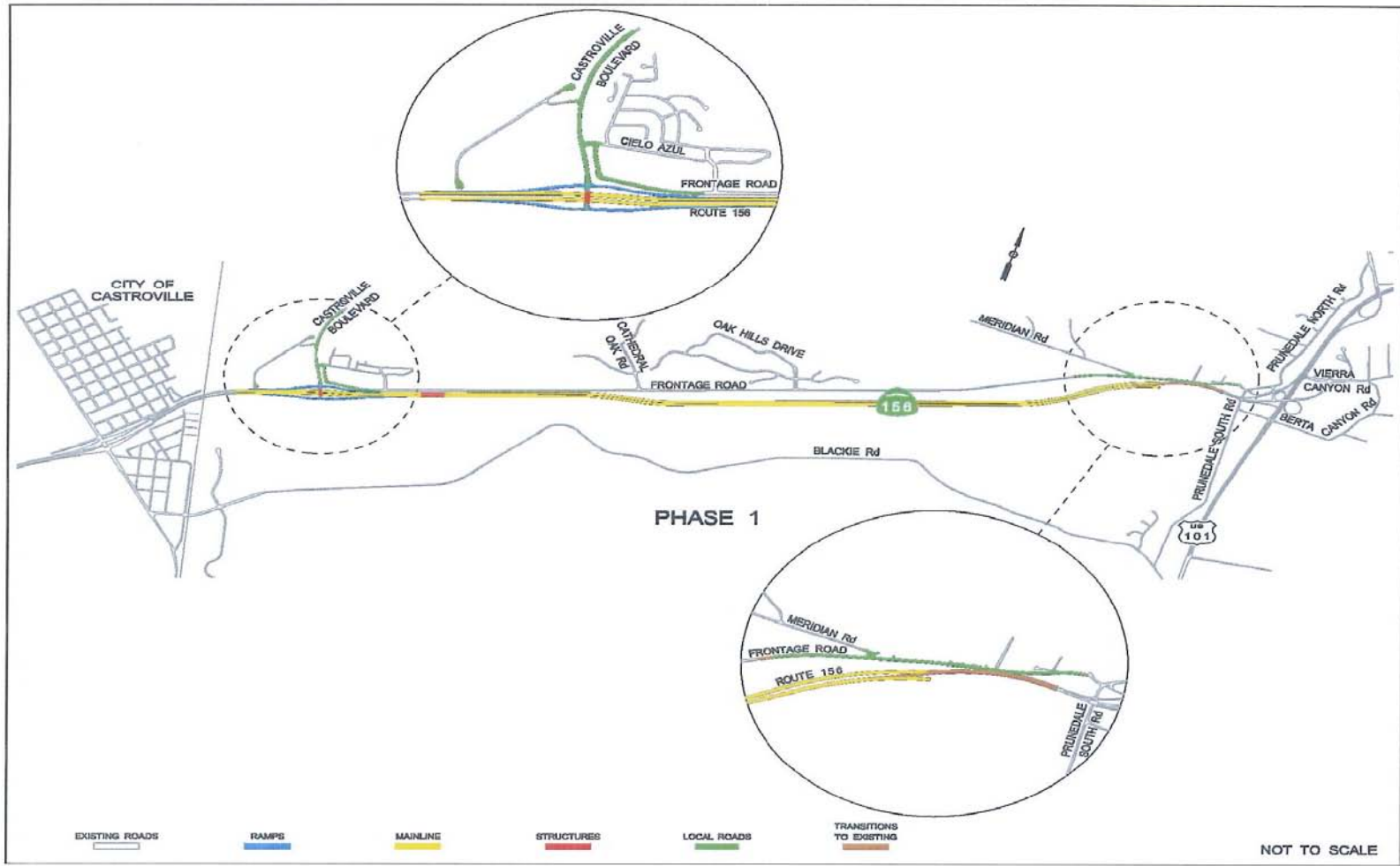


Figure 1.3 Map of Phase 1



1.3.5 Alternatives Considered but Eliminated From Further Discussion

Nine build alternatives were considered and withdrawn for the proposed project. The nine alternatives were a result of combining three roadway alternatives and three U.S. Route 101/State Route 156 interchange alternatives. The U.S. Route 101/State Route 156 interchange alternatives included both high-speed branch connectors and loop ramps.

Alternatives 2 through 10 had the potential to require relocation of three Pacific Gas and Electric tower lines and a local 301B transmission line. Alternatives 2 through 10 included a larger environmental study area footprint than Alternatives 11 and 12 (currently being considered for the Route 156 West Corridor project). Construction would not interfere with the local 301B transmission line at the proposed Castroville Boulevard interchange under Alternatives 11 and 12. Three high-voltage tower lines would remain in position and cross the current and proposed State Route 156 roadway, west of Meridian under Alternatives 11 and 12.

Alternative 1

Alternative 1 is the No-Build Alternative.

Alternative 2 through 4

These alternatives would convert State Route 156 from a two-lane conventional highway to a four-lane divided expressway by building two lanes south of the existing highway. The existing two lanes would become the westbound lanes.

Local road interchanges were considered at Cathedral Oak Road and on a new alignment for Castroville Boulevard for Alternative 2, but not for Alternative 3 or 4.

Improvements to the U.S. Route 101/State Route 156 interchange would include building two flyovers for the eastbound State Route 156 to northbound U.S. Route 101 movement, and for the southbound U.S. Route 101 to westbound State Route 156 movements for Alternative 2, with an off-ramp being considered for Meridian Road. The U.S. Route 101/State Route 156 interchange would be improved by building one flyover, an eastbound State Route 156 to northbound U.S. Route 101 branch connector for Alternative 4. Increased capacity improvements at the U.S. 101/State Route 156 interchange are proposed for Alternative 3.

Alternatives 2 through 4 would remove existing oak trees just south of the existing roadway, require additional farmland acreage, require additional residential relocations, require additional impacts to businesses for two flyover improvements at the U.S. Route 101/State Route 156 interchange, require additional acreage impacts to wetlands and endangered species, greater acreage impacts within the coastal zone for larger facility and overall increased project costs compared to Alternatives 11 and 12.

Alternatives 5 through 7

These alternatives would convert State Route 156 from a two-lane conventional highway to a four-lane divided expressway by building two lanes south of the existing highway. The existing two lanes would become the westbound lanes. The median would be increased to 61 feet along Oak Hills Estate to preserve the oak trees under Alternatives 5 through 7.

Improvements to the U.S. Route 101/State Route 156 interchange would include building two flyovers for the eastbound State Route 156 to northbound U.S. Route 101 movement, and for the southbound U.S. Route 101 to westbound State Route 156 movements for Alternative 5. Increased capacity improvements at the U.S. 101/State Route 156 interchange are proposed for Alternative 6. The U.S. Route 101/State Route 156 interchange would be improved by building one flyover, an eastbound State Route 156 to northbound U.S. Route 101 branch connector for Alternative 7.

Alternatives 5 through 7 would preserve existing scenic oak trees just south of the existing roadway, but would require additional farmland acreage, require additional residential relocations, require additional impacts to businesses for two flyover improvements at the U.S. Route 101/State Route 156 interchange, require additional acreage impacts to wetlands and endangered species, greater acreage impacts within the coastal zone for larger facility and overall increased project costs compared to Alternatives 11 and 12.

Alternatives 8 through 10

This freeway alternative would build four new lanes, converting the existing State Route 156 into a frontage road. Alternatives 8 through 10 would preserve the oaks along the south side of existing State Route 156.

Improvements to the U.S. Route 101/State Route 156 interchange would include building two flyovers for the eastbound 156 to U.S. Route 101 movement, and for the southbound U.S. Route 101 to westbound State Route 156 movements for Alternative 8, with no off-ramp considered at Meridian Road. Increased capacity improvements

at the U.S. Route 101/State Route 156 interchange are proposed for Alternative 9. The U.S. Route 101/State Route 156 interchange would be improved by building one flyover, an eastbound State Route 156 to northbound U.S. Route 101 branch connector for Alternative 10.

Alternatives 8 through 10 would preserve existing scenic oak trees just south of the existing roadway, but would require additional farmland acreage, additional residential relocations, additional impacts to businesses for two flyover improvements at the U.S. Route 101/State Route 156 interchange, additional acreage impacts to wetlands and endangered species, and greater acreage impacts within the coastal zone for larger facility and overall increased project costs compared to Alternatives 11 and 12.

1.4 Permits and Approvals Needed

Table 1.6 lists the permits and approvals that would be required to build the project.

Table 1.6 Permits and Approvals

Agency	Permit/Approval	Status
Monterey County	Local Coastal Development Permit	Before construction
U.S. Army Corps of Engineers	Section 404 Permit; Nationwide Permit 14	Before construction
U.S. Fish and Wildlife Service	Section 7 formal consultation	Biological Opinion received June 2012
California Department of Fish and Game	1602 Streambed Alteration Agreement	Before construction
Regional Water Quality Control Board	401 Water Quality Certification	Before construction
County of Monterey/California Coastal Commission	Local Coastal Program Amendment	Before construction

Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

This chapter explains the impacts that the project would 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 each of the alternatives, and proposed avoidance, minimization, and/or mitigation measures. Any indirect impacts are included in the general impacts analysis and discussions that follow.

As part of the scoping and environmental analysis done for the project, the following environmental issues were considered, but no adverse impacts were identified. Consequently, there is no further discussion regarding these issues in this document:

- **Cultural Resources:** There would be no impacts on cultural resources according to the 2008 Historic Property Survey Report done for this project. A letter of concurrence by the State Historic Preservation Officer is included in Appendix H.
- **Wild and Scenic Rivers:** There are no wild and scenic rivers within the project area (Monterey County General Plan 2008).
- **Parks and Recreation:** Manzanita Park at 17100 Castroville Boulevard in Prunedale is owned by Monterey County. No park property would be acquired for the proposed project. Construction activities are not expected to affect vehicle entry to or exit from the park (Manzanita Regional Park, accessed June 8, 2008, http://www.castrovilleccp.org/ManzanitaPark/park_info.htm).
- **Paleontology:** Paleontology Sensitivity Mapping indicates Quaternary sediments found in the project area have a low potential to contain vertebrate, rare and unusual plant fossils. No evidence of vertebrate, rare or unusual plant fossils were found during paleontology field surveys completed in summer 2007. The University of California Berkeley Paleontology Museum database search concluded that no vertebrate, rare or unusual plant fossils were found within the proposed project area (State of California, Department of Transportation Paleontology Investigative Report December 2007).

2.1 Human Environment

2.1.1 Land Use

Caltrans completed a Community Impact Assessment for this project in April 2009 and updated it in 2012, which included a discussion of land use.

Three land use designations occur in the project area:

- **Agricultural:** applies to the production of crops and livestock, agricultural processing facilities and recreational uses.
- **Residential:** applies to areas used for the development of housing at various densities.
- **Commercial:** applies to areas suitable for the development of retail and service uses, including visitor accommodation and professional office use. Mixed-use developments, including both commercial and residential, are also allowed.

2.1.1.1 Existing and Future Land Use

Affected Environment

Table 2.1 lists the land uses found within the Route 156 West Corridor project area (see Appendix M, Figure M-1 for mapping). About 38 percent of the land use within the project area is zoned agricultural; 58 percent is zoned residential; and 4 percent is zoned commercial based on Monterey County zoning designations. About 86 percent of the land in the project area has a coastal zone designation.

Table 2.1 Land Use Within Project Area

Location	Residential	Commercial	Agricultural
South of State Route 156, east of Castroville Boulevard and west of Prunedale North Road	Rural single-family housing on acreage	Not Applicable	Irrigated row crops, mainly strawberries, and artichokes, some pasture
South of State Route 156, east of U.S. Route 101, north of Pesante Road	Single-family housing and lots	Construction grading and paving operation, auto sales, veterinary clinic	Not Applicable
North of State Route 156, east of Castroville Boulevard and west of Cathedral oaks Road	Mobile home park, medium-density single-family housing and lots	Bar/tavern	Pasture
North of State Route 156, east of Cathedral Oaks, west of Pezzini Lane (includes Meridian Road)	Medium-density single-family housing and lots; rural single-family housing on acreage	Not Applicable	Irrigated row crops, pasture
North of State Route 156, east of Pezzini Lane, west U.S. Route 101, south of Messick Road	Low-density single-family housing and rural single-family housing on acreage, mobile home park, church, senior center, private school	Auto repair operations, gas stations, vehicle sales, Prunedale Shopping Center-offices and retail, medical clinic	Not Applicable
East of U.S. Route 101, south of Messick Road, north of Vierra Canyon Road	Single-family housing and lots, senior center, church, private school, mobile home park	Offices, Retail center - Prunetree Shopping Center-offices and retail, gas stations, service stations/mini marts, lumber yard, auto-wrecking operation	Not Applicable

Source: Monterey County Planning and Zoning Department and field visits 2007

Within the Route 156 West Corridor project area are four Monterey County residential land use designations and one commercial land use designation. Medium-density residential land use (1 to 5 units per acre) is found on the north side of State Route 156 in the vicinity of Simonville, Monte del Lago, Charter Oak Boulevard, Cathedral Oaks Road and Oak Hills Drive (Phase 1). High-density residential land use (5 to 20 units per acre) is designated for land next to Castroville Boulevard and State Route 156 (Phase 2). Low-density rural residential land use (1 unit per 5 acres) is north and south of State Route 156 in the vicinity of Meridian Road and Prunedale South Road (Phase 1) as well as east of the U.S. Route 101/State Route 156 interchange (Phase 2). Rural-density residential land use (5 to 40 units per acres) is north and south of State Route 156 east of Valley Road.

Light-commercial land use is clustered around U.S. Route 101, south of Messick Road and north of Pesante Road (Phase 2). Stores, shops, restaurants, theaters, service stations and general office are uses allowed under light-commercial designations.

Agricultural land use exists north of State Route 156 next to Castroville Boulevard. The main land use south of State Route 156 between Castroville Boulevard and Prunedale South Road is agricultural. See Appendix M, Figure M-1, for a land use map.

Tables 2.2 through 2.6 list the current and planned projects in Monterey County, City of Monterey, City of Marina, City of Seaside, and Castroville, respectively. Table 2.7 lists the current and planned transportation projects in the surrounding area.

Table 2.2 Current and Planned Projects—Monterey County

Name	Jurisdiction	Proposed Uses	Status
Butterfly Village (former Rancho San Juan)	Monterey County Location: North of Salinas, south of Prunedale	Revisions of the Rancho San Juan Project to include addition of an elementary school, increase neighborhood commercial use from 45,000 to 90,000 square feet, inclusionary housing to increase by 14 units, workforce housing to increase by 15 units, 18-hole golf course replaced by a community park, addition of a parking lot for the community park, 71 guest villas/timeshares replaced by 71 hospitality units	Applied permit amended
Auto Sales Business	Monterey County Location: Castroville at the intersection of Walsh and Merritt Street.	Conversion of vacant lot to an auto sales business to include construction of 320-square-foot single-story sales office, 1,700 square feet of outdoor car display area, paving of vacant lot, landscaping, addition of employee/customer parking spaces, bicycle rack	Applied
Apartment Building	Monterey County Location: Castroville at Merritt Street and Poole Street	30 apartment units on 1.53 acres	Applied
Wholesale nursery	Monterey County Location: Intersection of San Miguel Canyon Road and Langley Road in Salinas	Open air retail facility	Applied

Source: Monterey County 2008 and 2012

Table 2.3 Current and Planned Projects—City of Monterey

Name	Jurisdiction	Proposed Uses	Status
Sand Dollar Inn	City of Monterey Location: 755 Abrego	Construct additional 29 hotel rooms and 40-seat lounge; total room count will be 92 when completed	Building permit issued
Monterey Hotel expansion	City of Monterey Location: 406 Alvarado	24-hotel-room addition; 4,611 square feet of retail; 18 apartments	Building exterior completed, interior plan pending
Regency Theater	City of Monterey Location: 426 Alvarado	1,419 square feet of retail; 3,883-square-foot restaurant; 6,338 square feet of office; 11 residential units	Building permit in process
Land Use conversion	City of Monterey Location: 475 Alvarado	2,600 square feet of commercial converted to mixed use; upper floor converts to 3 apartments	Building permit issued
Ocean View Plaza	City of Monterey Location: 480 Cannery Row	87,362 square feet of commercial use; 30,000 square feet of restaurant, 8,408 square feet of coastal/community use; 38 market condominiums, 13 inclusionary housing units, desalination plant	Building permit in process
InterContinental-The Clement Hotel	City of Monterey Location: 700, 750, 751 Cannery Row	Hotel with 208 rooms, 10,200-square-foot meeting area, 95 restaurant seats; 18,581 square feet of retail	Complete
Assisted Living Center	City of Monterey Location: 1110 Cass Street	Residential care facility—81,510 square feet; 115 rooms	Complete
Del Monte Beach Resubdivision	City of Monterey Location: Del Monte Beach	Resubdivision of multiple lots into 14 single-family lots	Building permit in process
Del Monte Shopping Center	City of Monterey Location: Del Monte	New tenant space for Pottery Barn and Williams and Sonoma, and expansion of Whole Foods	Complete
Uptown Monterey	City of Monterey Location: 560 and 570 Munras	25,000 square feet of commercial space	Complete
IMAX theater	City of Monterey Location: 640 Wave Street	290-seat theater	Complete

Source: City of Monterey Development Department 2008 and 2012

Table 2.4 Current and Planned Projects—City of Marina

Name	Jurisdiction	Proposed Uses	Status
The Dunes at Monterey Bay	City of Marina Location: Former Fort Ord site	Mixed-use planned community, 425 acres, east of Highway 1 and south of Imjin Parkway to include: 1,237 homes; regional retail (Target™, REI™, Best Buy™, Bed, Bath and Beyond™, Kohl's™, Old Navy™, and Michaels™); promenade retail (145,000 square feet of residential over retail with a theater and public square); two hotels, 125 rooms and 375 rooms; offices, parks and greenways.	Retail completed in 2007; others to be completed in 2020
Cypress Knolls	City of Marina Location: Lower Patton Park area (former Fort Ord site)	712-unit active adult living community for 55+ year olds to include fitness and wellness center, outdoor and indoor dining, creative arts center, library, classrooms and game room, outdoor tennis courts and bocce courts. All areas will be connected by a recreational trails system.	Project pending
Marina Heights	City of Marina Location: Northern portion of the former Fort Ord	248-acre site to include 1,050 townhouse, cottage, and single-family residential units and 35 acres of parks, greenbelts and open space	Grading and infrastructure improvements completed; building is on hold
Marina Station	City of Marina Location: Part of Armstrong Ranch situated on either side of Del Monte Avenue	320-acre site to include 1,464 residential units, 60,000 square feet of commercial space, 795,432 square feet of business park/industrial space and 30 acres of open space	Approved but building has not started

Source: City of Marina 2008 and 2012

Table 2.5 Current and Planned Projects—City of Seaside

Name	Jurisdiction	Proposed Uses	Status
Seaside Landmark	City of Seaside Location: Intersection of Canyon Del Rey and Del Monte Boulevard	5.79 acres to include a 250-room hotel with 15,000 square feet of conference space and high-density housing	no current proposal
Hotel at Del Monte Boulevard	City of Seaside Location: 1350 Del Monte Boulevard	2.23 acres to include a 95-room hotel and 2,500 square feet of meeting space	no current proposal
City Center	City of Seaside Location: Intersection of Fremont and Broadway	3.88 acres to include 42,000 square feet of retail/restaurant space	Project constructed
Seaside Resort	City of Seaside Location: Bayonet and Black Horse Golf Course	275 room hotel; 175 timeshares; 125 residential lots	Completed, 30 residential lots released for sale
Fort Ord Reuse	City of Seaside Location: Former Fort Ord military installation bordered by Highway 1, Lightfighter Drive, Second Avenue and First Street	Up to 552,000 square feet of retail/entertainment in a lifestyle center to include up to a 250-room hotel and spa	Adopted specific plan in August 2010
Monterey Peninsula Trade and Exposition Center (Former Fort Ord)	City of Seaside Location: Former Fort Ord Area	Approximately 250,000 square feet of convention, trade show and exposition complex space	Proposal stage

Source: City of Seaside Redevelopment Department 2008

Table 2.6 Current and Planned Projects—Castroville

Name	Jurisdiction	Proposed Uses	Status
Cynara Court	City of Castroville Location: West of Merritt Street between Rico and Crane Street	Affordable housing: 40-unit apartment and townhouse development; 950-square-foot commercial center	Construction completed
Cynara Court-second phase	City of Castroville Location: Off Merritt Street between Mead and Washington Street	Affordable housing: 18 apartments, playground, 4,413-square-foot commercial center	Construction completed
Caltrain Station	City of Castroville Location: North of State Route 156 between the Union Pacific Railroad tracks and Castroville Boulevard	Commuter train station platform, passenger drop-off area, parking lot and pedestrian/bike facility. Mixed-income residential housing and commercial uses, open space features and pedestrian trails	Planning stage

Source: City of Castroville 2008 and 2012

Table 2.7 Current and Planned Transportation Projects

Name	Jurisdiction	Proposed Uses	Status
Prunedale Improvement Project	California Department of Transportation Location: On U.S. Route 101 north of Salinas	Transportation: Safety and operational improvements	Construction
San Juan Interchange	California Department of Transportation Location: On U.S. Route 101 in Monterey and San Benito	Transportation: Construct interchange	Construction
Castroville overhead replacement	California Department of Transportation Location: On State Route 156 and Castroville Boulevard	Transportation: Bridge replacement	Planning stage
Castroville centerline rumble strip	California Department of Transportation Location: On State Route 156	Transportation: Install rumble strip	Constructed
Oak Hills access	Monterey County and California Department of Transportation Location: State Route 156 and Oak Hills Road	Transportation: Roadway modifications-alternate access routes out of Oak Hills Community	No longer a project

Source: California Department of Transportation 2008 and 2012

Development Trends

About 1 percent of Monterey County has been developed with residential (0.7 percent), commercial (0.03 percent) and industrial (0.3 percent) uses. Most of this development is concentrated in the northern one-third of the county. Agriculture is the largest land use, representing almost 60 percent of the total land area. The second largest land use consists of public and quasi-public uses (28 percent) for education, transportation, military facilities and recreational/cultural and community facilities.

Development trends in the Monterey Peninsula must be considered because State Route 156 is an east-west connector from U.S. Route 101 to State Route 1 and the Monterey Peninsula. As a connector, it carries a significant number of visitors to the Monterey Peninsula throughout the year. Major development is ongoing or planned for the area (see Tables 2.2 to 2.6). The tourism and hospitality industry in Monterey County is a driving force for development in the City of Monterey and Seaside. Tourism in Monterey County is a \$1.98 billion industry as reported by the Monterey County Convention and Visitors Bureau. According to the State of California, about 7.9 million people visit Monterey County each year.

Development in the project area is guided by the following plans: Monterey County General Plan 2010, Castroville Community Plan 2008, Monterey County's certified Local Coastal Program Land Use Plan and the Monterey County Regional Transportation Plan.

One of the largest developments for the Monterey Peninsula is at the former Fort Ord site. The conversion of Fort Ord from a military installation to civilian use is under the Fort Ord Reuse Authority. Fort Ord sits in northern Monterey County between the cities of Monterey to the southeast and Salinas to the northeast. It borders Monterey Bay to the west and extends from the City of Seaside in the south to the City of Marina in the north to the Salinas River to the east. The military base encompasses 45 square miles covering more than 28,000 acres.

The approved base Reuse Plan calls for substantial commercial economic development. The development includes light industrial, research and development parks, business parks, and retail. The University of California Monterey Bay Education, Science, Technology Center and other industry and research leaders expect more than 1.6 million square feet of research and development/light industry, which will produce 6,000 to 8,000 new jobs. Resort complexes, hotels and conference centers (three to four hotels incorporating conference facilities), golf courses, tennis

courts, an equestrian center, hiking and mountain biking make up the hospitality and recreational uses planned for the area. Close to 4,000 residential units are in the planning or construction phase. Additionally, about 16,000 acres will be retained for habitat conservation and 4,000 acres for recreational uses.

The City of Castroville is planning for a train station to accommodate a passenger rail service extension from Gilroy to Salinas. The train station will be north of the intersection of Blackie Road and Del Monte Avenue. The platform, drop-off area, bus stops and parking will all be on the west side of the tracks.

Caltrans operational and safety projects for U.S. Route 101 and State Route 156 in Monterey County are listed in Table 2.7. These projects are in various stages from planning to construction.

Coastal zone designated land use is discussed in section 2.1.1.3.

Environmental Consequences

Alternative 11

Acquired property currently zoned as residential, commercial, and agricultural would be converted to transportation use under Alternative 11. About 31 percent of this land is currently zoned as low, medium or high residential and rural residential; 61 percent is currently zoned as agricultural; and 8 percent is currently zoned as light or heavy commercial use.

Alternative 12

Acquired property currently zoned as residential, commercial, and agricultural would be converted to transportation use under Alternative 12. About 33 percent of this land is currently zoned as low, medium or high residential and rural residential; 48 percent is currently zoned as agricultural; and 8 percent is currently zoned as light or heavy commercial use. The remaining 11 percent had no recorded land use designation based on review of the Monterey County Planning and Zoning database.

Impacts to coastal zone designated land use are discussed in section 2.1.1.3.

No-Build Alternative

No land would be acquired with the No-Build Alternative, and land use would remain as currently zoned.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Mitigation measures for non-coastal zone agricultural designated land use would not be anticipated. Mitigation measures for coastal zone agricultural designated land use are discussed in section 2.1.1.3.

No-Build Alternative

No mitigation, avoidance, minimization measures would be required.

2.1.1.2 Consistency with State, Regional and Local Plans

The Route 156 West Corridor project lies within the following planning areas: Monterey County General Plan 2010, Castroville Community Plan, Monterey County's certified Local Coastal Program, Monterey County Regional Transportation Plan, and the Elkhorn Slough Conservation Plan.

Affected Environment

Monterey County General Plan 2010 (Phase 1 and Phase 2)

The Monterey County General Plan 2010 is the approved general plan for Monterey County. The plan does not specifically identify this project, but states that priority would be given to the improvement and maintenance of highways and arterial roads that carry a significant amount of people and goods movement, particularly agricultural products. Bicycle and automobile public storage facilities would be encouraged in conjunction with public transportation facilities. Special scenic treatment and design within the right-of-way of officially designated State Scenic Highways would be implemented and may include a provision for scenic outlooks, road lanes, frontage roads, vegetation and highway structures. Through cooperation with the Transportation Agency of Monterey County (TAMC) and Caltrans, Monterey County would monitor key County-maintained roadways, intersections, bikeways and pedestrian facilities to observe and analyze the functioning of these roadways, as well as to identify capacity and safety concerns.

Castroville Community Plan (Phase 1)

Widening State Route 156 to a four-lane expressway is included in the Castroville Community Plan. The plan also includes extending Castroville Boulevard to Blackie Road via the realigned intersection improvement at State Route 156 to provide a truck bypass and access to future areas of planned development. A train station to accommodate a passenger rail service extension from Gilroy to Salinas is planned

north of State Route 156 between the Union Pacific Railroad tracks and Castroville Boulevard. The Castroville Community Plan requires approval from the California Coastal Commission.

Monterey County's Certified Local Coastal Program (Phase 1)

The Monterey County Local Coastal Program, certified by the California Coastal Commission in 1982, with amendments certified in 1987, is implemented through the North County Land Use Plan and the Monterey County Coastal Implementation Plan Part II. These two plans apply to the North County Coastal Area.

According to the North County Land Use Plan, major arterials would need to be upgraded to provide a reasonable level of service and traffic safety. This is particularly true for State Route 156, which connects the Prunedale and Castroville communities. Expanding State Route 156 to four lanes on current alignment, represented as Alternative 12 of the Route 156 West Corridor project, is included in the Monterey County's certified Local Coastal Program Land Use Plan. An amendment to include widening on new alignment south of the existing State Route 156, represented as Alternative 11 of the Route 156 West Corridor project, would be needed. A technical working group of staff from the County of Monterey, Transportation Agency of Monterey County, and Caltrans has met several times to begin the process of amending the Monterey County Local Coastal Program for the Route 156 West Corridor project.

One of the guiding principles under the Coastal Act, beside the protection of natural resources, is coastal access for the public. The Route 156 West Corridor project is one of the largest improvements in decades for public access to the Monterey County coastline. The congestion that the traveling public faces today and into the future is seen as an impediment to free coastal access for Californians that live inland.

Monterey County Regional Transportation Plan (Phase 1 and Phase 2)

The Route 156 West Corridor project is included in the 2010 Monterey County Regional Transportation Plan, which was approved by the Transportation Agency of Monterey County on June 2010. The segment of State Route 156 between Castroville and U.S. Route 101 has been identified as a Focus Route by Caltrans. On September 26, 2012, the Transportation Agency of Monterey County Board of Directors adopted an amendment to the 2010 Monterey County Regional Transportation Plan to incorporate Phase 1 of Alternative 11 for the Route 156 West Corridor Project. The project is now listed on the Constrained Revenue List.

Elkhorn Slough Conservation Plan (Phase 1)

Elkhorn Slough is 100 miles south of San Francisco in the curve of Monterey Bay. The marshes of both Elkhorn and Moro Cojo Slough are included in the Elkhorn Slough Conservation Plan area. Moro Cojo Slough is within the Route 156 West Corridor project limits. Conservation goals for Moro Cojo Slough include protecting marshes and adjacent freshwater wetlands and ponds, and restoring lands suitable for natural habitat. Development of a potential mitigation bank is being considered for transportation projects within the Elkhorn Slough watershed.

Environmental Consequences

Alternatives 11 and 12

Acquired property currently zoned as residential, commercial, and agricultural would be converted to transportation use under both build alternatives (Alternatives 11 and 12). Impacts to coastal zone-designated land use are discussed in section 2.1.1.3.

No-Build Alternative

No land would be acquired with the No-Build Alternative, and land use would remain as currently zoned.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Mitigation measures to non-coastal zone agricultural-designated land use would not be anticipated. Potential mitigation measures for coastal zone agricultural-designated land use are discussed in section 2.1.1.3.

No-Build Alternative

No mitigation measures would be anticipated.

2.1.1.3 Coastal Zone

Regulatory Setting

The proposed project is in a coastal zone. The Coastal Zone Management Act of 1972 is the main federal law enacted to preserve and protect coastal resources. The Coastal Zone Management Act sets up a program under which coastal states are encouraged to develop coastal management programs. States with an approved coastal management plan are able to review federal permits and activities to determine if they are consistent with the state's management plan.

California has developed a coastal zone management plan and has enacted its own law, the California Coastal Act of 1976, to protect the coastline. The policies established by the California Coastal Act are similar to those for the Coastal Zone Management Act; they include the protection and expansion of public access and recreation; the protection, enhancement, and restoration of environmentally sensitive areas; the protection of agricultural lands; the protection of scenic beauty; and the protection of property and life from coastal hazards. The California Coastal Commission is responsible for implementation and oversight under the California Coastal Act.

Just as the federal Coastal Zone Management Act delegates power to coastal states to develop their own coastal management plans, the California Coastal Act delegates power to local governments (15 coastal counties and 58 cities) to enact their own local coastal programs. Local coastal programs determine the short- and long-term use of coastal resources in their jurisdiction consistent with the California Coastal Act goals. A federal consistency determination may be needed as well.

Affected Environment

Monterey County developed its own Local Coastal Program, certified by the California Coastal Commission in 1982. The program includes various certified amendments since 1982. The Monterey County Local Coastal Program is implemented through the North County Land Use Plan and the Monterey County Coastal Implementation Plan Part II. These two plans apply to the North County Coastal Area.

The Route 156 West Corridor project falls within the North County Coastal Area of Monterey County and is within Phase 1 only. The area from the western limit of the proposed project area to about Meridian Road lies within the coastal zone. Based on Monterey County zoning designations, about 38 percent of the land use is zoned agricultural; 58 percent is zoned residential; and 4 percent is zoned commercial. See Figures M-1 and M-2 in Appendix M for land use mapping. Figure M-1 represents land use in 2007 and Figure M-2 represents the current land use. About 86 percent of the land in the project area, from the westernmost limits near Castroville Boulevard to the vicinity of Meridian Road, has a coastal zone designation.

The main objective of the Monterey County Local Coastal Program is to plan for appropriate levels of land use and development in the coastal zone, while protecting coastal resources and providing or maintaining coastal access and recreational

opportunities. A second objective is to maintain the rural character of the North County Coastal Area with its predominant agricultural, low-density (1 unit per 2.5 acres) residential and open space uses, while clustering medium- (1-4 units per acre) and high-density residential development in areas where water, sewer and transportation services are available.

Rural residential and low-density residential land use is recommended for virtually all non-prime land and land not in agricultural preserve contracts in the eastern half of the coastal zone. Areas that have a pronounced residential character and have experienced extensive agricultural divisions are designated low-density residential use. Within the Route 156 West Corridor project area, these areas are along San Miguel Canyon Road, in the Oak Hills area and between Meridian Road and Castroville Boulevard.

High-density residential development is recommended under special treatment designation east of Castroville Boulevard, San Miguel Canyon Road and Monte del Lago area.

Commercial growth is concentrated in existing population centers of Castroville, Prunedale, Watsonville and Salinas. Industrial uses are near major transportation facilities and population centers.

Preservation of agricultural land for exclusive agricultural use is required. Major importance is given to the preservation of large, continuous areas of agricultural land capable of long-term productivity. Coastal agricultural preserve land use is the designated agricultural land use within the proposed project area. Thirteen parcels, about 665 acres, within the project area are zoned as coastal agricultural preserve land use. These parcels sit on the south side of State Route 156 from Castroville Boulevard to just east of Valley Road.

Appreciation of the scenic aspects of the North County Coastal Area is growing. Some roadways in the area have been designated as scenic highways. State Route 156 within the project area is designated as a state scenic highway. The Coastal Act of 1976 stresses that any development permitted in scenic areas should be placed and designed to be visually compatible and subordinate to the natural setting.

A great diversity of plant and animal habitats coexist in the North County Coastal Area. Inland portions support a diversity of sensitive habitats including riparian

corridors, freshwater marshes and maritime chaparral. Also, Moro Cojo Slough lies within the project limits.

The main transportation emphasis of the Coastal Act is to preserve highway capacity for coastal access and coastal-dependent land uses. In any consideration of future development in North County Coastal Planning Area, the capacity of the roads burdened by traffic generated by new development is a major concern. Major roads would need to be upgraded to provide a reasonable level of service and traffic safety. This is particularly true for State Route 156, which connects Prunedale and Castroville, and for county roads that carry heavy traffic volumes between State Route 1 and U.S. Route 101.

Alternative 12 of the Route 156 West Corridor project is included in the North County Coastal Plan for Monterey County. An amendment to the North County Coastal Plan to include Alternative 11 would be required. The portion of the Castroville Community Area plan within the Coastal Zone would require an amendment to the Local Coastal Program certified by the California Coastal Commission.

A technical working group of staff from the County of Monterey, Transportation Agency of Monterey County, and Caltrans has met several times since the circulation of the draft environmental document to begin the process of amending the Monterey County Local Coastal Program for the Route 156 West Corridor project.

Environmental Consequences

Alternatives 11 and 12

The following potential impacts within the coastal zone would occur from construction of the Route 156 West Corridor project (Phase 1 only):

- Visual resources: greater paved area, large amount of earthwork, removal of eucalyptus and oak trees, and addition of an engineered character to the area.
- Biological resources: acreage impacts to coast live oak woodland and riparian natural communities, acreage impacts to the California tiger salamander and Santa Cruz long-toed salamander, aquatic and upland habitat and acreage impacts to California red-legged frog habitat. See Table 2.8 for coastal jurisdictional wetland acreage impacts.
- Farmland: conversion of 105 acres of coastal agricultural preserve land under Alternative 11, and 82 acres of coastal agricultural preserve land under

Alternative 12. Land acquisition for Alternative 11 represents 16 percent of the total acreage that is designated for coastal agricultural preserve land use within the project area. Land acquisition for Alternative 12 represents 13 percent of the total acreage that is designated for coastal agricultural preserve land use within the project area.

- Relocations: relocation of a Pacific Gas and Electric 12-inch gas line west of Monte del Lago. Relocation of aboveground electrical, cable and telephone lines and underground telephone and cable lines.
- Air quality: dust generated from construction activities.

Table 2.8 Coastal Jurisdictional Wetland and Other Waters Impacts

Impact Type	Alternative 11(Phase 1)	Alternative 12
Other Waters of the U.S.-temporary	1.79 acres	1.47 acres
Other Waters of the U.S.-permanent	0.68 acre	0.64 acre
Perennial Wetlands-temporary	0 acre	0 acre
Perennial Wetlands-permanent	0.95 acre	0 acre
Seasonal Wetlands-temporary	2.47 acres	8.95 acres
Seasonal Wetlands-permanent	0.0 acre	0.61 acre

Source: California Department of Transportation Natural Environmental Study 2008

The proposed project avoids all development to beach, dune and estuary areas.

No-Build Alternative

No land would be acquired with the No-Build Alternative, and land use would remain as currently zoned.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Because this project requires a coastal development permit, avoidance, minimization and/or mitigation measures must be consistent with the general policies of the North County Coastal Plan for Monterey County. This section explains how the proposed Route 156 West Corridor project and its proposed avoidance, minimization and/or mitigation measures are consistent with policies in the North County Coastal Plan.

Visual Resources

General Policy 2.2.2, Item 5: Visual Resources. Disturbed slopes should be restored to their previous visual quality. Landscape screening and restoration should consist of plant and tree species complimenting the native growth of the area.

As recommended in the Visual Assessment completed by Caltrans in August 2008, all new slopes along State Route 156 should include contour-grading and slope-rounding where such measures would not cause additional tree removal or adverse effects to other resources. Unnatural-appearing landform remnants should be removed or re-graded. This measure would minimize the engineered appearance of the project and result in a more natural-appearing landform.

Avoidance measures such as slope-warping and timber tree wells should be used to protect existing trees to the greatest extent possible.

As recommended in the Visual Assessment, all trees that cannot be saved should be replaced by native or other horticulturally appropriate trees at a minimum ratio of 5 to 1, in coordination with other tree planting requirements identified in this document. Replacement trees should be planted along the highway corridors within sight of the highways to the greatest extent possible.

The Monterey County Coastal Implementation Plan Regulations for Development in the North County Land Use Plan Area include the following:

Visual Resources Development Standards, Item 2b – The design of structures, including fencing, shall incorporate natural materials, earth-tone colors, and otherwise blend with the rural setting.

Caltrans recommends an aesthetic treatment on all retaining walls and soundwalls visible from the highways or the community for the Route 156 West Corridor project. An aesthetic treatment would soften the urban appearance and would result in the project being more consistent with community aesthetic values.

Include landscaping as part of all bridge structures, retaining walls and soundwalls.

Landscaping would mitigate the urban appearance of the project by using natural elements to reduce the perceived scale of the bridges and walls, filter cumulative views of the ramps, frontage roads and other project features where applicable, and provide a natural transition from the adjacent landscape to the project.

Open-type bridge rail should be used on the Moro Cojo Slough Bridge. Open-style bridge rail would allow better visual access to the creek bed and would be more in keeping with coastal planning policy.

Visual Resources Development Standards Item 2c – Landscaping and lighting shall be unobtrusive and blend with the rural setting. Landscaping shall incorporate native plants common to the area.

As stated in the Draft Visual Assessment, all overhead utility lines affected by the project along State Route 156 should be placed underground where feasible per State Scenic Highway policy.

Biology

General policy 2.3.2, Item 5: Environmentally Sensitive Habitats. Where private or public development is proposed in documented or potential locations of environmentally sensitive habitats, field surveys by qualified individuals or agencies shall be required in order to determine precise locations and to recommend mitigating measures to ensure protection of any sensitive habitat present. The required survey shall document that the proposed development complies with all environmentally sensitive habitat policies.

Caltrans completed a Natural Environment Study in October 2008 to assess the environmental effects of the proposed project on natural resources and special-status species. Field surveys were conducted per federal and state agency guidelines for special-status, endangered and threatened species and natural communities. Mitigation measures are proposed for potential impacts and discussed in the Natural Environment Study. Agency consultation has been ongoing and will continue through permit application.

On June 7, 2012, the U.S. Fish and Wildlife Service issued a Biological Opinion for the Route 156 West Corridor project outlining measures to reduce or avoid short- and long-term impacts of project actions to California red-legged frogs, Santa Cruz long-toed salamanders, and California tiger salamanders. Additionally, discussions with the Department of Fish and Game and Caltrans about the Santa Cruz long-toed salamander's fully protected status are ongoing.

Specific policy 2.3.3 B, Item 5: Riparian, Wetland and Aquatic Habitats. All wetland areas of the North County Coastal Zone shall be protected and preserved for their plant and wildlife values, including but not limited to McClusky Slough, Pajaro River, Salinas River, Salinas River Lagoon, Elkhorn Slough and Moro Cojo Slough. The County's Non-Point Source Pollution Program shall be implemented.

While this project conflicts with policies that prohibit filling of coastal wetlands, mitigation measures such as construction of retaining walls to reduce impacts to perennial and seasonal wetlands, establishment of environmentally sensitive areas, onsite biological monitoring to maintain environmentally sensitive areas throughout construction, and erosion control with appropriate storm water best management practices have been incorporated into the Route 156 West Corridor project.

Additionally, compensation for impacts would include restoring wetland areas to their original condition within the Caltrans highway right-of-way where feasible. If land is unavailable and/or onsite mitigation is not feasible or at high enough levels to accommodate mitigation requirements, additional parcels of appropriate soil and habitat types would be identified as part of an advanced mitigation plan within the Elkhorn Slough watershed. The project is consistent with North County coastal policies.

Water Quality

The proposed project would be designed to remove pollutants from the highway storm water runoff and minimize increases in storm water discharge rates and volume by using best management practices to encourage storage, treatment and infiltration of storm water within the Caltrans right-of-way.

Agriculture

General Policy 2.6.2, Item 2: Agriculture. Divisions of prime and productive farmland, designated as Agricultural Preservation or Agricultural Conservation shall be permitted only when such division does not adversely affect the land's long-term agricultural viability. During the subdivision review process the applicant shall be required to demonstrate that the proposed division will not diminish the economic viability of the agricultural land. All subdivided agricultural parcels must be of size that agricultural use is not diminished.

Caltrans considered measures to convert fewer acres of farmland. Remnant parcels of farmland were avoided as much as possible by acquiring right-of-way in slivers or linear strips of property next to the existing parcels. When possible, farmland would be kept in production (after purchase) until it is needed for construction. Caltrans would provide relocation advisory assistance to any person, business, farm, or non-profit organization that would be displaced, or have onsite investments, such as wells and irrigation systems, displaced as a result of acquisition of real property for public use.

Caltrans proposed a design that would require the smallest possible project footprint necessary to improve safety and operations. Additionally, during project development phases, Caltrans would continue to incorporate design features that further minimize impacts to farmland. During construction, provisions for adequate access would ensure that agricultural operations were not impaired.

Changes to the design for Alternative 11 included shifting the new four lanes closer to the existing State Route 156 alignment on the west end of the project. These changes resulted in reducing impacts to coastal agricultural preserve-designated land use by 6 percent.

If an excess parcel of farmland results from construction, adequate access to water for crop irrigation would be established.

This project lies within the coastal zone, and mitigation for farmland impacts would be a condition of the local coastal permit for this project. Mitigation measures would be determined by the Coastal Commission.

Specific Policy 2.6.3, Item 5: Agriculture. Conversion of Agricultural Conservation lands to non-agricultural uses shall be allowed only if such conversion is necessary to: b) accommodate agricultural-related or other permitted uses which would economically enable continuation of farming on the parcel and adjacent lands.

State Route 156 within the project limits is designated as a Terminal Access Route to the National Truck Network. Commodity exports such as agricultural products generate significant truck traffic along State Route 156 and U.S. Route 101. Almost the entire global artichoke crop is produced in California in the Castroville area. These commodities are almost entirely moved by truck to the San Francisco or Los Angeles areas via U.S. Route 101, or to the interstate system northeasterly on State Route 156. Improvements to State Route 156, which include additional lanes, would support more efficient movement of agricultural commodities.

Air Quality

During construction, the proposed project would generate windblown dust during excavation, grading, hauling, and various other activities. The impacts of these activities would vary each day as construction progresses. Measures to reduce dust impacts would be incorporated in the contract before construction and would comply with Monterey Bay Unified Air Pollution Control District requirements.

Transportation

Key Policy 3.1.1: Transportation: State highways within the North County coastal area should be upgraded to provide a safe and uncongested flow of traffic. Major County roads should be expanded or managed to accommodate traffic volumes at Level of Service C. Public transit should be expanded to provide a viable transportation alternative.

The Caltrans park and ride lot would be relocated to the northwest corner of the new intersection of Prunedale South Road and the frontage road, just west of its current location. The relocated lot would have a lockable locker for bicycles and a pedestrian bus shelter and benches. Use of the locker would be either on a first-come, first-served basis, or it could be coordinated through a reservation system administered by the Monterey Salinas Transit or Monterey County. All pedestrian amenities would meet Americans with Disabilities Act requirements for accessibility. Consideration of pedestrian walkways (sidewalks) is proposed on the local facilities (undercrossings/overcrossings) and at interchange locations.

Under Alternative 11, the existing State Route 156 would become a frontage road that would accommodate most of the local traffic in the area. There is potential to include bike lanes on this frontage road.

The Route 156 West Corridor project is one of the largest improvements in decades for public access to the Monterey County coastline. Congestion that the traveling public faces today and into the future is seen as an impediment to free coastal access for Californians that live inland. The Route 156 West Corridor project, through the selected Alternative 11, would provide congestion-free travel to the coast by car or provide safer pedestrian and bicycle access via the new frontage road.

General Policy 3.1.2, Item 2: Transportation. Highway 156 should be expanded to four lanes of traffic on the current alignment as soon as funds are available.

Alternative 12 would convert the existing State Route 156 from a two-lane conventional highway to a four-lane expressway on the existing alignment by adding two lanes south of the existing State Route 156.

A technical working group of staff from the County of Monterey, Transportation Agency of Monterey County, and Caltrans has met several times to begin the process of amending the Monterey County Local Coastal Program to include the preferred alternative, Alternative 11, for the Route 156 West Corridor project. On September

26, 2012, the Transportation Agency of Monterey County Board of Directors adopted an amendment to the 2010 Monterey County Regional Transportation Plan to incorporate Phase 1 of Alternative 11 for the Route 156 West Corridor Project. The project is now listed on the Constrained Revenue List.

Specific Policy 3.1.3, Item 4: Transportation. Access to new development at Highway 156-Castroville Boulevard intersection should be via Castroville Boulevard.

Both build alternatives propose realigning and building an interchange and ramps at Castroville Boulevard. Improvements to Castroville Boulevard support the planned commuter train station and development proposed by the City of Castroville.

No-Build Alternative

No avoidance, minimization and/or mitigation measures would be anticipated.

2.1.2 Growth

This section addresses the potential for unplanned growth because of the project by looking mainly at the effect of the project on accessibility to jobs from residential areas and the effect of local plans. Secondary factors include housing prices, infrastructure and amenities available in the region.

Regulatory Setting

The Council on Environmental Quality regulations, which implement the National Environmental Policy Act of 1969, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The Council on Environmental Quality regulations, 40 Code Federal Regulations 1508.8, refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, all elements of growth.

The California Environmental Quality Act also requires the analysis of a project's potential to induce growth. California Environmental Quality Act 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 (Phase 1 and Phase 2)

A Growth Inducement Analysis was completed for this project in May 2008 and updated April 2009. Growth inducement effects were determined by analyzing population, employment areas, housing availability, and commuting patterns.

Population

Monterey County's population was approximately 415,057 in 2010 and is expected to increase to 602,732 in 2030 according to the Association of Monterey Bay Area Governments. The county will see the largest growth in the Fort Ord area, Marina and Salinas. Castroville and the Fort Ord area, Seaside and Marina combined will compose roughly 92 percent of the total projected population increase between the years 2005 and 2030 for the residential areas selected for the growth inducement analysis. This increase in population corresponds with a demand for housing and residential development projects, specifically in the Fort Ord area.

Employment

According to projections by the Association of Monterey Bay Area Governments, between the years 2000 and 2030, 65 percent of employment growth will occur in the Silicon Valley, Coyote Valley and Gilroy. Gilroy will experience a 127 percent increase in its employment population from 2005 to 2030, which would account for only a 5 percent share of the total employment growth of the selected employment areas. Salinas has a notable share of the employment increase, 14 percent, between 2005 and 2030.

In general, the employment centers closest to the project area are growing faster than those farther away in the San Francisco Bay Area. All employment centers south of San Jose except Santa Cruz are projected to grow more than or close to 50 percent by 2030 according to Association of Monterey Bay Area Governments. Relative to population or housing, jobs are also projected to grow faster in the Monterey County coastal areas compared with the interior areas along U.S. Route 101. The bulk of the employment, however, is in Santa Clara County.

Housing

Due to the limited supply of remaining residentially zoned vacant land, housing production in the Monterey County will continue to focus on already urbanized areas, particularly as in-fill development. The City of Castroville has adopted specific policies in its general plan to encourage in-fill development and redevelopment. The City of Monterey has adopted a strategy of mixed-use development. The City of

Marina and areas of Monterey County, such as Fort Ord and Castroville, also have plans for major residential projects. These residential development patterns will encourage a residential population growth to specific areas of Monterey County while most jobs will remain in Silicon Valley.

Housing costs are a deciding factor in where people choose to live, and affordable housing can influence commuters to travel long distances to work. The median price of a single-family home in September 2008 was: \$439,000 in Marina; \$619,000 in Monterey; \$325,000 in North Monterey County; and \$335,000 in Seaside/Sand City.

Adequate water supplies are evaluated for proposed developments by Monterey County before development approval.

Commute Time

Commute time is the factor that would most directly be affected by the State Route 156 West Corridor project. Peak-hour commute times between employment centers and residential areas were estimated for all alternatives under consideration for year 2036. Freeway speeds of 35 miles per hour were used to determine peak-hour commute times for freeways outside of the immediate project area. A check was also performed using 45 miles per hour; it produced similar results. Commute times in the project limits were based on forecasted traffic speeds under the three alternatives presented in results of the April 2008 traffic operations analysis.

In February 2012, the District 5 Traffic Operations branch reviewed the July 2008 Traffic Operational Analysis completed for this project and determined the 2008 report is still valid. There have been no new major commercial or housing developments planned in the area that would warrant a new traffic operations analysis. Traffic studies analyze peak conditions, and any minor increase or decrease in these peak volumes would not affect the results in report. Commute times based on the 2008 Traffic Operational Analysis presented in this Growth Inducement section are still valid.

Travel time refers to the overall travel time between residential areas to job centers. Travel time savings are the commute time savings averaged both to and from work.

Environmental Consequences

Alternative 11(Phase 1 and Phase 2) and Alternative 12

Travel times for Alternatives 11 and 12 in 2036 range from 10 minutes to 142 minutes. Either build alternative would result in an uncongested roadway through the

project area, so the travel times for most residential areas to employment centers would be the same. There would be a slight difference in travel time by alternative for trips from Oak Hills Drive because, under Alternative 11, residents from Oak Hills Drive would stay on the frontage road (existing State Route 156) instead of accessing the new freeway. Travel on the frontage road would make these trip times slower by less than one-half minute compared with using the freeway under Alternative 12.

However, other factors in addition to traffic conditions influence growth and prevent unplanned growth, such as resource constraints and land use plans. If accessibility to jobs was the main factor in residential growth, many of the residential areas close to State Route 156 would currently be unable to control the size of their communities. Given the land use controls and the existing level of growth pressures, the proposed project would not generate growth-inducing effects on residential growth, agricultural lands or other undeveloped areas.

The project would not have a substantial growth inducement impact.

No-Build Alternative

Travel times from residential areas to employment centers vary between 10 minutes to 146 minutes depending on the direction and the peak hour (morning or evening peak) under 2036 No-Build Alternative conditions.

The No-Build Alternative would not have a growth inducement impact.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization and/or mitigation measures would be anticipated.

2.1.3 Farmlands

Regulatory Setting

The National Environmental Policy Act and the Farmland Protection Policy Act (FPPA, 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, and Caltrans as assigned, to coordinate with the Natural Resources Conservation Service 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 land of statewide or local importance.

The California Environmental Quality Act 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 deter the early conversion of agricultural and open space lands to other uses.

Affected Environment (Phase 1)

Caltrans completed a Community Impact Assessment for this project in April 2009 and revised it in July 2012. The assessment included a discussion on agriculture.

According to the California Department of Conservation’s Farmland Mapping and Monitoring Program, some 1,300,932 acres of land were dedicated to agriculture in 2010.

According to the Monterey County Agricultural Commissioner, agriculture contributed \$8.2 billion and more than 73,000 jobs to the County’s economy in 2010. The county supplies 80 percent of the nation’s lettuces and nearly the same percentage of artichokes, in addition to other vegetables. Monterey County’s crop production was valued at \$3.85 billion in 2011.

Table 2.9 lists the top value crops for Monterey County in 2011. See Appendix K, Figures K-1 and K-2 for a farmland map.

Table 2.9 Top Value Crops in Monterey County in 2011

Crop	Value
Lettuce (head and leaf combined)	\$1,231,656,000
Strawberries	\$713,854,000
Broccoli	\$297,290,000
Nursery	\$260,703,000
Celery	\$182,308,000
Grapes	\$140,976,000
Cauliflower	\$104,970,000
Spinach	\$88,926,000
Mushrooms	\$78,996,000
Artichokes	\$49,331,000

Source: Monterey County Crop Report 2011

Within Phase 1 of the proposed project limits, agricultural land use is on the south side of State Route 156 between Castroville Boulevard and Meridian Road and the

north side of State Route 156 next to Castroville Boulevard. Strawberries and artichokes are produced on the south side of State Route 156. Land for livestock grazing is on the north and south sides of State Route 156.

According to the University of California Cooperative Extension in Monterey County, strawberries have been produced in the Castroville area for about 40 years. Standard (Albion, Diamonte, Camarosa) and proprietary varieties are grown. Strawberries are planted in late October to early November and drip irrigated. Harvesting begins in late March or early April and ends in September. Yields range from 4,000 to 6,000 11.5-pound crates per acre.

Castroville, the Artichoke Capital of the World, has been producing artichokes since the early to mid-1900s. Artichokes are harvested year-round, mostly for the fresh market, based on information from the University of California Cooperative Extension in Monterey County. The perennial Green Globe is the main variety grown, though some seeded annual artichokes (mostly proprietary varieties) are produced in the area. Perennial artichoke plants are productive for at least 10 years. Perennial artichokes are harvested in the spring and fall and yield 500 boxes per acre. Annual artichokes are harvested for a specific market window over a two- to three-month period for a yield of 500 to 1,000 boxes per acre.

Williamson Act Contract

According to 2009 California Department of Conservation data, 727,659 acres in Monterey County are under Williamson Act contract and 57,936 of those acres are prime farmland. The Williamson Act contract term is 20 years in Monterey County, with automatic renewal each year unless the owner(s) files a notice of non-renewal with the County Board of Supervisors. Two requirements must be met to qualify for the Williamson Act contract: one is the owner(s) should have a minimum of 100 acres (40 acres of prime farmland); the other is the gross agricultural income must be at least \$8,000 per year for three of the last five years. To meet the minimum acreage, property owners can combine efforts and apply together to qualify. There are 340 acres under Williamson Act contract within the project limits. There is no prime farmland within the project limits.

Local Coastal Program Agricultural Lands

Coastal agricultural lands are discussed in the Coastal Zone section 2.1.1.3.

Environmental Consequences

The U.S. Department of Agriculture's Farmland Impact Rating Form AD-1006 is used to determine farmland impacts. The form assigns a total score of up to 260 points, 100 points for relative value of affected farmland plus up to 160 points for the site (or alternative) assessment. Caltrans submitted the acreage converted for the project on Form AD-1006 to the U.S. Department of Natural Resources Conservation Service in Salinas.

Alternative 11(Phase 1)

The Natural Resources Conservation Service office in Salinas determined that, of the 165 agricultural acres that would be converted for the project, 85.5 acres are of statewide or local importance. No prime farmland would be converted for the project. The 165 acres to be converted represent 0.0002 percent of the total county farmland (see Table 2.10).

Alternative 11 scored a total of 151 out of 260 points on the Farmland Conversion Impact Rating Form (see Appendix I). Under the National Farmland Protection Policy Act, a score of at least 160 points is necessary to indicate substantial farmland impacts.

Williamson Act (Phase 1)

Originally, Alternative 11 would acquire 85 acres from a single 340-acre Williamson Act contract parcel. The remaining parcel would be 255 acres and would retain its Williamson Act eligibility in Monterey County. Changes to the design for Alternative 11 included shifting the new four lanes closer to the existing State Route 156 alignment on the west end of the project. Based on these changes, Alternative 11 would now acquire 76 acres from a single 340-acre Williamson Act contract parcel. The remaining parcel would be 264 acres and would retain its Williamson Act eligibility in Monterey County.

Local Coastal Program Agricultural Lands

Coastal agricultural lands are discussed in the Coastal Zone section 2.1.1.3.

Alternative 12

The Natural Resources Conservation Service in Salinas determined that, of the 98.02 agricultural acres that would be converted for the project, 53.8 acres are of statewide or local importance. No prime or unique farmland would be converted for the project. The 98.02 acres to be converted represent 0.0002 percent of the total county farmland (see Table 2.10).

Alternative 12 scored a total of 142.8 out of 260 points on the Farmland Conversion Impact Rating Form (see Appendix I). Under the National Farmland Protection Policy Act, a score of at least 160 points is necessary to indicate substantial farmland impacts.

Williamson Act

Alternative 12 would acquire 49 acres from a single 340-acre Williamson Act contract parcel. The remaining parcel would be 291 acres and would retain its Williamson Act eligibility in Monterey County.

Local Coastal Program Agricultural Lands

Coastal agricultural lands are discussed in the Coastal Zone section 2.1.1.3.

Table 2.10 Farmland Conversion by Alternative

Alternatives	Land Converted (acres)	Prime & Unique Farmland (acres)	Percent of Farmland in County	Percent of Farmland in State	Farmland Conversion Impact Rating
11	165	0	0.0002	0.0006	151
12	98.02	0	0.0002	0.0003	142.8
No-Build	0	0	0	0	0

Source: Form NRCS-CPA-106 (Farmland Conversion Impact Rating for Corridor-Type Projects)

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Both build alternatives include measures to minimize impacts to farmlands:

- Each build alternative proposes a design that would require the smallest possible project footprint necessary to improve safety and operations.
- During project development phases, Caltrans would continue to incorporate design features that further minimize impacts to farmland.
- During construction, provisions for adequate access would ensure that agricultural operations would not be impaired.
- If an excess parcel of farmland results from construction, adequate access to water for irrigation of crops would be established.

- This project lies within the coastal zone, and mitigation for farmland impacts would be a condition of the local coastal permit for this project. See section 2.1.1.3 for discussion of farmland impacts to coastal zone.

No-Build Alternative

No avoidance, mitigation and minimization measures would be required under the No-Build Alternative.

2.1.4 Community Impacts

2.1.4.1 Community Character and Cohesion

Community character and cohesion can best be described as “the feeling of community” experienced by residents. The sense of community can be based on neighborhoods, business centers, local churches, or demographics important to local residents.

Regulatory Setting

The National Environmental Policy Act of 1969, as amended, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings [42 U.S. Code 4331(b)(2)]. The Federal Highway Administration in its implementation of the National Environmental Policy Act [23 U.S. Code 109(h)] directs that final decisions regarding 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 the California Environmental Quality Act, 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. Since 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

Six neighborhoods were identified in the project vicinity. Residents of these neighborhoods consider themselves as part of a neighborhood community. Four of the

neighborhood communities sit along State Route 156, and two are next to U.S. Route 101. Each has distinct characteristics that could be directly or indirectly affected by the proposed project. Additionally, Salinas, Prunedale and Castroville residential site addresses are found within the project area.

The Phase 1 communities along State Route 156 include Bolsa Nuevo, Oak Hills, Monte del Lago and Simonville:

- Bolsa Nuevo, consisting of 500 single-family residences, was established before 1973 and is bounded by Cathedral Oaks Road, Oak Hills Road, and Charter Oak Road.
- Established in 1973, Oak Hills consists of 269 homes and is bounded by Cathedral Oaks Road and Moro Cojo Slough. Homes in Oak Hills range in size from 1,500 square feet to 2,800 square feet. Most of the residents have lived in the two communities for more than 10 years.
- Monte del Lago is a mobile home park that sits next to State Route 156 between Cathedral Oaks Road and Moro Cojo Slough. It has been there for 30 years. The facility includes 310 mobile home sites, a recreation hall, a clubhouse, swimming pools, and fitness rooms.
- Simonville consists of single-family homes, mobile homes and a store/café. It has been at its location next to State Route 156 between Moro Cojo Slough and Castroville Boulevard for more than 50 years.

The Phase 2 communities along U.S. Route 101 are in the vicinity of San Miguel Canyon Road and Vierra Canyon Road:

- The first of the two communities sits on the west side of U.S. Route 101 between Messick Road, just south of San Miguel Canyon Road. This community includes a business and regional park area. The businesses include a regional library, grocery store, hardware store, medical offices and many other basic services. The park, Manzanita Regional Park, is a popular destination for local recreation.
- The second community sits east of U.S. Route 101 between Vierra Canyon Road and Pesante Road. This community includes a gas station, shopping center with grocery store, drug store and restaurants, elementary school and fire station.

Castroville, Salinas and Prunedale are the property addresses that identify residents and businesses along State Route 156 and U.S. Route 101 within the project area.

Residents of Bolsa Nuevo, Oak Hills, Monte del Lago and Simonville use State Route 156 as their main thoroughfare because it provides primary access to local businesses along the U.S. Route 101 corridor and Castroville.

Table 2.11 shows the demographics of the project area.

Table 2.11 Demographic Data

Breakdown	2000 U.S. Census Data Proposed Project Area	2010 U.S. Census Data Proposed Project Area
Total Population	5044	5052
Age (Years)		
Under 5	6.3%	6.4%
5-19	23.8%	20.6%
20-44	32.0%	28.4%
45-54	17.0%	16.1%
55 and Over	21.0%	28.5%
Ethnicity and Race		
Hispanic	34.0%	18%
White	53.0%	70%
Black/African-American	1.1%	1.6%
American Indian, Eskimo	1.0%	2%
Asian	3.9%	5.4%
Hawaiian or Pacific Islander	0.2%	0.5%
Other Race	0.2%	0.5%
Two or More Races	2.6%	2.0%
Family Household Income		
Less than \$10,000	5.0%	1.0%
\$10,000-\$14,999	4.4%	2.4%
\$15,000-\$24,999	8.4%	9.0%
\$25,000-\$34,999	10.3%	7.8%
\$35,000-\$49,999	16.2%	8.2%
\$50,000-\$74,000	21.3%	17.4%
\$75,000-\$99,999	14.5%	12.4%
\$100,000-\$149,999	13.5%	26.2%
\$150,000-or more	5.0%	14.0%
Non-Family Household Income		
Less than \$10,000	6.3%	2.3%
\$10,000-\$14,999	4.4%	4.9%
\$15,000-\$24,999	8.4%	8.5%
\$25,000-\$34,999	10.3%	8.5%
\$35,000-\$49,999	16.2%	12%
\$50,000-\$74,999	21.3%	18.5%
\$75,000-\$99,999	14.5%	16.3%
\$100,000-\$149,999	13.5%	17.3%
\$150,000-or more	5.0%	11.3%
Housing		
Owner Occupied	78%	73%
Renter Occupied	22%	27%

Source: U.S. Department of Commerce, Bureau of the Census 2000 and 2010

Environmental Consequences

Alternatives 11 and 12

Under Alternative 11, the existing State Route 156 would become a frontage road connecting to the Prunedale North and Prunedale South roads. This would improve access to local services and facilities on U.S. Route 101 and to employment centers in Salinas, Prunedale and Castroville, and for travel to the Monterey Peninsula without dangerous at-grade crossings from residential properties on the north side of State Route 156.

For both build alternatives, the proposed overcrossing at Messick Road would allow for access to residential properties on the south side U.S. Route 101. The proposed interchange at Castroville Boulevard would allow access to Salinas through the Blackie Road connection.

In Phase 2, Berta Canyon Road would make a “T” intersection with the proposed Berta Canyon extension based on updates to the design of Alternative 11. These residents could access State Route 156 and U.S. Route 101 by using a new Berta Canyon road extension, which would tee into Vierra Canyon Road and connect to a new section of San Miguel Canyon Road. This new section of San Miguel Canyon Road would access State Route 156 and U.S. Route 101 to the north or the south of Vierra Canyon Road.

By improving circulation, safety and access, these changes would be considered beneficial to residents next to State Route 156.

No-Build Alternative

Residents next to State Route 156 would continue to make at-grade crossings for travel to services and jobs in Prunedale, Castroville and Salinas. Internal and local road connections would continue to be minimal.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation measures are anticipated.

2.1.4.2 Relocation

Residential or business relocations may be necessary when a transportation project requires new right-of-way. A Draft Relocation Impact Report for the project was completed in April 2008. A Final Relocation Impact Report was completed in November 2011.

Regulatory Setting

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 C for a copy of Caltrans' Title VI Policy Statement.

Caltrans' Relocation Assistance Program 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 D for a summary of the Relocation Assistance Program.

Affected Environment (Phase 1 and Phase 2)

Housing in the project area is made up mainly of single-family homes that vary widely in age and style. The area includes large ranch-style housing on acreage, mobile homes, and residential subdivisions with single- and two-story housing. Many homes were built 30 to 50 years ago. Styles include simple wooden cabins, small stucco and wood-sided dwellings, and large traditional or modern houses. The setting of these homes is equally varied, with rural parcels ranging in size from 2.5 acres to more than 50 acres, as well as lots. There are few curbs, gutters or sidewalks in residential areas. One multi-family triplex sits next to U.S. Route 101.

Retail businesses, particularly regional chains, are concentrated in the two shopping centers at Vierra Canyon and San Miguel Canyon roads. The commercial buildings outside the shopping centers are as varied in construction and architectural style as the residential properties and tend to support locally owned businesses. Offices and commercial properties (auto service and sales, auto wrecking and body repair, medical clinic, lumberyard, mini-storage facility, gas stations, rock and landscaping business, and so on) sit along U.S. Route 101 within the project area.

Environmental Consequences

A Final Relocation Impact Report was completed to provide Caltrans, local agencies, and the public with information about the displacement of existing structures and their occupants. The report described the structure and population demographics of each potential displacement and assessed the availability of residential and non-

residential units in the area. The assessment was based on field observations, interviews with real estate professionals, and other sources.

Alternatives 11 and 12

With either build alternative, 39 residential properties would be acquired and 35 businesses would be displaced for construction of the Route 156 West Corridor project (see Table 2.12).

Table 2.12 Proposed Property Acquisitions

Potential Acquisition			Property Type	Full or Partial Acquisition
Total	Phase 1	Phase 2		
27	0	27	Single-family homes	Full
10	1	9	Mobile home	Full
2	0	2	Triplex	Full
35	0	35	Businesses	Full
5 *	0	5	Farms	Partial

Source: California Department of Transportation Final Relocation Impact Report 2011

**Note: Partial farm acquisitions are 5 for Alternative 11, the Preferred Alternative, but would have been 9 partial farm acquisitions for Alternative 12.*

The majority of the single- and multiple-residential properties sit in the eastern portion of the project area near U.S. Route 101 (Phase 2). One property (mobile home) is located in Phase 1. Single-residential properties include houses and mobile homes. The two- to three-bedroom houses are about 40 to 50 years old, and their construction is typical for the area. Single-wide mobile homes are about 15 to 45 years old. Multiple-residential properties front U.S. Route 101.

Business properties also sit along U.S. Route 101. The McDonald's, Country Restaurant, and Valero Gas Station would be full acquisitions and are in Phase 2. Small businesses that would require full acquisition and re-establishment include a rock and landscaping service, an auto repair and sales center, a used tire retailer, a pre-fabricated structure construction center with show lot and sales facility, and a multiple-unit storage facility. Twelve of the affected businesses employ from 1 to 20 people. Twenty-three of the affected businesses employ from 21 to 100 people.

Most of the farms in the project area sit along State Route 156. The project would acquire strips of agricultural properties along State Route 156 in Phase 1 of the project.

No-Build Alternative

No relocations or property acquisition would be necessary with the No-Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Adequate relocation resources exist for homeowners and renters. The housing supply in Prunedale, Salinas, and Monterey is similar to that of the displacement area. The availability of rental housing and apartments varies with the time of year due to the influx of seasonal labor in the agricultural industry. The number of houses for sale each month would meet the needs of those relocated for the project. Based on data obtained from the Monterey County Association of Realtors, it is estimated that 67 business sites would be available to rent, purchase or develop within the area. Replacement resources should be adequate for each business that would be affected by the project, except the McDonald's and Valero gas station. The McDonald's would be able to acquire land and rebuild, but would not likely be within a shopping center like its current location. The Valero gas station would be able to relocate within the community, but would not have the direct access to U.S. Route 101 and State Route 156 that it currently has.

Businesses affected by the proposed project appear to have the financial ability to replace themselves, after monies paid for acquisition, loss of goodwill, and relocation that are paid to the displacement.

Strip acquisition of land off of agricultural parcels abutting State Route 156 would leave adequate acreage for viable agriculture production. Both build alternatives allow for frontage roads to reduce the number of agricultural properties that would be landlocked.

A Caltrans Relocation Agent would contact all displacees and ensure that eligible displacees receive their full relocation benefits and advisory assistance. All activities would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources would be available to all displacees free of discrimination.

The Housing Authority of Monterey County has programs available to assist tenants with low or moderate incomes.

No-Build Alternative

No avoidance, minimization and/or mitigation measures would be required for the No-Build Alternative.

2.1.4.3 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 Bill 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 2012, this was \$23,050 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 shown in its Title VI Policy Statement, provided in Appendix C of this document.

Affected Environment (Phase 1 and Phase 2)

The Environmental Justice section has been updated to include new data from the 2010 Census. Census tract boundaries in Monterey County were redrawn for 2010 data. Census tracts 103.05, 103.06, 105.01 and 147 covered the project area for the 2010 data. See Appendix L, L-2 (2010 Census), for a census map. Twenty-three census blocks (in 2010) in the project contain parcels from which right-of-way acquisition would be necessary to build the project. Table 2.13 shows the 2010 minority population distribution for the census blocks affected by the project.

Table 2.13 Minority Population Distribution 2010

Census Tract/Block	Total Population	Hispanic % (ind)	White % (ind)	Black/ African American % (ind)	American Indian, Alaska Native % (ind)	Asian % (ind)	Hawaiian Native, Pacific Islander % (ind)
103.05/1005	135	62(83)	38(50)	0.0(0)	0.0(0)	0.0(0)	0.0(0)
103.05/2001	623	25(158)	68(428)	1(5)	1(3)	5(29)	0.0(0)
103.05/2011	64	9(7)	75(47)	9(6)	7(4)	0.0(0)	0.0(0)
103.05/2012	10	50(5)	30(3)	0.0(0)	10(1)	10(1)	0.0(0)
103.06/1003	91	60(55)	38(34)	2(2)	0.0 (0)	0.0 (0)	0.0 (0)
103.06/1004	51	24(15)	37(19)	0.0 (0)	15(8)	15(8)	0.0(1)
103.06/1007	33	45(15)	48(16)	6(2)	0.0 (0)	0.0 (0)	0.0 (0)
103.06/1016	4	0.0 (0)	100 (4)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
105.01/3001	1233	35(432)	58(722)	1(12)	0.6(8)	4(55)	0.4(4)
105.01/3002	16	81(13)	19(3)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
105.01/3011	1	100 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
105.01/2044	79	25(20)	58(45)	2(2)	0.0 (0)	14(11)	0.0(1)
105.01/2052	282	20(58)	66(186)	1(3)	2(7)	10(28)	0.0 (0)
105.01/2041	795	30(244)	59(467)	3(20)	1(9)	5(40)	2(15)
147/2000	61	50(31)	48(29)	0.0 (0)	2(1)	0.0 (0)	0.0 (0)
147/2006	628	20(125)	62(389)	2(12)	1(5)	14(90)	1(7)
147/2010	112	26(29)	62(69)	0.0 (0)	1(1)	10(12)	1(1)
147/2019	132	18(24)	64(84)	3(4)	0.0 (0)	15(20)	0.0 (0)
147/2021	13	15(2)	77(10)	0.0 (0)	0.0 (0)	8(1)	0.0 (0)
147/3000	382	37(141)	55(208)	2(9)	1(4)	5(20)	0.0 (0)
147/3001	0	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
147/3021	16	12 (2)	69 (11)	0.0 (0)	0.0 (0)	19 (3)	0.0 (0)
147/4017	291	34(98)	54(158)	2(5)	1(3)	9(27)	0.0 (0)
Project area	5052	30 (1558)	59 (2982)	2 (82)	1 (54)	7 (345)	2 (29)

Source: U.S. Department of Commerce, Bureau of the Census 2012, ind=individuals

The total population for the project area as reported for the 2000 and 2010 censuses was fairly similar, from 5,044 individuals in 2000 to 5,052 individuals in 2010. Six census blocks in 2010 show populations that are predominantly Hispanic:

- Census Tract 103.05, Block 1005, with a total population of 135, is 62 percent Hispanic
- Census Tract 103.05, Block 2012, with a total population of 10, is 50 percent Hispanic
- Census Tract 103.06, Block 1003, with a total population of 91, is 60 percent Hispanic
- Census Tract 105.01, Block 3011, with a total population of one individual, is 100 percent Hispanic
- Census Tract 105.01, Block 3002, with a total population of 16, is 81 percent Hispanic
- Census Tract 147, Block 2000, with a total population of 61, is 50 percent

Otherwise, the percentage of Hispanic to White individuals indicates mixed neighborhoods. These census tracts and blocks sit south of State Route 156 and west of Prunedale South Road; east of U.S. Route 101 and San Miguel Canyon Road; west of U.S. Route 101 and east of Moro Road; and west of U.S. Route 101 and south of State Route 156.

Census data indicate that Asian populations reside in census blocks on the north side of State Route 156 between Cathedral Oak Road and Charter Oak Road, and on U.S. Route 101, north and south of Berta Canyon Road.

According to the 2010 U.S. Census, Monterey County had a household median income of \$54,534 and a family median income of \$59,381. The census data also indicated that about 13 percent of the county's population with incomes in 2010 below poverty limits, were families and about 5.3 percent were 65 years old or older. The average household median income for all of the census tracts affected by the project is approximately \$78,886, and the average family income is approximately \$83,328. The average percentage of families with income below the 2010 poverty level was about 8.9 percent. The average percentage for persons 65 years of age or older with income below the 2010 poverty level was about 4.1 percent, which is 1.2 percent lower than the county average.

Environmental Consequences

Alternative 11

Alternative 11 would require right-of-way acquisition from 109 parcels. About 23 properties are owned by Hispanics, with an estimated 33 percent of the properties requiring full property acquisitions. According to the property data, Hispanics would be affected by the project at percentages lower than that of the total population. The only other ethnic minority property owner identified was Asian. The remaining property acquisitions would be from non-minority property owners, based on surname identification. The majority of the residential relocations are in Phase 2, one mobile home is for Phase 1.

The percentage of minorities in any affected census block is so small that it is unlikely that a disproportionate impact would be made to any of these minority groups. Based on the level of impacts, no disproportionately high or adverse human health and environmental effects would result from the proposed project.

Alternative 12

Alternative 12 would require right-of-way acquisition from 133 parcels. About 25 properties are owned by Hispanics, with an estimated 17 percent requiring full property acquisitions. According to the property data, Hispanics would be affected by the project at percentages lower than that of the total population. The only other ethnic minority property owner identified was Asian. The remaining property acquisitions would be from non-minority property owners, based on surname identification.

The percentage of minorities in any affected census block is so small that it is unlikely that a disproportionate impact would be made to any of these minority groups. Based on the level of impacts, no disproportionately high or adverse human health and environmental effects would result from the proposed project.

No-Build Alternative

The No-Build Alternative would not change the conditions currently experienced by any minority or low-income populations.

Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, Alternatives 11 and 12 would not cause disproportionately high and adverse effects on any minority or low-income populations per Executive Order 12898 regarding environmental justice.

No avoidance, minimization and/or mitigation measures would be anticipated.

2.1.5 Utilities/Emergency Services

Affected Environment

Utilities

Three Pacific Gas and Electric tower lines and a local 301B transmission line cross the current and proposed State Route 156 roadway west of Meridian Road (Phase 1). Pacific Gas and Electric also operates a 12-inch gas transmission line serving the Moss Landing power plant that crosses near State Route 156, west of Meridian Road.

American Telephone and Telegraph operates 14 aerial pole facilities on the north side of State Route 156 from Castroville Boulevard to Moro Cojo Slough. Pacific Gas and Electric operates 10 joint poles in the same area (Phase 1). Both American Telephone and Telegraph and Pacific Gas and Electric operate aerial pole facilities near Meridian Road east to the interchange area (Phase 1). There are also Pacific Gas and

Electric aerial and underground electric and gas lines in the vicinity of the U.S. Route 101/State Route 156 interchange.

American Telephone and Telegraph operates underground copper telephone cable on the north side of State Route 156. Additionally, American Telephone and Telegraph has underground conduits carrying fiber optic and copper telephone lines from south of Berta Canyon Road to north of Vierra Canyon Road (Phase 2).

Charter Communications has aerial and underground cable television near the U.S. Route 101/State Route 156 interchange. Three high-voltage tower lines cross State Route 156 west of Meridian Road (Phase 1).

Emergency Services (Phase 1 and Phase 2)

The Monterey County Sheriff's Department in Salinas provides police services to the project area. The California Highway Patrol has jurisdiction and law enforcement powers on county roads and state highways outside the incorporated cities.

The North County Fire Protection District serves the communities of Prunedale, Castroville, Las Lomas, Moss Landing, Elkhorn, Oak Hills, Royal Oaks, and Pajaro. The district has three stations: one in Royal Oaks, one in Prunedale, and a headquarters station in Castroville. The North County Station Number 2 sits on the north side of Pesante Road in Prunedale east of U.S. Route 101. All fire protection districts and city fire departments in Monterey County participate in a countywide mutual aid agreement.

Environmental Consequences

Utilities

Alternative 11 (Phase 1 and Phase 2) and Alternative 12

Construction would not interfere with the local 301B transmission line at the proposed Castroville Boulevard interchange. Three high-voltage tower lines would remain in position and cross the current and proposed State Route 156 roadway, west of Meridian.

A Pacific Gas and Electric 12-inch gas transmission line west of Monte del Lago must be relocated. The gas line must be buried a minimum of 42 inches deep and encased 5 feet beyond either side of the Caltrans right-of-way. Any aboveground utility poles (American Telephone and Telegraph, Pacific Gas and Electric and Charter Communication cable television) and underground utilities (American

Telephone and Telegraph, Charter Communications cable television) within the proposed project area would be relocated outside of the Caltrans right-of-way.

No-Build Alternative

No utilities would be relocated under the No-Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures

Utilities

Alternatives 11 and 12

Temporary interruption of utility services may occur, but no permanent interruption of utility services is anticipated during relocation.

No-Build Alternative

No avoidance, minimization and/or mitigation measures are required for the No-Build Alternative.

Emergency Services

Alternative 11(Phase 1 and Phase 2)

Under Alternative 11, the existing State Route 156 roadway would become a frontage road, which would provide emergency services such as fire, police and ambulance with safer access to adjacent residences and businesses. The addition of interchanges, undercrossings, and overcrossings to the area would allow for safer crossing of and access to the highway. Caltrans would coordinate route closures and detours during construction with emergency services.

Alternative 12

The addition of interchanges, undercrossings, and overcrossings to the area would allow for safer crossing of and access to the highway. Caltrans would coordinate route closures and detours during construction with emergency services.

No-Build Alternative

Emergency services would continue to experience existing conditions.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Discussion with the North County Fire District is ongoing. During final design, where feasible, measures to minimize impacts to emergency vehicle response times would be made.

No-Build Alternative

No avoidance, minimization and/or mitigation measures would be required for the No-Build Alternative.

2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

Regulatory Setting

Caltrans, as assigned by the Federal Highway Administration, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (23 Code of Federal Regulations 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.

Caltrans is committed to carrying out the 1990 Americans with Disabilities Act by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public would be provided to persons with disabilities.

Affected Environment (Phase 1 and Phase 2)

In February 2012, the District 5 Traffic Operations branch reviewed the July 2008 Traffic Operational Analysis completed for this project and determined that the traffic information in the 2008 report is still valid. There have been no new major commercial or housing developments planned in the area that would warrant a new traffic operations analysis. Traffic studies analyze peak conditions, and any minor increase or decrease in peak volumes would not affect the results in the report. Due to funding constraints, the construction year has been changed to 2018 and the project design year to 2041. The information in the 2008 traffic report remains valid, and the traffic data presented in this section remains unchanged.

The 2008 Traffic Operational Analysis included discussions on congestion and level of service, traffic volumes, weaving (changing lanes and merging) operations, and a combination park and ride lot with bus transit stop.

Level of service is a qualitative measure of operating conditions within a traffic stream and how motorists and/or passengers perceive those conditions. Level of

service generally describes these conditions in terms of speed, travel time, freedom to maneuver, comfort and convenience, and safety (see Figures 2-1 to 2-4).



















<h2 style="text-align: center;">LEVELS OF SERVICE</h2> <p style="text-align: center;">for Freeways</p>			
Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		70	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. No delays
B		70	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. No delays
C		67	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. Minimal delays
D		62	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. Minimal delays
E		53	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. Significant delays
F		<53	Very congested traffic with traffic jams, especially in areas where vehicles have to merge. Considerable delays

Figure 2-1 Level of Service for Freeways

<h2 style="text-align: center;">LEVELS OF SERVICE</h2> <p style="text-align: center;">for Two-Lane Highways</p>			
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 2-2 Level of Service for Two-lane Highways

LEVELS OF SERVICE for Unsignalized Intersections			
Level of Service	Flow Conditions	Delay per Vehicle (seconds)	Technical Descriptions
A		<10	Highest quality of service. Free traffic flow with few restrictions on maneuverability or speed. Very short delay
B		10-15	Stable traffic flow. Speed becoming slightly restricted. Low restriction on maneuverability. No delays
C		15-25	Stable traffic flow, but less freedom to select speed, change lanes or pass. Minimal delays
D		25-35	Traffic flow becoming unstable. Speeds subject to sudden change. Passing is difficult. Minimal delays
E		35-50	Unstable traffic flow. Speeds change quickly and maneuverability is low. Significant delays
F		>50	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 2-3 Level of Service for Intersections Without Signals

LEVELS OF SERVICE for Intersections with Traffic Signals		
Level of Service	Delay per Vehicle (seconds)	
A	≤10	Factors Affecting LOS of Signalized Intersections Traffic Signal Conditions: <ul style="list-style-type: none"> • Signal Coordination • Cycle Length • Protected left turn • Timing • Pre-timed or traffic activated signal • Etc. Geometric Conditions: <ul style="list-style-type: none"> • Left- and right-turn lanes • Number of lanes • Etc. Traffic Conditions: <ul style="list-style-type: none"> • Percent of truck traffic • Number of pedestrians • Etc.
B	11-20	
C	21-35	
D	36-55	
E	56-80	
F	>80	

Source: 2000 HCM, Exhibit 16-2, Level of Service Criteria for Signalized Intersections

Figure 2-4 Level of Service for Intersections With Signals

Refer to Table 2.14 for an overall view of existing and future (2036) level of service values for State Route 156 and U.S. Route 101. Existing weekday morning traffic operates at a level of service D to a level of service E on State Route 156. Existing evening traffic operates at a level of service E to a level of service F on State Route 156. This traffic represents commuters from residential areas along State Route 156 going to jobs in Salinas and the Bay Area. Projected weekday morning traffic in 2036 will operate at a level of service E to level of service F on State Route 156. Projected weekday evening traffic in 2036 will operate at a level of service F on State Route 156 without any improvements.

Weekend recreational traffic to and from the Monterey Peninsula influences Friday evening and Sunday afternoon peak level of service values. Existing Friday evening traffic operates at a level of service E to a level of service F on State Route 156. Existing Sunday afternoon traffic operates at a level of service F on State Route 156. Projected Friday evening and Sunday afternoon peak traffic in 2036 will operate at a level of service F on State Route 156.

Existing northbound and southbound U.S. Route 101 peak morning and evening traffic operates at a level of service B to level of service C. Existing Friday afternoon and Sunday evening traffic on southbound U.S. Route 101 operates at a level of service B to level of service C. Existing northbound U.S. Route 101 operates at a level of service C for Friday evening and level of service C to level of service D for Sunday afternoon. Projected weekday morning and evening, and Sunday afternoon 2036 traffic will operate at a level of service C to level of service D on southbound U.S. Route 101. Projected Friday evening 2036 traffic will operate at a level of service D to level of service E on southbound U.S. Route 101. Projected weekday morning traffic will operate at a level of service C, and weekday evening traffic will operate at a level of service C to level of service D on northbound U.S. Route 101. Projected 2036 Friday evening traffic will operate at a level of service D, and Sunday afternoon 2036 traffic will operate at a level of service E.

Table 2.14 Existing and No-Build Mainline Level of Service

Location	Mainline Level of Service							
	Existing 2006				No-Build Alternative 2036			
	Peak Weekday Morning	Peak Weekday Evening	Peak Friday Evening	Peak Sunday Afternoon	Peak Weekday Morning	Peak Weekday Evening	Peak Friday Evening	Peak Sunday Afternoon
State Route 156	D to E	E to F	E to F	F	E to F	F	F	F
Northbound U.S. Route 101	B to C	B to C	C	C to D	C	C to D	D	E
Southbound U.S. Route 101	B to C	B to C	B to C	B to C	C to D	C to D	D to E	C to D

Source: California Department of Transportation Traffic Operational Analysis 2008

Refer to Table 2.15 for an overall view of existing and future (2036) level of service values for intersections along State Route 156. Five at-grade intersections within the project limits operate at level of service F under existing and projected (2036) traffic conditions: Cathedral Oak Road/State Route 156, Oak Hills Road/State Route 156, Meridian Road/State Route 156 and McGuffie Road/State Route 156.

Monte del Lago/State Route 156 existing weekday morning traffic operates at a level of service E but, for all other existing and projected 2036 traffic conditions, the intersection operates at a level of service F.

Only the Castroville Boulevard/State Route 156 intersection under existing and projected 2036 traffic conditions would operate at a level of service better than F. Peak existing weekday morning traffic operates at level of service B. Peak existing and projected 2036 weekday evening, Friday evening and Sunday afternoon traffic for the Castroville Boulevard/State Route 156 intersection operates at a level of service D without any improvement.

Table 2.15 Existing and No-Build Intersection Level of Service

Location	Intersection Level of Service							
	Existing 2006				No-Build Alternative 2036			
	Peak Weekday Morning	Peak Weekday Evening	Peak Friday Evening	Peak Sunday Afternoon	Peak Weekday Morning	Peak Weekday Evening	Peak Friday Evening	Peak Sunday Afternoon
Castroville Boulevard/State Route 156	B	D	D	D	E	D	D	D
Monte del Lago/State Route 156	E	F	F	F	F	F	F	F
Cathedral Oak Road/State Route 156	F	F	F	F	F	F	F	F
Oak Hills Road/State Route 156	F	F	F	F	F	F	F	F
Meridian Road/State Route 156	F	F	F	F	F	F	F	F
McGuffie Road/State Route 156	F	F	F	F	F	F	F	F

Source: California Department of Transportation Traffic Operational Analysis 2008

State Route 156 is a major recreational route where Friday and weekend traffic demand can be greater than weekday traffic. Weekend traffic volumes range from 10 to 15 percent higher than weekday afternoon volumes in the westbound direction and 5 to 10 percent higher in the eastbound direction (see Table 2.16).

Table 2.16 Traffic Volumes

Location	2006 Average Annual Daily Traffic Volumes	2006 existing Peak Sunday Afternoon Traffic Volumes	2036 Projected Average Annual Daily Traffic Volumes	2036 Peak Sunday Afternoon Traffic Volumes
Eastbound State Route 156 to northbound U.S. Route 101	11,802	1,133	12,500	1,770
Eastbound State Route 156 to southbound U.S. Route 101	1,771	170	2,188	370
Northbound U.S. Route 101 to westbound State Route 156	3,750	243	4,167	380
Southbound U.S. Route 101 to westbound State Route 156	9,219	885	9,896	1,230
Eastbound State Route 156, east of Cathedral Oaks	27,400	1,382	40,200	1,530
Westbound State Route 156, east of Cathedral Oaks	56,779	1,348	71,142	1,430

Source: California Department of Transportation Traffic Operational Analysis 2008

A combination park and ride lot and bus transit stop was built in 2006 on the west side of U.S. Route 101 near Meridian Road as part of the changes to the U.S. Route 101/State Route 156 interchange. The parking lot can accommodate about 35 vehicles, including two handicap-accessible spaces, and provides a lockable locker for two bicycles. The lot is landscaped and includes ornamental lighting. The bus stop includes a shelter, benches, and a trash container.

Monterey Salinas Transit operates an express line from Monterey to San Jose along State Route 1 in Monterey through State Route 156 and U.S. Route 101. Bus stops are provided at the Caltrans park and ride lot near U.S. Route 101 and at the Caltrans stations in Gilroy, Morgan Hill and San Jose. Three trips a day during the week accommodate commuters to employment centers in the Silicon Valley.

The Transportation Agency for Monterey County is sponsoring a project called the Commuter Rail Extension to Monterey County Project, which would extend rail service south to Salinas as discussed in the 2010 Regional Transportation Plan. The extension includes three new station stops: Pajaro/Watsonville, Castroville and Salinas.

Environmental Consequences

Alternatives 11 and 12

Peak weekday morning and evening traffic and peak Friday evening traffic would operate at a level of service B on westbound State Route 156 under Alternative 11. Peak weekday evening traffic would operate at a level of service A to a level of service B on westbound State Route 156 under Alternative 11. This is an improvement from the existing conditions, level of service D to level of service F, for the existing State Route 156. Peak Friday evening traffic would operate at a level of service B on westbound State Route 156 under Alternative 11. This is an improvement from the existing conditions, level of service E to level of service F, for existing State Route 156. Peak Sunday afternoon traffic would operate at a level of service B for State Route 156 under Alternative 11. This is an improvement from the existing Sunday peak afternoon traffic that operates at a level of service F for westbound State Route 156.

Peak weekday morning traffic and Sunday afternoon traffic would operate at a level of service A on eastbound State Route 156 under Alternative 11. This is an improvement from the existing conditions, level of service D to level of service E and level of service F, respectively. Peak weekday evening traffic would operate at a level

of service B to level of service C under Alternative 11. This is an improvement from existing conditions, level of service E to level of service F.

The new frontage road (old State Route 156) under Alternative 11 would operate at a level of service A. Much of the interregional traffic would use the four additional lanes south of the existing State Route 156, allowing for a smooth flow of local traffic traveling the frontage road.

Peak weekday morning traffic would operate at a level of service B to a level of service C on westbound State Route 156 under Alternative 12. This is an improvement from the existing conditions (level of service D to level of service E). Peak weekday evening traffic would operate at a level of service A to a level of service B on westbound State Route 156 under Alternative 12. This is an improvement from the existing conditions (level of service E to level of service F). Peak Friday evening traffic would operate at a level of service B on westbound State Route 156 under Alternative 12, an improvement from the existing conditions of level of service F. Peak Sunday afternoon traffic would operate at level of service B to level of service C with Alternative 12. This is an improvement from the existing conditions (level of service F).

Peak weekday morning traffic would operate at a level of service A on eastbound State Route 156 under Alternative 12. This is an improvement from the existing conditions (level of service E to level of service F). Peak weekday evening, peak Friday evening and peak Sunday afternoon traffic for eastbound State Route 156 would operate at a level of service C under Alternative 12. This is an improvement from existing conditions, for peak weekday evening, peak Friday evening and peak Sunday afternoon traffic of level of service F.

Overall, Alternative 11 shows an improved level of service greater than Alternative 12. Even though both Alternative 11 and Alternative 12 offer a four-lane roadway, the frontage road under Alternative 11 allows for separation of local traffic from interregional traffic. Local and interregional traffic would be competing for the same lane space under Alternative 12.

Table 2.17 Alternatives 11 and 12 Mainline Level of Service

Location	Mainline Level of Service							
	Alternative 11 in 2036				Alternative 12 in 2036			
	Peak Weekday Morning	Peak Weekday Evening	Peak Friday Evening	Peak Sunday Afternoon	Peak Weekday Morning	Peak Weekday Evening	Peak Friday Evening	Peak Sunday Afternoon
Westbound State Route 156	B	A to B	B	B	B to C	A to B	B	B to C
Eastbound State Route 156	A	B to C	B to C	A	A	C	C	C
New Frontage Road (Old State Route 156)	A	A	A	A	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Northbound U.S. Route 101	B to C	B to C	C	C to D	B to C	B to C	C	C to D
Southbound U.S. Route 101	B to C	B to C	C to D	C	B to C	B to C	C to D	B to C

Source: California Department of Transportation Traffic Analysis 2008

Northbound and southbound traffic on U.S. Route 101 for peak weekday morning and evening periods operates at a level of service B to level of service C under Alternatives 11 and 12 and is the same as the existing condition level of service. Peak Friday evening traffic operates at a level of service C under Alternatives 11 and 12 and for the existing 2006 conditions for northbound U.S. Route 101. Peak Sunday afternoon traffic for southbound U.S. Route 101 operates at a level of service C under Alternative 11. This is similar to the 2006 existing condition level of service B to level of service C for southbound U.S. Route 101 for peak Sunday afternoon traffic.

Both build alternatives would not address the section of U.S. Route 101 in the area of the off-ramp to San Miguel Canyon Road. Additional capacity on the mainline at this section of southbound U.S. Route 101 would be required to improve the level of service. The northbound and southbound portions of U.S. Route 101 within the project limits would experience congestion during the peak Friday evening and Sunday afternoon traffic. The southbound U.S. Route 101 off-ramp to San Miguel would have a level of service F for Friday evening and level of service E for Sunday afternoon. The northbound U.S. Route 101 off-ramp to San Miguel Canyon Road would have a level of service D for peak Friday evening and Sunday afternoon traffic.

All intersections along State Route 156 would have capacity to accommodate future demand for weekday traffic under Alternatives 11 and 12 (see Table 2.18). Peak weekday morning and evening, Friday evening and Sunday afternoon traffic would operate at a level of service B under Alternative 11 for Cathedral Oak, Oak Hills, Meridian and McGuffie Roads. This is an improvement from the existing conditions

(level of service F) for those intersections. Peak weekday evening, Friday evening and Sunday afternoon traffic would operate at a level of service A for Castroville Boulevard under Alternative 11, an improvement from the existing conditions (level of service D). Peak weekday morning (level of service B), peak weekday evening (level of service A), Friday evening (level of service B) and Sunday afternoon (level of service A) traffic for Monte del Lago under Alternative 11 would improve from the existing conditions (level of service F). Under Alternative 11, all five intersections would have access to the frontage road (existing State Route 156).

Peak weekday morning and Sunday afternoon traffic for Castroville Boulevard would operate at a level of service B under Alternative 12, an improvement from level of service D and level of service E for existing conditions (see Table 2.15). Peak weekday and Friday evening traffic for Castroville Boulevard would operate at a level of service A under Alternative 12, an improvement from level of service D for existing conditions. Under Alternative 12, Monte del Lago, Meridian Road, and McGuffie Road would no longer have direct access to State Route 156; access to State Route 156 would be through frontage roads. Oak Hills Road would have direct access to State Route 156, but the configuration of the intersection would allow only right turns. The State Route 156 intersection with Cathedral Oaks would be replaced by a diamond interchange.

Table 2.18 Alternatives 11 and 12 Intersection Level of Service

Location	Intersection Level of Service							
	Alternative 11 in 2036				Alternative 12 in 2036			
	Peak Weekday Morning	Peak Weekday Evening	Peak Friday Evening	Peak Sunday Afternoon	Peak Weekday Morning	Peak Weekday Evening	Peak Friday Evening	Peak Sunday Afternoon
Castroville Boulevard/State Route 156	B	A	A	A	B	A	A	B
Monte del Lago/State Route 156	B	A	B	A	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cathedral Oak Road/State Route 156	B	B	B	B	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Oak Hills Road/State Route 156	B	B	B	B	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Meridian Road/State Route 156	B	B	B	B	Not Applicable	Not Applicable	Not Applicable	Not Applicable
McGuffie Road/State Route 156	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Source: California Department of Transportation Traffic Operational Analysis 2008

The addition of lanes and ramps for the project would increase capacity, but the effects would be offset with improvement in the level of service for the roadway.

The existing park and ride facility on the west side of U.S. Route 101 near Meridian Road would be removed for the reconstruction of the U.S. Route 101/State Route 156 interchange. The bus stop for the Monterey Salinas Transit express line to San Jose, located at the Caltrans park and ride lot, would not be accessible during reconstruction of the U.S. Route 101/State Route 156 interchange.

Parking lots at two strip malls—Prunetree and Prunedale shopping centers—would be affected. Major tenants of Prunetree Shopping Center include McDonald's, Safeway, CVS (previously Longs Drugs), and Auto Zone as well as small-business retailers.

Existing hook-ramps to and from northbound U.S. Route 101 at Vierra Canyon Road would be removed. This would eliminate the lane-changing section between the loop on-ramp from eastbound State Route 156 to northbound U.S. Route 101. A branch connector would provide direct movement from eastbound State Route 156 to northbound U.S. Route 101, easing recreational traffic movement from the Monterey Peninsula on the weekends. Another branch connector would provide direct movement from southbound U.S. Route 101 to westbound State Route 156, easing recreational traffic movement to the Monterey Peninsula on weekends.

No-Build Alternative

Peak weekday evening and morning, Friday evening and Sunday afternoon traffic for State Route 156 would operate at a level of service E to level of service F under future conditions (2036) (see Table 2.14). Both northbound and southbound U.S. Route 101 traffic would experience congestion with a level of service ranging from C to E for peak weekday morning and evening, Friday evening and Sunday morning periods in 2036.

Analysis of the future (2036) conditions indicates the six State Route 156 intersections would continue to operate at an unsatisfactory level of service D to level of service F during all weekday and weekend peak travel periods.

The Caltrans park and ride lot would not be affected under the No-Build Alternative.

The No-Build Alternative would not adequately address the long-term traffic growth on the existing alignment. With the No-Build Alternative, interregional traffic would

continue to have traffic delays. Local traffic would continue to increase as the surrounding area grows and develops.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Under Alternative 11, the existing roadway would be maintained as a frontage road to provide local access to the new freeway. Local residents along State Route 156 could use the frontage road for access to shopping and business centers on U.S. Route 101 without competing with recreational and interregional traffic. Construction of a new alignment for State Route 156 would allow uninterrupted traffic flow for recreational travelers to the Monterey Peninsula. Residents and communities next to State Route 156 and U.S. Route 101 would be provided a more direct travel route via the frontage road (the existing State Route 156) under Alternative 11 to shopping and jobs in Prunedale and Castroville.

The proposed diamond interchange at the existing at-grade intersection of State Route 156 and Cathedral Oaks Road under Alternative 12 would allow Oak Hills residents access to shopping and employment centers in Prunedale and Castroville.

The park and ride lot would be relocated to the northwest corner of the new intersection of Prunedale South Road and the frontage road, just west of its current location. The relocated park and ride lot would include a lockable locker for bicycles and a pedestrian bus shelter and benches. Use of the locker would be based on a first-come, first-served basis or coordinated through a reservation system administered by the Monterey Salinas Transit or Monterey County. All pedestrian amenities would meet Americans with Disabilities Act requirements for accessibility. Pedestrian walkways (sidewalks) on the local undercrossings and overcrossings and at interchange locations are also being considered.

For both build alternatives, the U.S. Route 101 roadway would be lowered at the proposed U.S. Route 101/State Route 156 interchange. The configuration of the interchange, along with the extension of San Miguel Canyon Road and Berta Canyon Road, would allow residents and drivers near San Miguel Canyon Road, Berta Canyon Road and Vierra Canyon Road to access U.S. Route 101 and State Route 156 via Berta Canyon Road and San Miguel Canyon Road. A private side hill road would provide access to all private driveways removed within the project limits. This road would provide residents south of Vierra Canyon Road, east of U.S. Route 101, access to Berta Canyon Road and Vierra Canyon Road.

Berta Canyon Road would no longer connect to U.S. Route 101 or to the proposed State Route 156. Berta Canyon Road would make a “T” intersection with the proposed Berta Canyon Extension. Residents could access State Route 156 and U.S. Route 101 by using a new Berta Canyon Road extension that tees into Vierra Canyon Road and connects to a new section of San Miguel Canyon Road. This new section of San Miguel Canyon Road would access State Route 156 and U.S. Route 101 to the north or the south of Vierra Canyon Road.

A Transportation Management Plan would be developed for this project, with the following recommendations:

- Public awareness through brochures, mailers, media releases and information centers.
- Motorist awareness through Changeable Message Signs, ground-mounted signs and commercial traffic signs.
- Incident management through a Construction Zone Enhanced Enforcement Program and traffic surveillance stations. The Construction Zone Enhanced Enforcement Program in conjunction with California Highway Patrol and Caltrans provides for the safety of construction and maintenance work crews and the motoring public within construction/maintenance work zones.
- Off-peak and night work.

This project would be built in stages to minimize disruption to local and regional traffic. Under Alternative 11, the interchange at Castroville and the section of State Route 156 up to Prunedale South Road would be built with little to no impact to traffic along the existing State Route 156. Detours around the existing U.S. Route 101/State Route 156 interchange would be required to temporarily allow existing traffic to flow with minor delays. The detour would allow for construction of the new U.S. Route 101/State Route 156 interchange.

Under Alternative 11, existing State Route 156 would become a frontage road. The frontage road would provide a potential for pedestrian walkways and/or bike lanes. Potential pedestrian walkways and/or bike lanes would be discussed during final design phase.

The Transportation Agency for Monterey County is sponsoring a project called the Commuter Rail Extension to Monterey County Project. Even though additional rail service is being planned in the area, it is many years away from being up and running.

Even when fully operational, the new rail system will have little effect on mitigating the projected (2041) traffic volumes on State Route 156.

The Ridership Validation Report (Parsons, January 2009) that was completed as part of the Commuter Rail Extension Project found that the projected (2035) ridership would be approximately 800 a day. Compared to the projected Annual Average Daily Traffic (AADT) count of 40,200 on State Route 156, there would be only a 2 percent improvement realized by the improved rail service. This small improvement is insufficient to mitigate the existing and future traffic volumes on State Route 156. Therefore, adding additional lanes onto State Route 156 is necessary with or without improvements to the rail system.

(The Ridership Validation Report [Parsons, January 2009] can be found online at: http://tamcmonterey.org/programs/rail/pdf/Ridership_Validation_Final_Report.pdf.)

No-Build Alternative

No avoidance, minimization, and/or mitigation measures would be required under the No-Build Alternative.

2.1.7 Visual/Aesthetics

Regulatory Setting

The National Environmental Policy Act of 1969, as amended, establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings [42 U.S. Code 4331(b)(2)]. To further emphasize this point, the Federal Highway Administration in its implementation of the National Environmental Policy Act [23 U.S. Code 109(h)] directs that final decisions regarding 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.

Likewise, the California Environmental Quality Act 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 Public Resources Code Section 21001(b)].

Affected Environment (Phase 1 and Phase 2)

A Visual Impact Assessment for the proposed project was completed in August 2008 and updated in May 2012.

The project sits in the coastal and semi-coastal region of northern Monterey County. The visual character is influenced by agriculture and rolling hills with mostly native vegetation, with scattered development along the road corridors and hillsides. Estuaries have formed where the coastal rivers and streams meet the sea. Distant oak-covered hills create the horizon seen from much of the area.

Coastal plains and vegetation patterns influence the visual character of the western portion of the project area. Large stands of eucalyptus border the roadway near State Route 156 and U.S. Route 101. Development is more evident as State Route 156 connects with the U.S. Route 101 corridor.

Visual quality is moderate to moderately high along State Route 156 and U.S. Route 101 based on the open space, agricultural character of the landscape, rolling topography and natural vegetative patterns. Visual features such as the development next to State Route 156 and U.S. Route 101, overhead utilities, and signs reduce the visual continuity. Additionally, vehicles traveling on State Route 156 and U.S. Route 101 detract from the positive visual character of the setting.

The entire length of State Route 156 throughout the project limits is an officially designated State Scenic Highway. From the western limit of the project to about Meridian Road in Prunedale, the project is within the coastal zone. Both the State Scenic Highway program and California Coastal Act place a high degree of value on the visual character seen from roadways and other public places.

Planning guidelines indicate the community's sensitivity toward the aesthetic character of the region and the project area. The Monterey County General Plan adopted in 2007 encourages development that protects and enhances the county's scenic qualities. Additionally, significant disruption of views from designated scenic routes must be mitigated through the use of appropriate materials and lighting.

The Monterey County Land Use Plan, Local Coastal Program and Monterey County Coastal Implementation Plan, Regulations for Development in the North County Land Use Plan Area, are discussed in section 2.1.1.3 Coastal Zone.

Environmental Consequences

The project corridor was evaluated for project impacts. Six spots were picked to represent the project's components and potential visual character change. Figures 2-5 to 2-10 show existing conditions and photo-simulations from the six representative viewing areas for Alternatives 11 and 12.

Photo simulations were prepared to show potential changes to be made by the project as well as to show what the project might look like. Any landscaping shown in the simulations is generic and does not represent a specific planting proposal.

Landscaping and other aesthetics would be developed with community input. Specific design details are also not included in the simulations and would be the product of later design and review. The simulations show a reasonable representation of the project about five years after construction and illustrate the estimated scale and form of any proposed features and their relationship to the setting.

A Visual Quality Evaluation was conducted to assess the magnitude of the potential visual changes caused by the project. It compared the visual quality of the existing and proposed conditions from six representative viewing areas. Vividness (the visual power of the landscape), intactness (the visual integrity of the landscape), and unity (the visual harmony of the landscape) criteria were used to determine the degree of visual change with the project at the six representative viewing areas (see Figures 2.5-2.10).



Figure 2-5 Existing view and proposed view of State Route 156, east of the existing intersection of Castroville Boulevard and State Route 156

Existing Condition – This viewpoint shows how the project area appears when traveling east on State Route 156 through the western portion of the project. This view is about 60 percent open space and agriculture. From much of this western segment of the project, low hills define the horizon in the distance to the north and east. The existing visual quality is moderately high. Views from this location on State Route 156 are mostly intact, with a few house structures and other elements such as highway signage and utility poles detracting from the scene. This view has a level of visual harmony, with most of the features complimenting each other in a unified visual pattern. The vividness of the existing view is somewhat average compared to the overall visual character of the highway corridor.

Proposed Visual Change – Alternative 11 – From this viewpoint, Alternative 11 would result in the State Route 156 viewpoint being shifted to the south on the new alignment. This new viewpoint would be slightly elevated relative to the views from the existing highway, which would increase quality views of the surrounding agricultural land. The main visual change would be in character due to the increased scale of the highway facility and the retention of the existing highway as a frontage road. The proposed Castroville Boulevard undercrossing and the Moro Cojo Slough bridge structure would add new, engineered elements into the landscape. The visual quality ratings show a slight decrease in both intactness and unity, due largely to the additional built elements. The vividness rating is expected to remain the same since Alternative 11 would be no more memorable than the current view. At this location, overall view quality would decrease slightly with Alternative 11.

Proposed Visual Change – Alternative 12 – The visual changes associated with Alternative 12 would be similar to those described for Alternative 11. Alternative 12 would result in less new pavement because of the absence of the frontage road. Viewpoints along Alternative 12 would be slightly lower than those proposed for Alternative 11, and views to the surrounding farmland would be similar to the existing conditions. The Visual Quality Evaluation shows a slight reduction in the intactness and unity ratings due to the increased scale of the new highway facility.



Figure 2-6 Existing view and proposed view of State Route 156 east of Oak Hills Road looking eastbound

Existing Condition – As seen from this eastbound viewpoint, the rolling topography of the setting creates roadside cut and fill slopes. In this direction, the highway elevation rises in the distance and a grouping of mature eucalyptus trees is visible. Vegetation plays an important role in defining the landscape along this section of highway, and oak trees add scenic value to the corridor. A few non-typical elements are in this view, including electrical transmission towers. A housing subdivision can be seen north of the highway, though much of the development is visually screened by intervening vegetation and landforms. As a result, the unity and intactness ratings

from this viewpoint are moderately high. The memorability, or vividness, rating is slightly above average along this segment of State Route 156 because of the topographic change and mature trees visible in the mid-ground view and the distance. The overall view quality from this viewpoint is considered to be moderately high because of the overall rural character, the topography and the vegetation.

Proposed Visual Change – Alternative 11 – Alternative 11 would result in the viewpoints from State Route 156 being shifted to the south and elevated slightly. From this new viewpoint, the existing agricultural fields would have an increased visibility in the mid-ground view. Alternative 11 proposes to preserve many of the existing oak trees along the roadside, which would help retain much of the unity and visual intactness of the route. Because of the rolling topography, some earthwork would be seen at various spots along the roadside. Without careful attention to grading and vegetative cover, this earthwork would increase the engineered appearance of the project throughout this area. The larger scale of the highway facility including the additional lanes and the frontage road would have a minor negative effect on the overall quality of the view.

Proposed Visual Change – Alternative 12 – From this section of State Route 156, Alternative 12 would offer views somewhat similar to the existing highway. But, because of the increasing roadside vegetation in the vicinity and along the proposed alignment, Alternative 12 would require removal of a substantial number of mature trees seen from the highway. Alternative 12 would include less overall pavement than Alternative 11, which by itself is less of an impact, but the loss of mature roadside trees caused by Alternative 12 would have a substantial negative effect on the visual quality of the area, resulting in a reduction of all three rating criteria.



Figure 2-7 Existing and proposed view from Prunedale North Road, near the park and ride lot and the existing U.S. Route 101/State Route 156 interchange looking south

Existing Condition – The highway and other local roads define the existing views from this location. The visible landscape from this viewpoint has been altered by development of some sort. The most noticeable plants in the view are the mature eucalyptus trees on the large hill south of State Route 156 and west of U.S. Route 101. This view is a transitional-type landscape, with mostly built elements set in a somewhat rural area. The view quality is moderate because of the mixed character and general lack of memorability.

Proposed Visual Change for Alternatives 11 and 12 – In this area, both project alternatives would be similar in appearance. Noticeable project components would include the proposed northbound overcrossing connector from eastbound State Route 156 to northbound U.S. Route 101 and the large retaining wall south of State Route 156. The relocated State Route 156 bridge over U.S. Route 101 would be seen to the south and would substantially change the visual scale of the highway in that area. As seen from this viewpoint and many of the other viewpoints surrounding the interchange, many of the proposed interchange/connector elements would be blocked visually by other proposed structures and landforms closer to the viewer. Although much of the proposed elements would not be unexpected within a highway

environment, the extent of structures and earthwork would substantially increase the urbanized character of the interchange area. The proposed 65-foot-tall retaining wall along eastbound State Route 156 would result in a dramatic change in visual character and quality at that spot. The visual quality ratings show a decrease in both intactness and unity due to the additional structures and other built elements. Though the project would have some degree of vividness or memorability, because of the large walls and flyover highway structure, this memorability would not have a positive impression considering the generally rural character of the area.



Figure 2-8 Existing and proposed view from U.S. Route 101 south of Berta Canyon Road looking northbound

Existing Condition – Views along this section of U.S. Route 101 include both natural and built elements. Scattered homes and commercial development line the highway, mixed with native and ornamental vegetation. Topography plays a role in establishing the visual character, as low hills can be seen on both sides of the highway. The existing State Route 156 overcrossing is visible just north of this viewpoint, which contributes somewhat to the built character. From this spot, the existing view quality is moderate. The intactness and unity ratings are also moderate

because of the visually diverse land uses. Project vividness is generally average because the view is not particularly memorable.

Proposed Visual Change for Alternatives 11 and 12 – From this location, Alternatives 11 and 12 would appear the same. The project would build a new interchange at Berta Canyon Drive. The visual scale of the new interchange would be substantially larger than the existing interchange and would increase the urbanized character of the area. The extent of grading, new structures, asphalt and vegetation removal would result in a substantial visual change and change in character. The intactness rating would be reduced because of the increased built appearance. The unity would increase slightly because of the somewhat consistent character of the structures and the new landscaping. Vividness would also increase slightly because of the noticeably larger facility and the U.S. Route 101/State Route 156 flyover connector.



Figure 2-9 Existing and proposed view of U.S. Route 101 north of Vierra Canyon Road looking east

Existing Condition – Both build alternatives would appear the same from this spot. The existing view from the southbound lanes of U.S. Route 101 includes well-planted roadsides with scattered commercial and residential development next to the highway. The existing U.S. Route 101/State Route 156 overcrossing can be seen in the distance. Along the east side of the highway, a relatively large slope rises up from the highway to existing retail businesses. This commercial area is visually screened to some degree by existing topography and plants. The intersection of Vierra Canyon Road and U.S. Route 101 can be seen to the south. This intersection creates an area of visual clutter, with its commercial and roadside signs, utilities, vehicles and buildings. The visual quality along this section of U.S. Route 101 is moderate, with the positive characteristics of mature plants and topographic variety balanced by the development and clutter. The intactness and unity of the view are also moderate, and the vividness rating indicates a somewhat average degree of memorability.

Proposed Visual Change for Alternatives 11 and 12 – Alternatives 11 and 12 would appear the same from this viewpoint. Most of the northbound slope across the highway would be disturbed and replaced with a large retaining wall. Visibility of the existing commercial development along the frontage road would increase. The proposed U.S. Route 101/State Route 156 flyover connector and on-ramp would be seen in the distance. A 510-foot-long by 12-foot-tall soundwall would be placed along the southbound shoulder near this location. The existing visual clutter at the intersection of Vierra Canyon Road would be reduced, but the extensive increase of built and engineered elements in general would result in a much more urbanized appearance. Visual intactness and unity would decrease due to the loss of plants. Although the project would have some degree of vividness or memorability because of the large walls and flyover structure, this memorability would not be considered positive due to the contrast with the rural character of the region.



Figure 2-10 Existing and proposed view of U.S. Route 101 south of Messick Road looking northbound

Existing Condition – The view from this location is typical of much of the U.S. Route 101 corridor. Generally, well-vegetated roadsides with undulating topography occur in the mid-grounds and backgrounds. Visible development includes a mix of commercial and residential uses. Overhead utilities and signs somewhat detract from the view. As with many other view locations on U.S. Route 101 through the Prunedale area, the natural scenic elements and the built features change one another resulting in a view quality considered as moderate to moderately high. The vividness, intactness and unity ratings all reflect this mix of land use and landscape character.

Proposed Visual Change for Alternatives 11 and 12 – Alternatives 11 and 12 would appear the same when viewed from this location. Addition of the bridge structure and related landform changes would cause the main change to the visual quality. A 600-foot-long by 12-foot-tall soundwall is proposed along the northbound shoulder in this area. The memorability of the view from this location would increase, but not in a particularly positive way. In addition, the scale and engineered look of the new facility would have a slightly adverse effect on the visual intactness and the harmony of the existing view.

As noted in local planning policy and State Scenic Highway policy, the existing rural, agricultural, and coastal character of the State Route 156 corridor is valued and should be preserved.

Alternatives 11 and 12

Alternative 11 would create a new alignment parallel to the existing one. By leaving the existing alignment in place as a frontage road, Alternative 11 would result in a greater amount of paved area than Alternative 12 would. Both Alternatives 11 and 12 would result in a large amount of visible earthwork along State Route 156.

Vegetation

With Alternative 11, separation of the two roads would allow the existing oak trees to be preserved and would provide the opportunity for additional screen planting.

Alternative 12 would remove a substantial number of mature oak trees currently lining the south side of the highway. Alternative 11 would avoid most of those trees.

Impacts to vegetation would be about the same for each alternative on State Route 156 approaching U.S. Route 101. Shifting the highway to the south in the McGuffie Road area would result in the removal of hundreds of eucalyptus and oak trees to accommodate the highway and a large retaining wall. Although the proposed wall would preserve many of the existing trees, the amount removed would still be substantial. The effect of tree removal in this area would mostly be the loss of roadside plants and a change in the skyline as seen from certain spots in the surrounding area.

Along U.S. Route 101, vegetation removal would be most prevalent at the new State Route 156 interchange (near Berta Canyon Road) and along the northbound slope and frontage road north of Vierra Canyon Road. Both native and non-native plants would be affected. From an aesthetic standpoint, both types of trees provide value to the visual environment. The loss of these trees along the U.S. Route 101 corridor would open up views to the surrounding area, both developed and natural. The somewhat vegetated visual character of the corridor would be diminished. Loss of mature trees throughout this area would result in a more open, urbanized appearance.

Structures

Both build alternatives propose the construction of the same six new bridge structures, seven new retaining walls and three soundwalls. Each of the new structures would introduce some degree of engineered character to the setting. The proposed Moro Cojo Slough bridge, structures and related ramps proposed at

Castroville Boulevard, the State Route 156/U.S. Route 101 overcrossing at Messick Road would dramatically change the visual scale of the highway setting at those locations. The proposed State Route 156/U.S. Route 101 connector flyover would also cause an urbanizing effect.

Retaining walls along eastbound State Route 156 west of Prunedale South Road across from McGuffie Road, northbound U.S. Route 101 north of Vierra Canyon Road, and northbound San Miguel Canyon Road would have a distinctly urbanizing effect on the setting. Retaining walls proposed for southbound U.S. Route 101 would generally be below the roadway and would not be readily seen by the highway traveler. These walls would be seen, however, from local roadways such as Prunedale North Road.

Soundwalls are proposed for southbound U.S. Route 101 across from Vierra Canyon Road, along the northbound lanes of U.S. Route 101 near the proposed Messick Road overcrossing and westbound State Route 156 near McGuffie Road. These walls would contribute to a more engineered built appearance of the corridor.

The extent of visual impact caused by the project would be a factor of how these physical changes are perceived by the viewing public. Viewer sensitivity is likely to be moderately high based on the Scenic Highway designation of State Route 156, review of Monterey County planning policy, and potential viewer activity.

No-Build Alternative

No impacts to visual resources would occur under the No-Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures Alternatives 11 and 12

The following design, construction and maintenance actions are recommended to maintain the visual quality of the U.S. Route 101 and State Route 156 corridors and decrease the visual impact caused by the project:

- Include landscaping as part of all bridge structures. Landscaping would mitigate the urban appearance of the project by using natural elements to reduce the perceived scale of the bridges, filter cumulative views of the ramps, frontage roads and other project features where applicable, and provide a natural transition from the adjacent landscape to the project.
- Include landscaping as part of all retaining walls and soundwalls. Landscaping would mitigate the potential for graffiti and would reduce the urban appearance of

the project by using natural elements to reduce the perceived scale and “canyon effect” of the walls, filter cumulative views of the walls, and provide a natural transition from the adjacent landscape to the project.

- Reduce the perceived scale of the large retaining wall on State Route 156 across from McGuffie Road by including measures such as stepping it back or tiering. Tiering the wall would reduce its visual dominance and would allow opportunities for integral planting, which would further minimize its potential impacts.
- Include aesthetic treatment on all retaining walls and soundwalls visible from the highways or the community. Aesthetic treatment can reduce the graffiti potential, would reduce the urban appearance, and would result in the project being more consistent with community aesthetic values.
- Use open-type bridge rail on the Moro Cojo Slough bridge. Open-style bridge railing would allow better visual access to the creek bed and would be more in keeping with coastal planning policy.
- Determine the location and appearance of storm water basins and other highway visible storm water prevention measures in consultation with a Caltrans Landscape Architect. To the greatest extent possible considering their function, all such storm water features should be placed and designed to appear natural and to minimize their effect on existing vegetation as well as on planting opportunities.
- Minimize associated fencing. If fencing is required, alternatives to chain link must be considered. If chain link is required, it must be vinyl-clad black.
- Include planting in the design of storm water elements to screen views from the public and make the elements visually blend with the surroundings.
- Place all overhead utility lines affected by the project along State Route 156 underground where feasible per State Scenic Highway policy.
- Include contour-grading and slope-rounding on all new slopes along State Route 156 where such measures would not cause additional tree removal or adverse effects to other resources. Unnatural-appearing landform remnants should be removed or re-graded. This measure would minimize the engineered appearance of the project and result in a more natural-appearing landform.
- Make all project fencing on State Route 156 (except on the bridge structures) from wood or metal T-post and wire.
- Make sure all lighting on bridge structures is hooded or includes cut-off shields to reduce visibility of the light source from off-site locations.

- Darken all metal-beam guardrail beams and posts along State Route 156 by acid-etching or a comparable method.
- Use avoidance measures such as slope-warping and timber tree wells to protect existing trees to the greatest extent possible.
- Replace all removed trees with native or other horticulturally appropriate trees at a minimum ratio of 5 to 1, in coordination with other tree planting requirements identified in this document. Replacement trees should be planted along the highway corridors within sight of the highways to the greatest extent possible.
- All planting should include a plant establishment period sufficient to ensure the survival of the plants and consistency with the intent of the planting concept.

No-Build Alternative

No avoidance, minimization, and/or mitigation measures would be required under the No-Build Alternative.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

Regulatory Setting

Executive Order 11988 on floodplain management directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. Requirements for compliance are outlined in 23 Code of Federal Regulations 650 Subpart A. To comply, the following must be analyzed:

- Practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project

The base floodplain is defined as “the area subject to flooding by the flood or tide having a 1 percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

Affected Environment

Caltrans prepared a Hydraulics and Floodplain Evaluation Report for the project in 2007.

The project lies within the Central Coast Watershed. Prunedale Creek, Moro Cojo Slough, and several minor streams cross the project area. The proposed project is within designated Zones A, A1-A9, B and C (see Table 2.19).

Table 2.19 Flood Zone Designations

Zone A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined
Zone A1-A9	Areas of 100-year flood: base flood elevations and flood hazard factors determined
Zone B	Areas between limits of the 100-year and 500-year flood; or certain areas subject to 100-year flood with average depths less than 1 foot or where the contributing drainage area is less than 1 square mile; or areas protected by levees from the base flood
Zone C	Areas of minimal flooding

Source: California Department of Transportation Hydraulics and Floodplain Evaluation 2007

Prunedale Creek (Phase 2)

Prunedale Creek flows next to U.S. Route 101 and crosses State Route 156. The Vierra Canyon and San Miguel Canyon creeks are major tributaries that merge into Prunedale Creek before crossing State Route 156. Berta Canyon Creek also merges into Prunedale Creek just south of the State Route 156/U.S. Route 101 interchange. San Miguel Canyon Creek drains in a southwesterly direction parallel to U.S. Route 101, crosses State Route 156, and merges with Pesante Canyon Creek before turning into Merritt Lake and Tembladero Slough. Prunedale Creek is an alluvial stream, and its watershed is vegetated with grasses, brush, oaks, eucalyptus and willows. Soils are loamy sand with 9 to 50 percent slopes.

Moro Cojo Slough (Phase 1)

Moro Cojo Slough is northeast of Castroville. It flows in a northwest direction, merges into Elkhorn Slough and drains into Moss Landing harbor.

Existing Drainage Systems

Most culverts on State Route 156 are reinforced concrete pipes. Culverts on U.S. Route 101 are either reinforced concrete pipes or corrugated metal pipes. Large quantities of sediment are transported from agricultural fields by streams into culverts along State Route 156. Caltrans maintenance staff service the culverts along State Route 156.

Two culverts on State Route 156 are identified as cattle passes. These cattle passes cannot function as flood control culverts because they sit several feet above the stream flow level.

Environmental Consequences

The purpose of the hydraulics and floodplain study was to determine how the flow of water would affect the highway, the base floodplain and the surrounding area.

Alternatives 11 and 12 (Phase 1 and Phase 2)

The project would encroach across a branch of Moro Cojo Slough (Zone A designation). Project impacts on Moro Cojo Slough floodplain would be negligible because:

- Existing and proposed roadway elevations are much higher than the Moro Cojo Slough water elevation.
- A new bridge is proposed across the slough.

Longitudinal encroachment of Prunedale Creek (Zone A8 designation) would occur when U.S. Route 101 is widened. Encroachments are considered negligible, and the project would not support incompatible floodplain development. There are no significant risks associated with the proposed project. There are no significant impacts to natural and beneficial floodplain values.

The project as proposed does not constitute a significant floodplain encroachment as defined in the Code of Federal Regulations, Title 23, Section 650.105 (q).

No-Build Alternative

The No-Build Alternative would have no impact on the floodplain.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

To accommodate the U.S. Route 101/State Route 156 interchange (Phase 2), the existing culvert under State Route 156 would:

- Be extended about 300 feet downstream, or
- Remain in place while an additional culvert would be built downstream to replace the existing culvert at Berta Canyon Road. Prunedale Creek would be re-engineered to connect the culverts.

Retaining walls are proposed on the west side of southbound U.S. Route 101 and San Miguel Canyon Road to avoid longitudinal encroachments to the Prunedale Creek floodplain. Additional culverts would be installed to convey the streams across the new State Route 156, U.S. Route 101 and local roads.

No-Build Alternative

No avoidance, minimization, and/or mitigation measures would be required for the No-Build Alternative.

2.2.2 Water Quality and Storm Water Runoff

Regulatory Setting

Section 401 of the Clean Water Act requires water quality certification from the State Water Resources Control Board or from a Regional Water Quality Control Board when the project requires a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers to dredge or fill within a water of the U.S.

Along with Section 401 of the Clean Water Act, Section 402 of the Clean Water Act establishes the National Pollutant Discharge Elimination System permit for the discharge of any pollutant into waters of the U.S. The federal Environmental Protection Agency has delegated administration of the National Pollutant Discharge Elimination System program to the State Water Resources Control Board and nine Regional Water Quality Control Boards. The State Water Resources Control Board and Regional Water Quality Control Boards also regulate other waste discharges to land within California through the issuance of waste discharge requirements under authority of the Porter-Cologne Water Quality Act.

The State Water Resources Control Board has developed and issued a statewide National Pollutant Discharge Elimination System permit to regulate storm water discharges from all Caltrans activities on its highways and facilities. Caltrans construction projects are regulated under the statewide permit, and projects performed by other entities on Caltrans right-of-way (encroachments) are regulated by the State Water Resources Control Board's Statewide General Construction Permit. All construction projects over 1 acre require a Storm Water Pollution Prevention Plan to be prepared and implemented during construction. Caltrans activities of less than 1 acre require a Water Pollution Control Program.

Affected Environment (Phase 1 and Phase 2)

Caltrans completed a Water Quality Assessment Report for the project in August 2008. An amended Water Quality Assessment Report was completed in May 2012.

Surface Water

The project sits in the Salinas Hydrologic Unit, and surface water drains to the Pacific Ocean through Monterey Bay. Moro Cojo Slough and Prunedale Creek are located within the project area. Water quality impairments next to or downstream of the project site include nutrients (ammonia, nitrate), pathogens, low dissolved oxygen, pesticides, priority organics, and sedimentation/siltation. Moro Cojo Slough and the Tembladero Slough are on the Clean Water Section 303(d) list. Waters on this list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. Clean Water Section 303(d)-listed pollutants for Moro Cojo Slough include ammonia (unionized), low dissolved oxygen, pesticides and sedimentation/siltation.

Storm Water

Currently, a large portion of storm water drains into unnamed streams that end in the Moro Cojo Slough. This slough, northeast of Castroville in northern Monterey County, is next to the project. Moro Cojo Slough flows northwest and drains into Moss Landing Harbor. At the U.S. Route 101/State Route 156 interchange and Prunedale area, storm water drains into Prunedale Creek, which drains into Tembladero Slough, 1.6 miles to the south. Prunedale Creek passes through a wetland southwest of the 101/156 interchange. The major tributaries to Prunedale Creek are San Miguel Canyon Creek, Vierra Canyon Creek, and Pesante Canyon Creek.

Groundwater

The project lies in the northern portion of the Salinas Valley Groundwater Basin. The basin is supported by three major aquifers at 180 feet, 400 feet and 800 feet below ground. Shallow groundwater, less than 20 feet deep, is found along the U.S. Route 101 corridor.

As both irrigated agriculture and urban development increased during the past several decades, groundwater demand has exceeded available recharge, causing overdraft within the Salinas Valley Groundwater Basin. Groundwater levels have dropped below sea level, allowing saltwater to intrude from the Monterey Bay into aquifers located 180 and 400 feet below ground. Seawater intrusion was documented in the Castroville area as early as 1932. Seawater has also intruded about 6 miles inland in

the shallowest regional (80-foot) aquifer and 2 miles inland in the second-deepest regional 400-foot aquifer. Currently, more than 16,000 acres of agricultural land overlie groundwater too salty for irrigation.

Nitrate contamination has been identified as a serious water quality problem for many years within the Salinas Valley Groundwater Basin. Agricultural wells indicate the presence of nitrates in groundwater throughout the Salinas Valley Groundwater Basin. Although septic systems, improper handling and storage of agricultural chemicals and relatively small-scale confined animal facilities have most likely contributed to the nitrate loading, there is general agreement that crop application is the main nitrate source.

As of 1993, average nitrate concentrations in the 180-foot aquifer approached or exceeded the maximum drinking water standard (45 parts per million) in three of Salinas Valley Groundwater Basin's four sub-basins. Between 1987 and 1993, average nitrate concentrations increased in the second-deepest regional (400-foot) aquifer, signifying that nitrate contamination is spreading from the uppermost regional (180-foot) aquifer to a deeper zone.

Environmental Consequences

The Water Quality Assessment Report (July 2008) and the amended Water Quality Assessment Report (2012) identified potential impacts on surface water and groundwater resources resulting from the proposed project and describe project design, procedures and practices that would minimize potential impacts. The Water Quality Assessment Report concluded that minimal short-term impacts to both surface and groundwater quality would occur, but there would be no long-term impacts to water quality.

Alternatives 11 and 12

Surface Water

Potential impacts to water quality are associated with the discharge of pollutants in storm water runoff from the highway. Pollutants commonly associated with highways are litter, heavy metals, petroleum hydrocarbons, brake materials, oil and grease, sediment, suspended solids, pesticides and herbicides.

Construction activities have the potential to impair surface water quality temporarily because disturbed and eroded soil, petroleum products and other wastes may discharge into receiving waters. Sediment and associated contaminants that enter stream channels can increase turbidity (cloudiness), stimulate algae growth, increase

sedimentation of aquatic habitat and introduce compounds that are potentially harmful to fish and aquatic organisms.

To accommodate the interchange to be built at the State Route 156 and U.S. Route 101 intersection, either a 300-foot extension of the existing culvert under State Route 156 or a separate culvert would be installed to replace the existing Berta Canyon Road culvert. Either option should ensure the new culvert would not significantly scour the creek downstream and not significantly change the creek's features.

Storm Water

The existing impervious surfaces within the project limits total 60.3 acres (including the existing State Route 156 and the existing county roads). Before design changes, Alternative 11 would have added 82 acres of impervious surface to the project area. Alternative 12 would add 62 acres of impervious surface to the project area. Changes to the design of the project resulted in less impervious acres added for Alternative 11. Alternative 11 would now add 58.2 acres of new impervious surfaces in post construction (40.6 acres for Segment 1).

The project would be designed to minimize increases in storm water discharge rates by installing appropriate treatment best management practices to encourage storage and infiltration of storm water within the right-of-way.

The project would not violate water quality standards or create runoff that would exceed the capacity of the receiving waters or storm water drainage channels, or substantially degrade surface water quality.

Groundwater

Water would be needed on the project during construction for dust control and other activities and for irrigating landscaping. The first two to three years after construction, water would be needed to reestablish the native plants and help with erosion control; water would also be needed in years of low rainfall to maintain trees and shrubs. Water would be needed for the ongoing maintenance of some ornamental landscape.

The project would not have substantial impacts to groundwater quality.

No-Build Alternative

Surface water and groundwater quality would not be affected under the No-Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Surface Water and Storm Water

Potential temporary impacts to water quality during construction would be addressed in the design and construction phases. Plans would ensure that there would be no detrimental discharge into any bodies of water. To minimize or eliminate potential impacts to the maximum extent practicable, Caltrans would incorporate best management practices into the project.

To address potential impacts to water quality during the construction phase, Caltrans would require the contractor to prepare and implement a program to control water pollution during construction. Before the start of project construction, the contractor would be required to prepare a Storm Water Pollution Prevention Plan that satisfies the requirements of the Caltrans statewide National Pollutant Discharge Elimination Systems Permit and the General Construction Permit. The permits require the following: A Storm Water Pollution Prevention Plan is to be prepared and implemented during construction to the satisfaction of the resident engineer.

To reduce potential storm water impacts to the site, the design incorporates the following measures:

- Use retaining walls.
- Make cut and fill slopes 4:1 (horizontal: vertical) or flatter.
- Use slope rounding.
- Collect concentrated flows in stabilized drains and channels.
- Use benches/terraces on high cut and fill slopes.
- Start excavation and slope work at the end of the rainy seasons.
- Install permanent storm water pollution controls (paved slopes, vegetated slopes, basins and conveyance systems) early in the construction process.
- Minimize impervious surface area and use pervious material for hardened surfaces outside of the roadway.
- Grade slopes to blend with the natural terrain.

- Promote sheet flow to vegetated areas that can provide water quality benefits and promote infiltration.
- Design permanent drainage facilities through the use of permanent check dams.
- Build permanent vegetated drainage ditches to decrease the velocity of and volume of discharge by promoting infiltration, allowing pollutant removal and maintain existing vegetated areas.

Groundwater

To ensure that impacts to water quality from non-point sources of pollution are held to a minimum and that goals and management principles of the regional board are met, best management practices would be implemented to minimize any long-term impacts to water quality from this project. Biofiltration swales are likely treatments that would be implemented.

All wells determined to be within the new right-of-way boundary must be destroyed in accordance with procedures outlined in the Department of Water Resources Bulletin 74-81 and Bulletin 74-90, Title 23, California Code of Regulations and local regulatory standards.

No-Build Alternative

No avoidance, minimization and/or mitigation measures are required for the No-Build Alternative.

2.2.3 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 the California Environmental Quality Act.

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. Caltrans’ Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to use the anticipated Maximum Credible Earthquake, from active and potentially active faults

in and near California. The Maximum Credible Earthquake is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

Affected Environment (Phase 1 and Phase 2)

Caltrans completed a Preliminary Geotechnical Report for the project in January 2007.

Geology

Quaternary alluvium and Aromas Formation sands lie in the project area. Gentle rolling hills ranging from 50 feet to over 200 feet above sea level characterize the topography. Slopes on State Route 156 range from 1.5:1 (horizontal: vertical) to 2:1 (horizontal: vertical), and few problems with slope stability have been recorded. Steeper cut slopes of 0.5:1 (horizontal: vertical) in the Aromas Formation on U.S. Route 101 at the San Miguel Canyon overcrossing were eroded and unstable before the completion of the San Miguel Canyon overcrossing project.

Soils vary from very soft where disturbed to hard where consolidated or cemented alluvium is present. Soils near Meridian Road are soft, very friable fine sand. Areas right next to creeks may be more susceptible to liquefaction. Liquefiable soils (very loose to medium dense cohesion-less soils below the water table) were found near San Miguel Road west of U.S. Route 101.

Seismicity

The San Andreas, San Gregorio/Hosgri, King City and Calaveras faults are Quaternary active faults near the proposed project alignment (see Table 2.20). Fault distances were measured from the closest point along the proposed alignment. No known active or potentially active faults cross the proposed project.

Table 2.20 Distances and Peak Ground Accelerations

Fault	Distance to Closest Point along Proposed Alignment	Peak Ground Acceleration
San Andreas	6.8 miles	0.73 gravity
San Gregorio/Hosgri	20.5 miles	0.63 gravity
King City	6.8 miles	0.62 gravity
Calaveras	14.2 miles	0.66 gravity

Source: California Department of Transportation Preliminary Geotechnical Report 2007

Environmental Consequences (Phase 1 and Phase 2)

Alternatives 11 and 12

Both alternatives would require extensive cuts and fills, which are susceptible to erosion.

No-Build Alternative

The No-Build Alternative would have no impact on the geology, soils, or topography of the project area.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Embankment material would be developed from the cut slopes. Cut slope material samples would be re-compacted to represent embankment conditions and tested for strength. It is recommended that embankments built using excavated material and cut slopes have slope angles of 2:1 (horizontal: vertical) or flatter. Benches are required for embankments higher than 50 feet.

Eight design-specific retaining walls are proposed for the project. The walls would reduce impacts to businesses and potential long-term chronic erosion control problems from large cuts in erodible soil types. They would also help protect existing trees and vegetation that are already established and protecting the ground. Back slopes above retaining walls would be designed in accordance with recommendations of the geotechnical report; erosion control measures would be applied accordingly. A structures foundation report would be prepared for each retaining wall.

The proposed retaining walls would sit at the following locations:

- Right side of the eastbound State Route 156 off-ramp to southbound U.S. Route 101.
- Left side of the eastbound State Route 156 off-ramp to northbound U.S. Route 101.
- Right side of the U.S. Route 101 branch connector to westbound State Route 156.
- Right side of the State Route 156 branch connector to northbound U.S. Route 101.
- East side of the proposed San Miguel Canyon Road realignment.

In addition, three walls would be near the existing San Miguel Canyon Road overcrossing.

Geotechnical exploration is necessary to determine groundwater levels, soil types and strengths, and susceptibility to liquefaction, landslides, or settlement.

Constructed slopes must include a vegetation and erosion control program.

No-Build Alternative

No avoidance, minimization, and/or mitigation measures are required for the No-Build Alternative.

2.2.4 Hazardous Waste or Materials

Regulatory Setting

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating 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 and the Resource Conservation and Recovery Act of 1976. The purpose of the Comprehensive Environmental Response, Compensation and Liability Act, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. The Resource Conservation and Recovery Act provides for “cradle to grave” regulation of hazardous wastes. Other federal laws include the following:

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

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

Hazardous waste in California is regulated mainly under the authority of the federal Resource Conservation and Recovery Act of 1976 and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

Affected Environment

The study area consists of irrigated agricultural land, rural residential properties with individual domestic wells and septic systems, retail strip malls, service stations, and industrial facilities.

An Initial Site Assessment was completed for the project on January 9, 2008. The assessment included a search of federal, state and local records through the EDR[®] Environmental Data Resources, Inc. database, Monterey County Department of Environmental Health compliance case files, State of California GeoTracker website, documents in the Caltrans hazardous waste files, and field reviews in August and September 2007. A Preliminary Site Investigation was completed in June 2010, and included a aerial deposited lead study. In addition, an Asbestos and lead-Containing Paint Survey was completed in December 2009.

The purpose of the Initial Site Assessment was to determine if hazardous waste/materials are present in the soil and groundwater beneath U.S. Route 101 and State Route 156 and surrounding properties in the study area. The assessment looked for the following:

- Soil and groundwater impacts from leaking underground storage tanks and volatile organic compound releases
- Soil containing aerial-deposited lead due to historic vehicle emissions
- Asbestos and lead-based paint on bridge structures
- Pesticides from agricultural practices within the project area

Near U.S. Route 101, the Initial Site Assessment evaluated 22 properties as potentially containing hazardous waste/materials. Of these properties, two were identified as potential concerns for the proposed project because they may require

acquisition . The Preliminary Site Investigation found an additional site. These sites are:

- Former Phillips 66 Station (currently Country Kitchen)
- Valero gas station
- Orville's Auto Service

Petroleum Hydrocarbons and Volatile Organic Compounds

At U.S. Route 101 east side, north of Vierra Canyon Road at Prunetree Shopping Center (Phase 2)

Underground gasoline and diesel storage tanks were removed (Valero gas station site), and three groundwater monitoring wells were installed onsite. The extent of groundwater impact is well defined and delineated by existing groundwater wells, and is essentially limited to property boundaries. Based on the declining concentration of gasoline compounds in the groundwater, the facility was granted case closure in September 2007 based on information from the Central Coast Regional Water Quality Control Board.

East of U.S. Route 101, south of Vierra Canyon Road near Prunetree Shopping Center (Phase 2)

A former Phillips gas station was demolished during construction of the current U.S. Route 101/State Route 156 interchange. Three underground storage tanks were abandoned in place and filled with sand. A geophysical survey completed in 2001 identified a subsurface feature at the northwest corner of the property next to the northbound U.S. Route 101 exit lane to Vierra Canyon Road. Gasoline compounds were found in the soil and groundwater.

South of U.S. Route 101, on Messick Road (Phase 2)

The Orville Auto Service is an auto body with a potentially former use as an automobile maintenance business. It is now known as Prunedale Auto Body. A geophysical survey reviewed a substantial amount of buried metal on the property. No underground storage tanks were found.

Soil samples for the Preliminary Site Investigation were collected at 0.0- to 0.5-foot intervals, and grab-groundwater samples were collected. Samples were tested for CAM 17 (California Administrative Manual) heavy metals which can qualify waste as hazardous. Samples were also tested for total petroleum hydrocarbons as gasoline, total petroleum hydrocarbons as diesel and motor oil; BTEX (soluble petroleum

compounds benzene, toluene, ethylbenzene, xylene); fuel additive methyl tert-butyl ether (MTBE) and fuel oxygenate compounds (FOCs).

For the soil samples at each of the properties:

- 15 soil samples were collected for heavy metals
- 57 soil samples were collected for petroleum hydrocarbons
- 15 soil samples were collected for BTEX and MTBE for each property

For the groundwater samples at each of the properties:

- 14 groundwater samples were collected for heavy metals
- 15 groundwater samples were collected for total petroleum hydrocarbons as motor oil and total petroleum hydrocarbons as diesel
- 16 groundwater samples were collected for total petroleum hydrocarbons as gasoline
- 16 groundwater samples were collected for BTEX, MTBE and FOCs

Aerial-Deposited Lead (Phase 1 and Phase 2)

A Preliminary Site Investigation included an aerial deposited lead study and evaluated whether impacts due to aerial-deposited lead exist in surface and near-surface soils within the existing right-of-way at proposed U.S. Route 101 widening and State Route 156 realignment locations. Samples were collected along unpaved shoulders of U.S. Route 101 and State Route 156 West. Soil samples were collected at continuous 0.5-foot depth intervals between the ground surface and 3.0 feet.

Asbestos and Lead-Based Paint (Phase 1 and Phase 2)

Asbestos-containing material may have been used to build the U.S. Route 101/State Route 156 interchange, Prunedale overcrossing, Prunedale undercrossing, and San Miguel Canyon Road overcrossing. These bridges may have expansion joints and/or railing pads that may contain asbestos. Lead-based paint may have been used to maintain the U.S. Route 101/State Route 156 interchange, Prunedale overcrossing, Prunedale undercrossing, and San Miguel Canyon Road overcrossing. Older homes might contain lead-based paint or asbestos.

Pesticides (Phase 1)

Shallow soil was sampled for pesticides west of the State Route 156/State Route 183 interchange in Castroville for a Caltrans project in 1997. Four soil borings were drilled next to the northern and southern shoulders of State Route 156 at the Tembladero Slough bridge. Five soil samples were collected at 1-foot intervals from

each boring. Organochlorine pesticides, dichlorodiphenyltrichloroethane (DDT), dichlorodiphenyldichlorethane (DDD) and dichlorodiphenyldichloroethylene (DDE), Endosulfan Sulfate and Dieldrin were detected in 10 of the 20 soil samples at concentrations ranging from 4.0 to 67 parts per billion. DDD and DDE are breakdown products of DDT.

Pesticide use is associated with agricultural operations in the project area. Pesticides currently in use are designed to break down in hours or days after application, so are not likely to be present at hazardous levels in the soil. DDT and its breakdown products are common in California soil due to heavy agricultural use before its halt in 1972. However, levels of DDD and its breakdown products are consistently found well below hazardous levels throughout the area. As a result, no hazardous levels of any pesticide are expected in the project area.

Environmental Consequences

Alternatives 11 and 12

Petroleum Hydrocarbons and Volatile Organic Compounds (Phase 2)

Three properties were tested for gas, oil, diesel and other fuel-related constituents. These properties included the County Kitchen (formerly a Philips 66 Service Station), Orville Auto Service and Valero Gas Station.

Lab analysis at two of the three properties, County Kitchen (the former Philips 66 Service Station) and Orville Auto Service, determined that the contaminants tested were either not detected (ND) or at concentrations slightly above Regional Water Quality Control Board and Monterey Department of Health soil and ground water action levels. As a result of the preliminary site investigation, it was determined that the concentrations of contaminants at the County Kitchen and Orville Auto Service were negligible for purposes of property acquisition. Therefore, no further testing for petroleum hydrocarbons and metals is anticipated.

At the Valero Gas Station, some concentrations exceeded Regional Water Quality Control Board and County of Monterey Department of Health regulatory action levels for soil and groundwater. However, in 2007 the Regional Water Quality Control Board had determined the site remediated and that it had met health and safety code compliance objectives resulting in the closure of the site. Valero Energy Corporation has been identified as the responsible party.

Concentration levels were above the Regional Water Quality Control Board effective screening levels for CAM-17 metals that may restrict off-site reuse or disposal. Soil and groundwater samples collected at one property exceeded the County of Monterey Department of Health, Division of Environmental Health action level for total petroleum hydrocarbons TPH, BTEX, MTBE and CAM-17 metals (Table 2.21).

Acquisition of the Valero property may proceed as a known contaminated property.

Aerial-Deposited Lead (Phase 1)

Based on the total lead results for aerial-deposited lead analysis, excavated soil within the following areas of the Caltrans right-of-way would be classified as a California hazardous waste:

- State Route 156 West, west of Castroville Boulevard bridge, to a depth of 0.5 feet (Phase 1)
- State Route 156 East, east at Castroville Boulevard bridge, to a depth of 0.5 feet (Phase 1)
- U.S. Route 101 Northbound, to a depth of 1.5 feet (Phase 2)

Excavated soil within the following areas of the Caltrans right-of-way would be classified as non-hazardous:

- U. S. Route 101 Southbound (Phase 2)
- U.S. Route 101/State Route 156 West Connector (Phase 2)
- State Route 156 West, east of Castroville Boulevard (Phase 1)

Table 2.21 Hazardous Waste Concerns

Location/Address	Potential Chemicals of Concern	Preliminary Site Investigation Results	PSI Risk of Potential Contamination After Testing
<p>Valero Gas Station</p> <p>1040 El Camino Real North and Vierra Canyon Road, Prunedale</p>	<p>Heavy metals</p> <p>Methyl tert-butyl ether (MTBE) Fuel oxygenate compounds (FOCs)</p> <p>Total petroleum hydrocarbons Benzene, toluene, ethylbenzene, xylene (BTEX)</p>	<p>Soil samples: Heavy metals (CAM 17): were reported at concentrations less than the reporting requirements, except for vanadium. Vanadium concentration exceeded their screening levels (ESLs) for residential land use.</p> <p>Groundwater samples: CAM 17 metals exceeded their environmental screening levels (ESLs) for Groundwater that is a Current or Potential Drinking Water Source</p> <p>Soil samples: MTBE and FOCs were not detected above their reporting requirements</p> <p>Soil samples: Total petroleum hydrocarbons as gasoline and diesel concentrations exceeded their ESLs for land use Groundwater samples: Total petroleum hydrocarbons as gasoline, diesel, motor oil and (BTEX) concentrations exceeded their ESLs for Groundwater that is a Current or Potential Drinking Water Source</p>	<p>Moderate: offsite reuse or disposal of soil may be restricted depending on use</p>
<p>Former Phillips Gas Station</p> <p>17500 Vierra Canyon Road, Prunedale</p>	<p>Heavy metals</p> <p>Methyl tert-butyl ether (MTBE) Fuel oxygenate compounds (FOCs)</p> <p>Total petroleum hydrocarbons</p>	<p>Soil samples: Heavy metals (CAM 17): were reported at concentrations less than the reporting requirements, except for vanadium. Vanadium concentration exceeded their screening levels (ESLs) for residential land use.</p> <p>Groundwater samples: CAM 17 metals exceeded their environmental screening levels (ESLs) for Groundwater that is a Current or Potential Drinking Water Source</p> <p>MTBE and FOCs were not detected above their reporting requirements</p> <p>Soil samples: Total petroleum hydrocarbons as motor oil and diesel</p>	<p>Moderate: offsite reuse or disposal of soil may be restricted depending on use</p>

Chapter 2 • Affected Environment, Environmental Consequences,
and Avoidance, Minimization, and/or Mitigation Measures

	Benzene, toluene, ethylbenzene, xylene (BTEX)	concentrations were below their ESLs for land use	
Orville Auto Service 7900 Messick Road, Salinas	Heavy metals Fuel oxygenate compounds (FOCs) Total petroleum hydrocarbons Benzene, toluene, ethylbenzene, xylene (BTEX), methyl tert-butyl ether (MTBE)	Soil samples: Heavy metals (CAM 17): were reported at concentrations less than their reporting requirements, except for vanadium. Vanadium concentrations exceeded their environmental screening levels (ESLs) for land use. Groundwater samples: CAM 17 metals exceeded their environmental screening levels (ESLs) for Groundwater that is a Current or Potential Drinking Water Source FOCs were not detected above their reporting requirements Soil samples: Total petroleum hydrocarbons as motor oil and diesel concentrations were below their ESLs for land use Groundwater samples: Two samples of total petroleum hydrocarbons as gasoline, diesel, motor oil, xylene, ethylbenzene, toluene and MTBE concentrations exceeded their ESLs for Groundwater that is a Current or Potential Drinking Water Source	Moderate: offsite reuse or disposal of soil may be restricted depending on use

Source: Initial Site Assessment January 2008 and Preliminary Site Investigation June 2010

Asbestos and Lead-Based Paint (Phase 1 and Phase 2)

Chrysotile asbestos at a concentration of 90 percent was detected in samples representing approximately 60 square feet of nonfriable asbestos sheet packing used as barrier rail shims on the Castroville Boulevard bridge and State Route 156/U.S. Route 101 separation bridge.

Suspect asbestos-containing materials were grouped, and samples were randomly collected from each group. Each sample was evaluated for friability. Sixteen bulk asbestos samples representing eight material types were collected.

Samples of lead-containing paint were collected from the abutments and barrier rails of the Castroville Boulevard bridge and abutments from the State Route 156/U.S. Route 101 separation bridge. Lab analysis indicated the lead concentrations were below the levels that would be classified as California or federal hazardous waste based on lead content.

Pesticides (Phase 1)

Organochlorine pesticides with concentrations greater than 1 part per million (the Total Threshold Limit Concentration) under Title 22, California Code of Regulations 66700, are classified as hazardous waste. The pesticide concentrations of 4.0 to 67 parts per billion found near the Tembladero Slough bridge are well below the Total Threshold Limit Concentration used to determine if waste material is considered hazardous waste. Additionally, the Tembladero Slough bridge is outside the project area, but considered representative of typical levels of DDT and its breakdown products in soils of local farmland.

No-Build Alternative

The No-Build Alternative would not affect any potential hazardous waste/material sites.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Before any excavation or soil disturbance within the project boundaries, a project-specific Lead Compliance Plan must be developed and implemented for earthwork as part of the Caltrans non-standard special provisions.

Steps would be taken to reduce airborne dust. Water should be available at all times where work activities are performed.

Petroleum Hydrocarbons and Volatile Organic Compounds (Phase 2)

At the Valero gas station, some concentrations exceeded Regional Water Quality Control Board and County of Monterey Department of health regulatory action levels for soil and groundwater. However, in 2007 the Regional Water Quality Control Board had determined the site remediated and the it had met health and safety code compliance objective resulting in the closure of the site. Valero Energy Corporation has been identified as the responsible party. Acquisition of the Valero property may proceed as a known contaminated property. More study may be required to specifically quantify contamination that might be encountered during construction. Also, there may be impacts to construction costs for handling and disposal of contaminated soil and groundwater. This cost has been estimated to be \$50,000 to \$100,000 in 2012 dollars.

Asbestos and Lead-Based Paint (Phase 1 and Phase 2)

National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations do not require that asbestos-containing sheet packing used in barrier rail systems on the Castroville Boulevard bridge and State Route 156/U.S. Route 101 separation bridge (a Category I nonfriable/nonhazardous material) be removed before demolition or treated as hazardous waste. However, the disturbance of the material is still covered by the California Division of the Occupational Safety and Health Administration (Cal/OSHA) asbestos standard. It is recommended that a licensed contractor registered with Cal/OSHA for asbestos-related work perform activities that would disturb this material.

Lead-containing paint would not be classified as a California or federal hazardous waste, but it is recommended that all paint be treated as lead-containing for the purposes of Cal/OSHA standards.

The contractor would use proper health and safety measures to minimize the exposures of workers to potential asbestos or lead-based paint from affected buildings and structures.

Aerial-Deposited Lead (Phase 1 and Phase 2)

If apparent soil contamination is encountered during soil excavation activities done during construction, the potentially affected soil should be excavated, stockpiled, and characterized to evaluate appropriate reuse or disposal alternatives. Groundwater

encountered during construction may require treatment and/or special handling before discharge/disposal.

No-Build Alternative

No avoidance, minimization measures would be anticipated with the No-Build Alternative.

2.2.5 Air Quality

Regulatory Setting

The Clean Air Act, as amended in 1990, is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the concentration of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards. Standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), lead (Pb), and sulfur dioxide (SO₂).

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to the State Implementation Plan for achieving the goals of the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

Regional-level conformity is concerned with how well the region is meeting the standards set for carbon monoxide, nitrogen dioxide, ozone, and particulate matter. California is in attainment for the other criteria pollutants. At the regional level, Regional Transportation Plans are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the Regional Transportation Plan, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the Clean Air Act are met. If the conformity analysis is successful, the regional planning organization, such as the Association of Monterey Bay Area Governments and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the Regional Transportation Plan is in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the

projects in the Regional Transportation Plan must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the Regional Transportation Plan, then the proposed project is deemed to meet regional conformity requirements for purposes of the project-level analysis.

Conformity at the project-level also requires “hot spot” analysis if an area is in “nonattainment” or “maintenance” for carbon monoxide and/or particulate matter. A region is a “nonattainment” area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as non-attainment areas but have recently met the standard are called “maintenance” areas.

“Hot spot” analysis is essentially the same, for technical purposes, as carbon monoxide or particulate matter analysis performed for National Environmental Policy Act and California Environmental Quality Act purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the carbon monoxide standard to be violated and, in “nonattainment” areas, the project must not cause any increase in the number and severity of violations. If a known carbon monoxide 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 (Phase 1 and Phase 2)

An Air Quality Report was completed for the project in March 2009 and updated on May 30, 2012.

The project lies in the North Central Coast Air Basin, which spans Monterey, Santa Cruz and San Benito counties. The basin sits along the Central Coast of California, covering an area of 5,159 square miles, and is bordered by the Santa Cruz Mountains to the northwest, the Diablo Mountain Range to the northeast, the Gabilan Mountain Range to the southeast, and the Santa Lucia Mountains to the south.

The Pacific High pressure system dominates the climate in the region. Coastal winter temperatures generally range from 45°Fahrenheit to 50°Fahrenheit, while summer temperatures range from 60°Fahrenheit to the low 70s°Fahrenheit. Greater temperature extremes are experienced in the inland valleys. Average precipitation for the project area is 16 to 20 inches per year, with most rainfall occurring from December through March.

Along with the updraft caused by the daytime warming of the interior valleys, the Pacific High causes very persistent off-shore breezes of 2 to 15 miles per hour between early May and early September. As the air in the high-pressure system descends during the day, it usually forms a very stable inversion. This inversion is made up of a layer of warm air over a layer of coastal air that has cooled as it passes over ocean waters. Vertical air movement is restricted by this inversion that traps pollutants underneath. Fog and cool temperatures are common in the summer, particularly in the mornings. Because the mountain ranges of the region generally run northwest to southeast, the winds are funneled through the valleys.

At night, a reversal of the pattern takes place. As the air over the land cools relative to the ocean, the wind moves back up in the valleys and out toward the water in the Monterey Bay area. This occurrence is more pronounced from September to early May. These nocturnal winds vary from 2 to 25 miles per hour. By early May, prevailing sea breezes from the west and northwest become dominant again.

Winter brings unstable atmospheric conditions as the Pacific High migrates southward. Without the typical inversions, vertical air movement is again possible, so good air quality dominates in the winter and early spring.

Environmental Consequence (Phase 1 and Phase 2)

Alternatives 11 and 12

The North Central Coast Air Basin is in attainment or unclassified for all National Ambient Air Quality Standards (see Table 2.22). For this reason, conformity requirements do not apply to the proposed project.

The proposed project is exempt from conformity per 40 Code of Federal Regulations 93.126. The applicable State Implementation Plan is the 2007 Federal Maintenance Plan for National Ambient Air Quality Standards, and the 2007 Air Quality Maintenance Plan.

The project is currently programmed for Project Approval and Environmental Document support with a combination of Interregional Improvement Program (IIP) and Federal Demonstration funds. Due to funding constraints, a phasing plan for constructing this project has been developed. It is proposed to split the project into 2 phases that will allow the delivery of fully functioning portions of Alternative 11 as funding becomes available.

Plans, Specifications and Estimates and Right of Way funding for Phase 1 of Alternative 11 has been approved in the 2012 State Transportation Improvement Program (STIP).

According to the Code of Federal Regulations, 23 CFR part 450 only projects included in the federally approved TIP will be eligible for federal funds administered by the FHWA. In metropolitan planning areas, transportation projects requiring funds administered by FHWA shall be included in the Metropolitan Transportation Plan (MTP) and the federal TIP (MTIP). The Metropolitan Planning Organization (MPO) responsible for the development of the MTP and federal TIP for the proposed project is the Association of Monterey Bay Area Governments (AMBAG). The 2012 STIP programmed the funding for the next phases of the project (Plans, Specification and Estimates and Right of Way). Furthermore, AMBAG's 2010 MTP/MTIP (as amended October 2012), and TAMC's 2010 RTP (as amended September 2012) include the project as fiscally constrained in the amount of \$109,194,000. AMBAG took board action to amend the MTP/MTIP on October 12, 2012 to incorporate the revised schedule and funding as listed in the MTP's list of "Revenue Constrained" projects. Concurrently Transportation Agency of Monterey County (TAMC), the Regional Transportation Planning Agency (RTPA) took board action to amend the Regional Transportation Planning Agency (RTP) on September 26, 2012. The amendments to the MTP/MTIP and the RTP, as described above, are consistent with the current State TIP, as approved by the California Transportation Commission in April 2012, which programmed the next phases of the project development including both Right of Way and Plans, Specifications and Estimates.

Table 2.22 North Central Coast Air Basin Air Quality Standards and Status

Pollutant	Averaging Time	State Standard	State Attainment Status	Federal Standard	Federal Attainment Status	Health and Atmospheric Effects	Typical Sources
Ozone (O ₃) ^a	1 hour 8 hours	0.09 ppm 0.070 ppm	Not Available	– ^b 0.08 ppm	Unclassified/ Attainment	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include a number of known toxic air contaminants.	Low-altitude ozone is almost entirely formed from reactive organic gases (ROG) and nitrogen oxides (NO _x) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes. Biologically produced ROG may also contribute.
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 ppm 9.0 ppm ^c 6 ppm	Attainment	35 ppm 9 ppm –	Unclassified/ Attainment	Asphyxiant. CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Respirable Particulate Matter (PM ₁₀) ^a	24 hours Annual	50 µg/m ³ 20 µg/m ³	Attainment	150 µg/m ³ –	Unclassified/ Attainment	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 aerosol and solid compounds are part of PM ₁₀ .	Dust- and fume-producing industrial and agricultural operations; combustion smoke; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources (wind-blown dust, ocean spray).
Fine Particulate Matter (PM _{2.5}) ^a	24 hours Annual	– 12 µg/m ³	Attainment	35 µg/m ³ 15 µg/m ³	Unclassified/ Attainment	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – considered a toxic air contaminant – is in the PM _{2.5} size range. Many 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 (including photochemical) reactions involving other pollutants including NO _x , sulfur oxides (SO _x), ammonia, and ROG.
Nitrogen Dioxide (NO ₂)	1 hour Annual	0.25 ppm –	Attainment	– 0.053 ppm	Unclassified/ Attainment	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain.	Motor vehicles and other mobile sources; refineries; industrial operations.
Sulfur Dioxide (SO ₂)	1 hour 3 hours 24 hours Annual	0.25 ppm – 0.04 ppm –	Attainment	– 0.5 ppm 0.14 ppm 0.030 ppm	Attainment	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.
Lead (Pb) ^d	Monthly Quarterly	1.5 µg/m ³ –	Attainment	– 1.5 µg/m ³	Unclassified/ Attainment	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also considered a toxic air contaminant.	Primary: lead-based industrial process like battery production and smelters. Past: lead paint, leaded gasoline. Moderate to high levels of aerially deposited lead from gasoline may still be present in soils along major roads, and can be a problem if large amounts of soil are disturbed.

Table 2.22 Sources:

California Air Resources Board Ambient Air Quality Standards chart, 05/17/2006 (<http://www.arb.ca.gov/aqs/aaqs2.pdf>). Sonoma-Marín Area Rail Transit Draft Air Pollutant Standards and Effects table, November 2005, page 3-52. U.S. Environmental Protection Agency and California Air Resources Board air toxics websites, 05/17/2006 (Change sources as appropriate.)

Notes: ppm = parts per million; $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

^a Annual PM10 National Ambient Air Quality Standard revoked October 2006; was $50 \mu\text{g}/\text{m}^3$. 24-hr. PM2.5 National Ambient Air Quality Standard tightened October 2006; was $65 \mu\text{g}/\text{m}^3$.

^b 12/22/2006 Federal court decision may affect applicability of Federal 1-hour ozone standard. Prior to 6/2005, the 1-hour standard was 0.12 ppm. Case is still in litigation.

^c Rounding to an integer value is not allowed for the State 8-hour CO standard. A violation occurs at or above 9.05 ppm.

^d The Air Resources Board has identified lead, vinyl chloride, and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM10 and, in larger proportion, PM2.5. Both the Air Resources Board and U.S. Environmental Protection Agency have identified various organic compounds that are precursors to ozone and PM2.5 as toxic air contaminants. There is no threshold level of exposure for adverse health effect determined for toxic air contaminants, and control measures may apply at ambient concentrations below any criteria levels specified for these pollutants or the general categories of pollutants to which they belong.

Source: California Air Resources Board (2-7-2012); mg/m³=milligrams per cubic meter; NA=no standard implemented; ppm=part per million; $\mu\text{g}/\text{m}^3$ =micrograms per cubic meter

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equalled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
 2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above $150 \mu\text{g}/\text{m}^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S.EPA for further clarification and current national policies.
 3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole
 4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
 5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
 6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
 7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
 8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
 9. On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
 10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
 11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard ($1.5 \mu\text{g}/\text{m}^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
 12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.
- For more information please call ARB-PIO at (916) 322-2990 California Air Resources Board (2/7/12)

Traffic and Emissions

Year 2008 traffic volumes for State Route 156 within the project area are represented by an annual average daily traffic (AADT) count of 30,500, with 3,200 vehicles in the peak hour. Traffic has grown about 47.5 percent in the last 20 years. At this rate, traffic expected for 2018 (estimated construction year) would rise to an annual average daily traffic count of about 36,580, and the traffic count for 2041 (estimated horizon year) would be 51,163. The estimated emissions are the same as those shown in the 2009 air quality study. This is because the emissions differences between 2018 and 2041 would be minimal. The difference between 2038 and 2041 would be less than the margin of error for the model.

The CTEMFAC model estimates only to 2040. The California Air Resources Board expects that, by 2040, decreases in emissions due to vehicle improvements and cleaner-burning fuel reformulations will have reached their limit. This means that the emissions estimates for 2040 and 2045 would be about the same, with the same number and type of vehicles.

Mobile Source Air Toxics

In addition to the criteria pollutants discussed earlier, the U.S. Environmental Protection Agency also regulates air toxics, including particulate matter contained in diesel exhaust. Diesel engine exhaust contains a complex mixture of gases and particulates that have raised concerns about their potential for adverse health effects. Human exposure to diesel engine exhaust comes from both highway and non-highway sources. Studies of the risks are inconclusive, however, and the U.S. Environmental Protection Agency has yet to establish air quality standards or guidelines for assessing the project-level effects of mobile air toxics. Such limitations make the study of mobile air toxic concentrations, exposures, and health impacts difficult and uncertain, especially on a quantitative basis. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (such as airplanes), area sources (such as dry cleaners) and stationary sources (such as factories or refineries).

Mobile source air toxics are a subset of the 188 air toxics defined by the Clean Air Act. These toxics are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The U.S. Environmental Protection Agency is the lead federal agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of mobile source air toxics. The Environmental Protection Agency issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources, Title 66 Code of Federal Regulation 17229 (March 2006). This rule was issued under the authority in Section 202 of the Clean Air Act. In its rule, the Environmental Protection Agency examined the impacts of existing and newly promulgated mobile source control programs, including reformulated gasoline (RFG) program, national low emission vehicle (NLEV) standards, Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy-duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements.

Unavailable Information for Project-Specific Mobile Source Air Toxics Impact Analysis: This Environmental Impact Report/Environmental Assessment with Finding of No Significant Impact includes a basic analysis of the likely mobile source air toxics emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this environmental document. Due to these limitations, the following discussion is included in accordance with Council on Environmental Quality regulations (40 Code of Federal Regulations 1502.22(b)) regarding incomplete or unavailable information.

Information that is Unavailable or Incomplete: Evaluating the environmental and health impacts from mobile source air toxics on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the mobile source air toxics health impacts of this project.

Emissions: The Environmental Protection Agency tools to estimate mobile source air toxics emissions from motor vehicles are not sensitive to key variables determining emissions of mobile source air toxics in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model—emission

factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects.

For particulate matter, the model results are not sensitive to average trip speed, although the other mobile source air toxics emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE 6.2 for both particulate matter and mobile source air toxics are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of particulate matter under the conformity rule, the Environmental Protection Agency has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate mobile source air toxics emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

Dispersion. The tools to predict how mobile source air toxics disperse are also limited. The Environmental Protection Agency's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the National Ambient Air Quality Standards. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The National Cooperative Highway Research Program (NCHRP) is conducting research on best practices in applying models and other technical methods in the analysis of mobile source air toxics. This work also will focus on identifying appropriate methods of documenting and communicating mobile source air toxics impacts in the National Environmental Policy Act process and to the general public. Along with these general limitations of dispersion models, the Federal Highway Administration is also faced with a lack of monitoring data in most areas for use in establishing project-specific mobile source air toxics background concentrations.

Exposure Levels and Health Effects. Finally, even if emission levels and concentrations of mobile source air toxics could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult to accurately calculate annual concentrations of mobile source air toxics near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various mobile source air toxics, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision-makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of Mobile Source Air Toxics. Research into the health impacts of mobile source air toxics is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of the Environmental Protection Agency's efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the National Air Toxics Assessment database best illustrate the levels of various toxics when aggregated to a national or state level.

The Environmental Protection Agency is in the process of assessing the risks of various kinds of exposures to these pollutants. The Environmental Protection Agency's Integrated Risk Information System (IRIS) is a database of human health

effects that may result from exposure to various substances found in the environment. The Integrated Risk Information System database is located at <http://www.epa.gov/iris>. The following toxicity information for the six prioritized mobile source air toxics was taken from the Integrated Risk Information System database *Weight of Evidence Characterization* summaries. This information is taken verbatim from Environmental Protection Agency's Integrated Risk Information System database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- **Acrolein** carcinogenicity cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust** (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.
- **Diesel exhaust** also represents chronic respiratory effects, possibly the primary noncancer hazard from mobile source air toxics. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

Recent studies have reported that proximity to roadways is related to adverse health outcomes, particularly respiratory problems. Much of this research is not specific to mobile source air toxics, instead surveying the full spectrum of both criteria and other pollutants. The Environmental Protection Agency cannot evaluate the validity of these studies, but more importantly, it does not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of mobile source air toxics emissions from each of the project alternatives and mobile source air toxics concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have “significant adverse impacts on the human environment.”

Project-Level Analysis

The risk of exposure to these pollutants is higher nearer to the roadway; therefore, the exposure risk is lessened when the highway is moved farther away from a sensitive receptor. Exposures are thought to be higher within 100 yards of the highway. Three categories of projects have been established for varying levels of mobile source air toxics analysis:

- Category 1: No Meaningful Potential Mobile Source Air Toxics Effects – projects qualifying as a categorical exclusion under 23 Code of Federal Regulations 771.117(c); projects exempt under the Clean Air Act conformity rule under 40 Code of Federal Regulations 93.126; or other projects with no meaningful impacts on traffic volumes or vehicle mix.
- Category 2: Low Potential Mobile Source Air Toxics Effect – projects that improve highway operations, but have an annual average daily traffic (AADT) less than 150,000 in the design year.
- Category 3: Higher Potential Mobile Source Air Toxics Effect – project that would alter an intermodal freight facility near sensitive receptors that have the potential to concentrate high levels of diesel particulate in one location, or project that would construct new highways, or add capacity to existing highways, where the annual average daily traffic is greater than 150,000.

The average annual daily traffic count for the project in year 2006 (existing conditions) for State Route 156 is 27,400 vehicles. This annual daily traffic is expected to increase to 40,200 vehicles by year 2036 (future conditions).

The average annual daily traffic count for the project in year 2006 (existing conditions) for U.S. Route 101 is 56,779 vehicles. This annual daily traffic is expected to increase to 71,142 vehicles by year 2036 (future conditions).

Vehicle percentages for the project area are 92 percent autos, 3.2 percent medium trucks and 4.8 percent heavy trucks.

The project would not fall into Category 1 because it is not a categorical exclusion or exempted by the Clean Air Act conformity rule. The project also does not fall into Category 3 because it would not alter an intermodal freight facility nor would it create new or add significantly to the capacity of a roadway where the annual average daily traffic would exceed 150,000 vehicles.

The amount of mobile source air toxics emitted would be proportional to the vehicle miles traveled, assuming that other variables such as fleet mix are the same. The vehicle miles traveled for both build alternatives is higher than the No-Build Alternative because the additional capacity increases the roadway efficiency and attracts rerouted trips within the transportation network. This increase in vehicle miles traveled would lead to higher mobile source air toxics emissions along the highway corridor, and a corresponding decrease in mobile source air toxics emissions on parallel routes. The emissions increase is offset by lower mobile source air toxics emission rates due to increased speeds. Emissions of all mobile source air toxics, except for diesel particulate matter decrease as speed increases based on the Environmental Protection Agency's emissions model. The extent to which these emissions decreases will offset volume of miles traveled-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Emissions will likely be lower than present levels in the design year as a result of the Environmental Protection Agency's national control programs that are projected to reduce mobile source air toxics emissions by 57 to 87 percent from 2000 to 2020. 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 Environmental Protection Agency-projected reductions are so significant (even after accounting for vehicle miles traveled growth) that mobile source air toxics emissions in the study area are likely to be lower in the future as well.

Asbestos

The California Environmental Quality Act requires that environmental documents address human exposure to both naturally occurring and structural airborne asbestos. The U.S. Environmental Protection Agency, the California Air Resources Board, and most air pollution control districts regulate asbestos as an airborne toxic material. However, no ultramafic rocks occur within 12 miles of the project; therefore, the impact from naturally occurring asbestos during project construction would be minimal to none. If structures containing asbestos are to be demolished, it is the responsibility of the contractor to comply with the rules and regulations of the air pollution control district.

Construction Impacts

During construction, the proposed project would generate additional air pollutants. The exhaust from construction equipment contains hydrocarbons, oxides of nitrogen, carbon monoxide, suspended particulate matter, and odors. The asphalt products that are applied contain reactive organic gasses. However, the largest percentage of pollutants would be windblown dust generated during excavation, grading, hauling, and various other activities. The impacts of these activities would vary each day as construction progresses. Dust and odors at some residences very close to the right-of-way could probably cause occasional annoyance and complaints.

The Monterey Bay Unified Air Pollution Control District includes the emissions of ozone precursors in its annual emissions budget of its Air Quality Attainment Plan. The Monterey Bay Unified Air Pollution Control District requests an estimate of daily PM₁₀ emissions from construction activities. Emissions of greater than 82 pounds per day of PM₁₀ are considered an adverse effect. Projects that grade and excavate greater than 2 acres per day or that grade greater than 8.1 acre per day have the potential to exceed this threshold.

Based on preliminary project plans, the maximum area that the project would disturb is 390 acres or an approximate average daily grading of 2.3 acres, which would yield 11.8 pounds per day of particulate matter (PM₁₀) from surface-disturbing activities (Table 2.23). This is well within the 82 pounds of PM₁₀ per day threshold of the Monterey Bay Unified Air Pollution Control District.

Table 2.23 Estimate of Disturbed Area and Daily Grading by Build Alternative

Activity	Alternative 11	Alternative 12
Area to grade (acres)	390	363
Length of exposure working days (grading days)	550 (170)	550 (200)
Daily grading (acres)	2.3	1.82
Average daily emissions—pounds PM ₁₀ per day (at 10.25 pounds per acre per day)	23.6	18.7
Average daily emissions—with 50% credit for daily watering (pounds PM ₁₀ per day)	11.8	9.3

Source: California Department of Transportation Air Quality Study 2009

No-Build Alternative

No impacts to air quality are anticipated with the No-Build Alternative.

***Avoidance, Minimization, and/or Mitigation Measures
Alternatives 11 and 12***

The Monterey Bay Unified Air Pollution Control District administers air quality regulations developed at the state and local levels. According to Caltrans’ Standard Specifications for construction projects, the contractor must comply with the Monterey Bay Unified Air Pollution Control District’s rules, ordinances and regulations.

Caltrans’ Standard Specifications pertaining to dust control and dust palliative requirements are a required part of all construction contracts and should effectively reduce and control emission impacts during construction. Typical dust and emission control methods include watering the construction site, and runoff and erosion control. These impacts are addressed through Caltrans’ Standard Specifications, Section 7-1.0F, “Air Pollution Control,” and Section 10, “Dust Control.”

The contractor would use on-road diesel fuel approved by the California Air Resources Board in diesel construction vehicles when it is locally available.

The Monterey Bay Unified Air Pollution Control District recommends the following minimization measures in addition to daily watering of all disturbed areas required by Caltrans’ Standard Specifications:

- Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil and wind exposure.
- Prohibit all grading activities during periods of high wind (over 15 miles per hour).
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations and hydro-seed area.
- Cover all trucks hauling dirt, sand, or loose materials. If covering is not possible, haul trucks must maintain at least 0.6 m (2.0 feet) of freeboard.
- Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land.
- Plant vegetative cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Install wheel washers or a stabilized construction entrance at the entrance to construction sites for all exiting trucks.
- Sweep streets if visible soil is carried out from the construction site.
- Post a publicly visible sign that specifies the telephone number and person to contact regarding dust complaints. This person would respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District would be visible to ensure compliance with Rule 402 (Nuisance).
- Minimize the area under construction at any one time.

Use of appropriate measures from this list can further reduce emissions of fugitive dust from the project.

Information required to quantify construction emissions is not available at this time, so standard minimization measures have been included to address health risks associated with the proposed project. Minimization measures made available to the Resident Engineer and implemented as feasible include the following:

- Maintain all construction equipment according to manufacturer's specifications.

- Fuel all off-road and portable diesel-powered equipment including bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, and auxiliary power units, with low-sulfur diesel fuel certified by the California Air Resources Board (non-taxed version suitable for off-road).
- Maximize, to the extent feasible, the use of diesel construction equipment meeting California Air Resources Board's 1996 or newer certification standard for off-road heavy-duty diesel engines.
- Electrify equipment where feasible.
- Substitute gasoline-powered for diesel-powered equipment where feasible.
- Use alternatively fueled construction equipment onsite, where feasible, such as compressed natural gas, liquefied natural gas, propane, or bio-diesel.
- Use equipment that has Caterpillar pre-chamber diesel engines.
- Develop a comprehensive construction activity management plan designed to minimize the amount of large construction equipment operating during any given time period.
- Schedule construction truck trips during non-peak hours to reduce peak hour emissions.
- Limit the length of the construction work day, if necessary.
- Phase construction activities, if appropriate.
- Maintain at least 2 feet of freeboard on haul trucks.
- Cover all trucks hauling dirt, sand, or loose materials.

No-Build Alternative

No avoidance, minimization and mitigation measures would be required under the No-Build Alternative.

2.2.6 Noise and Vibration

Noise is defined as unwanted sound. Sound level, frequencies, exposure period, and changes or fluctuations in the noise levels during exposure affect sound perceived by

the human ear. Sound levels are measured as decibels. Since the human ear cannot perceive all frequencies equally well, measured sound levels are often adjusted, or weighted to correspond to human hearing. This adjusted unit is known as the A-weighted decibel (dBA). All references to sound levels in this report refer to A-weighted decibels.

The A-weighted decibel unit describes a noise level at just one moment. Since very few noises are constant, other ways of describing noise over extended time periods have been developed. One way of describing fluctuating sound is to describe the fluctuating noise heard over a specific period as if it were a steady unchanging sound. For this condition, a descriptor called the equivalent sound level, $Leq(h)$ where h represents time, can be computed. Highway traffic noise impacts are evaluated by using average noise levels at sensitive receivers during the worst or noisiest one-hour period of the day.

Regulatory Setting

The National Environmental Policy Act of 1969 and the California Environmental Quality Act provide the broad basis for analyzing and abating the effects of highway traffic noise. 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 the California Environmental Quality Act and the National Environmental Policy Act.

California Environmental Quality Act

The California Environmental Quality Act 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 the California Environmental Quality Act, then the act dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The rest of this section will focus on the National Environmental Policy Act-23 Code of Federal Regulations 772 noise analysis; please see Chapter 3 for further information on noise analysis under the California Environmental Quality Act.

National Environmental Policy Act and 23 Code of Federal Regulations 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 Code of Federal Regulations 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 contain noise abatement criteria 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. For example, the criterion for residences (67 decibels) is lower than the criterion for commercial areas (72 decibels).

Table 2.24 lists the noise abatement criteria for use in the National Environmental Policy Act and 23 Code of Federal Regulations 772 analysis. Figure 2-11 shows the noise levels of typical activities.

Table 2.24 Activity Categories and Noise Abatement Criteria

Activity Category	Noise Abatement Criteria, A-weighted Noise Level (dBA), Leq(h)	Description of Activities
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	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above
D	--	Undeveloped lands
E	52 Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Source: Caltrans Traffic Noise Analysis Manual, 2006

A-weighted decibels (dBA) are adjusted to approximate the way humans perceive sound. Leq(h) is the steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual time-varying levels over 1 hour.

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area		Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		Library
Quiet Rural Nighttime	30	Bedroom at Night, Concert Hall (Background)
	20	Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Figure 2-11 Noise Level Equivalents

In accordance with Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006*, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12-decibel 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 decibel of the noise abatement criteria.

If it is determined that the project would 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 noise abatement measures that would likely be incorporated in the project.

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 5-decibel reduction 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, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies' input, newly constructed development versus development pre-dating 1978, and the cost per benefited residence.

Affected Environment

A Noise Study Report was completed for the project in March 2009, and updated by memo April 2012, because:

- The project is federally funded, and construction of additional traffic lanes qualifies the project as a Type 1 project under the National Environmental Policy Act.
- Highway noise sensitive land uses, described in Table 2.24, are found within the project area. The south side of State Route 156 is agricultural with a few widely dispersed rural residences. Residential subdivisions exist on the north side of State Route 156. U.S. Route 101 between its interchanges with State Route 156 and San Miguel Canyon Road has mostly commercial uses, though a few homes sit near the highway.

Fifteen locations in the project area were chosen as areas with the highest current and potential future noise levels. The sensitive receivers at these 15 locations represent nearby residences, a school and a church. Field measurements were recorded with a calibrated noise meter, and simultaneous traffic counts were collected. Field measurements were conducted with simultaneous traffic counts to calibrate the Traffic Noise Model that was then used to predict peak hour noise levels for the

existing and the build and no-build design years (20 years after project completion). An additional location between Vierra Canyon Road and Berta Canyon Road was added in 2012.

Environmental Consequences under the National Environmental Policy Act

According to Caltrans Traffic Noise Analysis protocol, a noise impact occurs when the future noise level at an affected receiver approaches or exceeds the noise abatement criteria. Caltrans measured existing noise levels at several receivers during the highest traffic noise hour. See Table 2.25 after the receiver descriptions below for a comparison of the noise impacts at the sensitive receptors. See Figures 2-12 through 2-17 for aerial photos of the noise receptor locations.

Alternatives 11 and 12

All receivers represent residences, one school and one church.

Phase 1

Receiver 1(Phase 1)

- Receiver 1 represents a church, a school and a residence at 8220 Prunedale North Road.
- Noise levels in 2036 are predicted to increase by 2 decibels over existing noise levels to meet noise abatement criteria (67 decibels).
- Conversations with the pastor of the church and school indicated a soundwall is not wanted.

Receiver 3(Phase 1)

- Receiver 3 represents seven residences at 17360 Highway 156 and McGuffie Road.
- Existing noise levels at 71 decibels exceed the noise abatement criteria for land use (67 decibels).
- For Alternative 11, noise levels in 2036 are predicted to be 68 decibels with the completed project, which would exceed the noise abatement criteria for land use (67 decibels).
- For Alternative 12, noise levels in 2036 are predicted to be 65 decibels with the completed project, which would be below the noise abatement criteria for land use (67 decibels).

- Even though 2036 noise levels are predicted to be 3 decibels less than the existing noise levels of 71 decibels, 2036 noise levels exceed the noise abatement criteria for land use (67 decibels).
- To obtain a 5-decibel reduction at this location, a 10-foot-tall, 950-foot-long soundwall would be required.
- A soundwall would most likely be incorporated into the project under Alternative 11, if the total cost of the soundwall at this location is less than the total cost allowance.
- The total cost allowance calculated in accordance with Caltrans Traffic Noise Analysis protocol is \$378,000.
- The current soundwall cost is \$229,000.

Receiver 4(Phase 1)

- Receiver 4 represents about 22 residences on both sides of Cathedral Oak Boulevard and next to State Route 156.
- Noise levels for 2036 at this location are anticipated to be 9 decibels less than the existing noise level of 64 decibels under Alternative 11, and 1 decibel less than existing noise levels of 64 decibels under Alternative 12.
- Future noise levels for 2036 would not approach the noise abatement criteria level for land use (67 decibels).
- Abatement would not be considered at this location.

Receiver 5(Phase 1)

- Receiver 5 represents residences in the Mira Loma development at the west end of the project. These residences are accessed from Route 156 via Monte Del Lago, or off Castroville Boulevard via Cielo Azul.
- Under Alternative 11, predicted noise levels for 2036 for these residences are anticipated to be 7 decibels louder than the existing noise level of 52 decibels, and to be 5 decibels louder than the existing noise level of 52 decibels under Alternative 12.
- Neither alternative would cause a substantial increase in noise levels or cause noise levels to approach the noise abatement criteria level for land use (67 decibels).
- Abatement would not be considered at this location.

Receiver 6(Phase 1)

- Receiver 6 represents one residence south of State Route 156.
- Future noise levels for 2036 are anticipated to be 10 decibels louder than the existing condition of 53 decibels under Alternative 11, and 3 decibels louder than the existing condition of 53 decibels under Alternative 12.
- Neither alternative would cause a substantial increase in noise levels or cause noise levels to approach the noise abatement criteria for land use (67 decibels).
- Abatement would not be considered at this location.

Receiver 7(Phase 1)

- Receiver 7 represents several residences near the Simonville development at 191 Highway 156.
- Existing noise levels at 73 decibels exceed the noise abatement criteria for land use (67 decibels).
- Noise levels in 2036 are predicted to be 67 decibels with the completed project under Alternative 11.
- Noise levels in 2036 are predicted to be 73 decibels with the completed project under Alternative 12.
- Email correspondence with property owner indicated a soundwall is not wanted.

Receiver 9(Phase 1)

- Receiver 9 represents three residences north of State Route 156 and about one-half mile west of Meridian Road.
- Noise levels for 2036 are anticipated to be 7 decibels quieter than the existing condition of 64 decibels under Alternative 11, and 1 decibel louder than the existing condition of 64 decibels under Alternative 12.
- Neither alternative would cause a substantial increase in noise levels or cause noise levels to approach the residential noise abatement criteria level for land use (67 decibels).
- Abatement would not be considered at this location.

Receiver 13 (Phase 1)

- Receiver 13 represents 27 residences on both sides of Charter Oak Boulevard and along existing State Route 156.

- Future noise levels for 2036 are anticipated to be 14 decibels quieter than the existing condition of 65 decibels under Alternative 11, and 10 decibels quieter than the existing condition of 65 decibels under Alternative 12.
- Neither alternative would cause an increase in noise levels. Neither alternative would cause noise levels to approach or exceed the noise abatement criteria level for land use (67 decibels).
- Abatement would not be considered at this location.

Receiver 14 (Phase 1)

- Receiver 14 represents five residences atop a hill south of State Route 156.
- Existing noise levels are 58 decibels.
- Noise levels in 2036 are predicted to be 67 decibels with the completed project under Alternative 11, which would meet the noise abatement criteria for land use (67 decibels).
- Noise levels in 2036 are predicted to be 66 decibels with the completed project under Alternative 12, and would not meet the noise abatement criteria for land use (67 decibels).
- The highway is in a cut section well below the level of the houses. It is not feasible to build a soundwall on the Caltrans right-of-way line that would adequately block the line of sight from the homes to vehicles on the highway.

Phase 2

Receiver 2(Phase 2)

- Receiver 2 represents five residences on Meridian Spur off the eastbound State Route 156 connector.
- Noise levels in 2036 are anticipated to be 6 decibels less than the existing condition of 64 decibels under Alternative 11, and 8 decibels less than the existing condition of 64 decibels under Alternative 12.
- Future noise levels for 2036 are below the noise abatement criteria level (67 decibels) for land use and do not increase existing noise levels.
- Abatement would not be considered at this location.

Receiver 8(Phase 2)

- Receiver 8 represents three residences near Vierra Canyon Road.

- Future noise levels for 2036 are predicted to be the same as the existing condition of 63 decibels with Alternatives 11 and 12.
- Two of the residences would be acquired for construction under either alternative.
- Neither alternative would cause an increase in noise levels, and neither alternative would cause design year noise levels to approach the noise abatement criteria level for land use (67 decibels).
- Abatement would not be considered at this location.

Receiver 10(Phase 2)

- Receiver 10 represents one residence at 1041 El Camino Real.
- Existing noise levels at 76 decibels exceed the noise abatement criteria for land use (67 decibels).
- Noise levels in 2036 are predicted to be 78 decibels with the completed project, which would exceed the noise abatement criteria for land use (67 decibels).
- To obtain a 5-decibel reduction at this location, a 12-foot-tall, 510-foot-long barrier would be required.
- A barrier would most likely be incorporated into the project, if the barrier's total cost at this location were less than the total cost allowance.
- The total cost allowance calculated in accordance with Caltrans' Traffic Noise Analysis protocol is \$54,000.
- The barrier has been determined feasible but not reasonable.
- The barrier is recommended for construction because of severe noise impact.
- The current barrier cost is \$137,000.

Receiver 11(Phase 2)

- Receiver 11 represents eight residences on Berta Canyon Road east of U.S. Route 101.
- Under both alternatives, 2036 noise levels for these residences are anticipated to be 4 decibels louder than the existing condition of 61 decibels.
- Neither alternative would cause a substantial increase in noise levels. Neither alternative would cause noise levels to approach or exceed the residential noise abatement criteria level.

- Abatement would not be considered at this location.
- Based on comments from residents during circulation of the draft environmental document, a new frontage road is proposed connecting Berta Canyon Road to Vierra Canyon Road. The frontage road would be built at an at-grade elevation of 15 feet to 60 feet below the elevation of the homes between Berta Canyon Road and Vierra Canyon Road.
- Future noise levels were modeled in 2012- there would be no substantial increase in noise levels.
- Abatement would not be considered at this location Due to the lower elevation of the proposed frontage road, it would not be reasonable or feasible to build a soundwall in such terrain.

Receiver 12(Phase 2)

- Receiver 12 represents five residences near Messick Lane, south of U.S. Route 101.
- Existing noise levels at 74 decibels exceed the noise abatement criteria for land use (67 decibels).
- Noise levels in 2036 are predicted to be 77 decibels with the completed project, which would exceed the noise abatement criteria for land use (67 decibels).
- To obtain a 9-decibel reduction at this location, a 12-foot-tall, 600-foot-long barrier would be required.
- A barrier would most likely be incorporated into the project, if the barrier's total cost at this location were less than the total cost allowance.
- The total cost allowance calculated in accordance with Caltrans' Traffic Noise Analysis protocol is \$224,000.
- The barrier has been determined feasible and reasonable.
- The barrier is recommended for construction.
- The current barrier cost is \$161,000.

Receiver 15(Phase 2)

- Receiver 15 represents eight residences on Lavender Lane.
- Existing noise levels are 66 decibels.

- Noise levels in 2036 are predicted to be 67 decibels under Alternatives 11 and 12, which would meet the noise abatement criteria for land use (67 decibels).
- Because these residences are elevated above the highway right-of-way line by about 30 feet, noise abatement at the highway right-of-way is not feasible here.

Table 2.25 Phase 1 Noise Impact Analysis for Alternatives 11 and 12

Receiver # and Representative Location	Existing Noise Level (dBA)	Predicted Noise Level without Project (dBA) Alt. 11/ Alt.12	Predicted Noise Level with Project (dBA) Alt.11/Alt.12	Noise Impact Requiring Abatement Consideration	Predicted Noise Level with Abatement (dBA)			Reasonable and Feasible?
					10-foot Wall*	12-foot Wall*	14-foot Wall*	
1. 8220 Prunedale North Road, residential property	65	67/67	67/67	Yes	NA	NA	NA	Not desired by neighbors
3. 17360 Highway 156, residential property	71	72/72	68/65	Yes	62	61	60	Yes
4. 9755 Maul Oak Place residential property	65	65/65	54/64	No	NA	NA	NA	NA
5. Mira Loma/Cielo Azul, Monte del Lago, residential property	52	52/52	59/57	No	NA	NA	NA	NA
6. 175 Highway 156, residential property	53	54/54	63/57	No	NA	NA	NA	NA
7. 191 Highway 156, residential property	73	73/73	67/73	Yes	NA	NA	NA	Not desired by neighbors
9. 140 Highway 156, residential property	64	64/64	56/66	No	NA	NA	NA	NA
13. 9834 Rye Court, residential property	65	65/65	51/55	No	NA	NA	NA	NA
14. 145 Highway 156, residential property	58	58/58	67/64	No	NA	NA	NA	Not feasible due to cut section below houses.

*Indicates height of proposed wall to be included in the project.

NA=Not Applicables

Table 2.25a Phase 2 Noise Impact Analysis for Alternatives 11 and 12

Receiver # and Representative Location	Existing Noise Level (dBA)	Predicted Noise Level without Project (dBA) Alt. 11/ Alt.12	Predicted Noise Level with Project (dBA) Alt.11/Alt.12	Noise Impact Requiring Abatement Consideration	Predicted Noise Level with Abatement (dBA)			Reasonable and Feasible?
					10-foot Wall*	12-foot Wall*	14-foot Wall*	
2. 46 Meridian Spur, residential property	64	64/64	58/56	No	NA	NA	NA	NA
8. 17653 Vierra Canyon Road, residential property	63	65/65	63/63	No	NA	NA	NA	NA
10. 1041 El Camino Real, residential property (Hern and Co.)	76	78/78	78/78	Yes	73	72	71	Yes
11. 17671 Berta Canyon Road, residential property	61	65/61	65/65	No	NA	NA	NA	NA
12. 8007 Messick Lane, residential property	74	76/76	77/77	Yes	68	67	66	Yes
15. 7966 Lavender Lane, residential property	66	67/67	66/66	No	NA	NA	NA	Not feasible. Residences are elevated above highway line.

*Indicates height of proposed wall to be included in the project.
NA=Not Applicable



Figure 2-12 Receivers 12 and 15 and Barrier 2 near U.S. Route 101 and Messick Road (post miles highlighted in light green)



Figure 2-13 Receivers 1, 8, 10 and 15 and Barrier 1 near U.S. Route 101, north of Vierra Canyon Road



Figure 2-14 Receivers 2, 3, 10, 11 and Barrier 3 near State Route 156, and U.S. Route 101/State Route 156 interchange (post miles highlighted in light green)



Figure 2-15 Receivers 5 and 7 near State Route 156, east of Castroville Boulevard (post miles highlighted in light green)



Figure 2-16 Receivers 4 and 13 at Charter Oak Road and Cathedral Oak Road and State Route 156 (post miles highlighted in light green)



Figure 2-17 Receivers 6, 9 and 14 in the vicinity of State Route 156 and Meridian Road (post miles highlighted in light green)

Construction Noise Impacts

Local noise levels near the proposed project would increase during project construction. The amount of the increase would vary with the types and models of equipment used (see Table 2.26).

Table 2.26 Construction Equipment Noise Levels

Equipment type	Noise Level Range in Decibels (dBA) at 50 Feet
Bulldozers	77-95
Compressors	70-95
Cranes	70-94
Front Loaders	75-96
Graders	72-92
Scrapers	70-95
Backhoes	74-92

Source: California Department of Transportation Noise Report 2009

Average noise from normal construction activities should be no more than 86 decibels at 50 feet from the source. Assuming normal construction activities, residences up to 400 feet from the construction activity could experience temporary noise levels greater than the noise abatement criteria level (67 dBA Leq for residences) during construction. Nighttime construction is possible with this project.

Construction of either build alternative is expected to take about 2.5 years. Grading operations would take about 170 working days for Alternative 11 and 200 working days for Alternative 12.

Avoidance, Minimization, and/or Noise Abatement Under the National Environmental Policy Act

Alternatives 11 and 12

Phase 1

Receiver 3

Based on preliminary design data and studies completed to date, Caltrans intends to incorporate noise abatement in the form of a barrier at sensitive receptors represented by Receiver 3. The barrier (B3) would be 950 feet long with an average height of 16 feet. Calculations completed by Caltrans engineering staff indicate that the soundwall would reduce noise levels by 5 decibels, resulting in a 62-decibel reading for six residences. Estimated construction cost for the soundwall is \$229,000.

If, during final design, conditions have substantially changed, noise abatement may not be necessary. The final decision of the noise abatement would be made on completion of the project design and the public involvement processes.

Phase 2

Receiver 10

Based on preliminary design data and studies completed to date, Caltrans proposes noise abatement in the form of a soundwall at sensitive receptors represented by Receiver 10. The soundwall would be 510 feet long with an average height of 12 feet. Calculations completed by Caltrans engineering staff indicate that the soundwall would reduce noise levels by 5 decibels, resulting in a 72-decibel reading for one residence. Estimated construction cost for the soundwall is \$137,000.

If, during final design, conditions have substantially changed, noise abatement may not be necessary. The final decision of the noise abatement would be made on completion of the project design and the public involvement processes.

Receiver 12

Based on preliminary design data and studies completed to date, Caltrans intends to incorporate noise abatement in the form of a soundwall at sensitive receptors represented by Receiver 12. The soundwall would be 600 feet long with an average height of 12 feet. Calculations completed by Caltrans engineering staff indicate the soundwall would reduce noise levels by 5 decibels for five residences and meet the noise abatement criteria of 67 decibels. Estimated construction cost for the soundwall is \$161,000.

If, during final design, conditions have substantially changed, noise abatement may not be necessary. The final decision of the noise abatement would be made on completion of the project design and the public involvement processes.

For the build alternatives, Caltrans' Standard Specifications (May 2007, Chapter 7-101I) apply on all state highway construction projects: "The Contractor shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion shall be operated on the job site without the muffler."

The following measures are recommended to minimize noise impacts from construction activities:

- Notice should be published in local news media of the dates and duration of proposed construction activity. A telephone number of the resident engineer or public information office should be included to answer questions about the project from local residents.
- When possible, if nighttime construction is expected, noisier construction activities should be scheduled during the earlier parts of the evening or afternoon, closest to the nearest sensitive receptors.
- If complaints are received, temporary noise barriers can be constructed where construction activities are conducted near residential receptors. If needed, contact district noise staff.
- When construction of recommended noise barriers would not interfere with subsequent construction activity, they should be among the first items of work to minimize the impacts of construction (noise, dust, light, and glare) for residences next to the construction zone.

No-Build Alternative

No avoidance, minimization and mitigation measures are anticipated for the No-Build Alternative.

2.3 Biological Environment

2.3.1 Natural Communities

Regulatory Setting

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, fish passage 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 in Threatened and Endangered Species, Section 2.3.5. Wetlands and other waters are discussed in Section 2.3.2.

Affected Environment

A Natural Environment Study was completed for the project in October 2008. Natural communities in the biological study area include central maritime chaparral, coast live oak woodland, non-native grassland, seasonal and perennial wetlands including saline emergent wetland, riparian forest, ruderal upland, and agricultural and urban developed habitats.

Central Maritime Chaparral (Phase 1)

Central maritime chaparral is designated by the California Department of Fish and Game as a natural community of special concern and is one of the most threatened community types in the California coastal zone. Central maritime chaparral occurs in sandy soils within zones of coastal summer fog. Typical plant species include manzanita (*Arcostaphylos spp.*), *Ceanothus spp.*, coast live oak (*Quercus agrifolia*), and coyote brush (*Baccharis pilularis*). Central maritime chaparral occurs in patches along the U.S. Route 101 corridor and U.S. Route 101/State Route 156 interchange.

Central maritime chaparral provides habitat for many animal species: reptiles such as the California striped racer (*Masticophis lateralis lateralis*), Pacific gopher snake (*Pituophis catenifer catenifer*), coast horned lizard (*Phrynosoma coronatum*), and western fence lizard (*Sceloporus occidentalis*); mammals such as mule deer (*Odocoileus hemionus*), dusky-footed woodrat (*Neotoma fuscipes*), Heermann's kangaroo rat (*Dipodomys heermanni*), California pocket mouse (*Perognathus californicus*), and brush rabbit (*Sylvilagus bachmani*); and birds such as wrentit (*Chamaea fasciata*), bushtit (*Psaltriparus minimus*), scrub jay (*Aphelocoma coerulescens*), white-crowned sparrow (*Zonotrichia leucophrys*), and Lawrence's goldfinch (*Carduelis lawrencei*).

Coast Live Oak Woodlands(Phase 1 and Phase 2)

Coast live oak woodlands are dominated by coast live oak (*Quercus agrifolia*) and support many wildlife species. Common birds found in oak woodlands include the California quail (*Callipepla californica*), scrub jay, oak titmouse (*Parus inornatus*), spotted towhee (*Pipilo erythrophthalmus*), Bewick's wren (*Thryomanes bewickii*), bushtit, and acorn woodpecker (*Melanerpes formicivorus*). Mammals that rely on these woodlands for food and cover include the gray fox (*Urocyon cinereoargenteus*), gray squirrel (*Sciurus griseus*), black-tail jackrabbit (*Lepus californicus*), and mule deer.

Throughout their life stages, oaks provide food, cover, perching and nesting habitat. Rainfall and water availability influence the number and location of oaks. In the project vicinity, oaks occur as closed-canopied, densely populated patches on the landscape. Most of the coast live oak woodland patches occur within the Caltrans highway right-of-way.

Non-native Grassland (Phase 1 and Phase 2)

Non-native annual grassland, some of which is grazed pasture, is found in the project area. Fall rains cause germination of annual plant seeds. Plants grow slowly during the cool winter months; spring temperatures stimulate more rapid growth. Dominant plant species seen in this habitat type include wild oats (*Avena fatua*), Mediterranean barley (*Hordeum marinum*), foxtail barley (*Hordeum murinum*), perennial rye grass (*Lolium perenne*), and Italian rye grass (*Lolium multiflorum*). Non-native grassland dominates the western end of the project area, next to rural and agricultural habitat north and south of the current State Route 156 alignment.

Riparian (Phase 1 and Phase 2)

Riparian zones are ecosystems that support plants adapted to soil and hydrological conditions next to bodies of water. Riparian vegetation is capable of tolerating the seasonal fluctuations in water level and degree of soil saturation from flood-flow to low-flow and potentially no-flow conditions.

Riparian zones provide habitat for a diverse group of plants and animals, stabilize the water channel, and maintain surface water quality by removing potential pollutants in runoff discharging into stream channels. Riparian habitats also supply food, water and cover, and serve as migration routes and connectors between habitats for wildlife.

Riparian communities occur in the project area along Prunedale Creek. Riparian plants associated with the creek channel include black cottonwood (*Populus trichocarpa*), arroyo willow (*Salix lasiolepis*), white alder (*Alnus rhombifolia*), silver wattle acacia (*Acacia decurrens*), California blackberry (*Rubus ursinus*), and western water hemlock (*Cicuta douglasii*). Animals potentially occurring in and along the riparian habitat include the following:

- Birds: red-winged blackbird (*Agelaius phoeniceus*), warbling vireo (*Vireo gilvus*), song sparrow (*Melospiza melodia*), and scrub jay (*Aphelocoma californica*).
- Reptiles: southwestern pond turtle (*Actinemys marmorata pallida*) and coast garter snake (*Thamnophis elegans terrestris*).

- Mammals: raccoon (*Procyon lotor*), bobcat (*Lynx rufus*), and striped skunk (*Mephitis mephitis*).

Movement Corridors(Phase 1 and Phase 2)

Virtually all animals move from one place to another, whether daily or seasonally to attain better feeding or breeding opportunities, or periodically to expand existing home ranges or territories or establish new ones. Animals that may migrate or disperse within the project limits include the California tiger salamander (*Ambystoma californiense*), Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*), California red-legged frog (*Rana aurora draytonii*), black-tailed deer, bobcat (*Lynx rufus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), as well as the raccoon (*Procyon lotor*), skunk (*Mephitis spp.*), and various rodents.

Roads and highways affect wildlife corridors by restricting movement, fragmenting habitat into smaller areas, and making wildlife vulnerable to predators and other risks. Roadways can also increase rates of death for some species that attempt to cross them. Wildlife crossings that are readily available and accessible to wildlife may reduce such effects.

Two culverts, originally installed to allow cattle to cross safely from one side of State Route 156 to the other, cross beneath the roadway. Any land wildlife can use the culverts as migration and dispersal corridors to get to habitat on the other side. Riparian zones also act as movement corridors for wildlife, although the culverts in stream channels are often too small in diameter, too clogged with sediments, or too long (as is the case for Prunedale Creek) to be used effectively by most wildlife that must move across the roadway.

Environmental Consequences

Natural communities that would be affected by project activities include central maritime chaparral, coast live oak woodland and riparian. Central maritime chaparral and coast live oak woodland are considered habitats of special concern by the California Department of Fish and Game. See Appendix J, Figures J-1 to J-4, for maps showing the impacts discussed in this section.

Alternative 11 (Phase 2)

Potential permanent impacts to central maritime chaparral would total 0.16 acre. Potential temporary impacts would total 1.98 acres.

Potential permanent impacts to coast live oak woodland would total 16.58 acres (1.93 acres for Phase 1 and 14.63 acres for Phase 2). There would be no temporary impacts to either phase of the project.

Potential permanent impacts to riparian habitat would total 3.98 acres (1.53 acres for Phase 1 and 2.45 acres for Phase 2). Potential temporary impacts would total 4.23 acres (2.17 acres for Phase 1 and 2.06 acres for Phase 2).

Alternative 12

Potential permanent impacts to central maritime chaparral would total 0.15 acre. Potential temporary impacts would total 1.9 acres.

Potential permanent impacts to coast live oak woodland would total 32.78 acres. There would be no temporary impacts.

Potential permanent impacts to riparian habitat would total 5.24 acres. Potential temporary impacts would total 4.6 acres.

No-Build Alternative

There would be no impacts to natural communities with the No-Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Where feasible, the following measures would be incorporated into the project:

- Avoidance and minimization measures would be used, including construction of retaining walls to reduce the project footprint, pre-construction surveys to establish environmentally sensitive areas, and onsite biological monitoring to maintain environmentally sensitive areas throughout construction and erosion control with storm water best management practices.
- Environmentally Sensitive Area markers would be identified on project plans and drawings and installed at the construction site by the project biologist before any ground-disturbing activities. All access, staging and equipment storage areas would be clearly defined on project plans and at the construction site.
- The coast live oak is one of the species susceptible to infection by Sudden Oak Death. Monterey County is currently under state and federal quarantine for this disease. Specific regulations regarding the movement and use of susceptible

plants as well as state and federal guidelines for sanitation practices for working in infested areas would be followed.

- Temporary and permanent impacts to sensitive plant communities, which include upland habitats for wildlife and special status plants, would be mitigated onsite by restoring areas within the Caltrans right-of-way. Restoration would be planned to improve habitat as well as replace vegetation lost during construction. If onsite mitigation were not practical because of constraints such as water supply, soil types, or size of area required to adequately mitigate losses, the offsite mitigation would occur on the same habitat types chosen to mitigate for impacts.

No-Build Alternative

No avoidance, minimization or mitigation measures for natural communities would be needed under the No-Build Alternative.

2.3.2 Wetlands and Other Waters

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 U.S. Code 1344) is the main law regulating wetlands and waters. The Clean Water Act regulates 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 subject to 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 no discharge of dredged or fill material can 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 with oversight by the Environmental Protection Agency.

The Executive Order for the Protection of Wetlands (11990) also regulates the activities of federal agencies with regard to wetlands. This order states that a federal agency, such as the Federal Highway Administration, and Caltrans as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated mainly by the California Department of Fish and Game and the Regional Water Quality Control Boards. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission) may also be involved.

Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the California Department of Fish and Game before beginning construction. If the California Department of Fish and Game determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. California Department of Fish and Game jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the Department of Fish and Game.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The Regional Water Quality Control Boards also issue water quality certifications in compliance with Section 401 of the Clean Water Act. See the Water Quality section for additional details.

Affected Environment (Phase 1 and Phase 2)

Wetland delineations were performed in the spring and fall of 2006 to determine potential effects of the project on wetlands and waters of the U.S. A Natural Environment Study was completed in October 2008.

Formal wetland delineations are pending the start of the permitting phase of this project and adequate access permission. Estimates of temporary and permanent impacts were based on aerial photography and existing delineation data from National

Wetland Inventory (2009). Impact estimates will be adjusted once formal wetland delineations and analyses are possible.

Seasonal Wetland (Phase 1 and Phase 2)

Seasonal wetlands occur in the wet season, but they have no permanent water source. This seasonal change in soil saturation in turn influences plant types. Plants adapted to living in saturated soil conditions in wet winters give way to more upland adapted varieties during the dry summers.

Seasonal wetlands occur just west and east of Castroville Boulevard, north of State Route 156, and in surface depressions in areas where seasonal streams convey flows via culverts beneath State Route 156.

Moro Cojo Slough south of State Route 156 receives freshwater from the surrounding watershed. A fill was placed through the slough when State Route 156 was originally built. Consequently, the slough north of the highway has both saltwater and freshwater influences, but south of the highway it is composed entirely of freshwater. As surface runoff accumulates throughout the wet winter months, the slough south of the highway develops into a seasonal pond, which lasts almost the entire year. Common aquatic plants of deepwater habitat include duckweed (*Lemna spp.*), pondweed (*Potamogeton spp.*), and milfoil (*Myriophyllum spp.*).

Seasonal wetlands occur near Castroville Boulevard and Moro Cojo Slough, along the southbound U.S. Route 101 off-ramp for State Route 156, and next to the U.S. Route 101 southbound lane.

Perennial Wetlands (Phase 1)

Perennial wetlands occur along the margins of ponds and next to streams with a year-round water supply. Plants associated with perennial wetlands are sedges (*Carex spp.*) and grasses (*Agrostis spp.*) in saturated soils along wetland perimeters, and emergent macrophytes such as smartweed (*Polygonum spp.*), cattails and bulrush (*Scirpus spp.*) toward the shallow inundated zone.

A perennial wetland is located near the Meridian Road area along the eastbound shoulder of State Route 156. It is a retention pond associated with the adjacent agricultural field.

Other Waters (Phase 1 and Phase 2)

“Other waters” refer to waters of the U.S. other than navigable waters or jurisdictional wetlands. These include streams such as Prunedale Creek, a seasonal intermittent stream conveying runoff from several canyons north and east of the project area. The following fish could occur in Prunedale Creek within the project area: the California roach (*Lavinia symmetricus*) and the three-spined stickleback (*Gasterosteus aculeatus*).

Intermittent water channels have been straightened and their banks built up to allow for efficient water transfer. These channel changes are mostly for flood control, irrigation, and agricultural tailwater conveyance. Flows in these tributaries to Moro Cojo Slough are dominated by agricultural tailwater discharges during crop irrigation.

Other waters of the U.S. occur near Castroville Boulevard and Moro Cojo Slough, near Cathedral Oak Road and Oak Hills, near Meridian Road, south of the U.S. Route 101/State Route 156 interchange, and along the northbound shoulder of U.S. Route 101 near Messick Road.

Agency Coordination

Because this project may result in a discharge of fill material to waters of the U.S., a permit from the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act would be required.

Wetlands are a subcategory of “waters” and have legal protection in accordance with Section 404 of the Clean Water Act. A Wetland Delineation Report would be submitted to the U.S. Army Corps of Engineers for jurisdictional verification. Federally jurisdictional waters would require coverage under a Clean Water Act Section 404 Permit.

Caltrans must also obtain a Clean Water Act Section 401 Water Quality Certification from the State of California through the appropriate Regional Water Quality Control Board. For the Route 156 West Corridor project, the Central Coast Water Quality Control Board is responsible for certifying that the federally permitted discharge will not affect state water quality standards.

The California Department of Fish and Game under Section 1600 of the California Fish and Game Code protects surface water streams within the project area. Section 1600 requires notification from any entity proposing activities that may alter the bed, bank or channel of any lake or streambed within the state. Per California Department

of Fish and Game request, Caltrans would submit a Notification of Streambed Alteration for review and determination as to whether the project would require a Streambed Alteration Agreement.

Environmental Consequences

Alternatives 11 and 12

See Appendix J, Figures J-1 to J-4, for maps showing impacts discussed in this section.

Seasonal Wetlands (Phase 1 and Phase 2)

Alternatives 11 and 12 affect seven seasonal wetlands. These wetlands fall under the jurisdiction of the U.S. Army Corps of Engineers and the California Coastal Commission.

Potential temporary impacts to seasonal wetlands total 2.47 acres (2.46 acres for Phase 1 and 0.01 acres for Phase 2) for Alternative 11 and 8.95 acres for Alternative 12. These impacts are associated with the indirect effects of construction staging and incidental runoff under both alternatives, and removal of the soil wall in Alternative 12. Removal of the soil wall would allow saltwater north of the wall to mix with the current freshwater south of the wall. This would fundamentally alter the wetland environment, but would not constitute a permanent impact to seasonal wetlands because only the salinity would be changed. The change in salinity would alter the habitats and affect the presence of the California red-legged frog (*Rana aurora draytonii*), California tiger salamander (*Ambystoma californiense*) and Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*).

Total potential permanent impacts would be 0.90 acre (0.87 acres for Phase 1 and 0.03 acres for Phase 2) for Alternative 11 and 0.91 acre for Alternative 12. Impacts would result from the placement of pillars to support the bridges.

Perennial Wetlands (Phase 1)

Alternative 11 would permanently affect 0.95 acre of one perennial wetland. This wetland falls under the jurisdiction of both the U.S. Army Corps of Engineers and the California Coastal Commission. No temporary impacts are anticipated under Alternative 11 or Alternative 12. Impacts to the wetland are due to the proposed cut and fill required for construction of the new two-lane alignment of Alternative 11.

Other Waters (Phase 1 and Phase 2)

Total potential temporary impacts to all other water channels would be 0.65 acre (0.40 acres for Phase 1 and 0.25 acres for Phase 2) for Alternative 11 and 1.18 acres for Alternative 12.

Total potential permanent impacts to all other waters would be 0.19 acre (0.14 acre for Phase 1 and 0.05 acre for Phase 2) for Alternative 11 and 0.20 acre for Alternative 12.

Impacts to other waters are associated with construction of:

- Culverts under the new proposed roadways
- Two bridge structures over the Moro Cojo Slough
- Culvert and channel relocation for the proposed U.S. Route 101/State Route 156 interchange

Table 2.27 shows the potential impacts to wetlands and other waters. See section 2.1.1.3 for impacts to coastal jurisdictional wetlands.

Table 2.27 Potential Impacts to Wetlands and Other Waters of the U.S.

Alternatives	Perennial Jurisdictional Wetlands		Seasonal Jurisdictional Wetlands		Other Jurisdictional Waters	
	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
Alternative 11	0.95 acre	0 acre	0.90 acre	2.47 acres	0.19 acre	0.65 acre
Phase 1(Phase 2)	0.95 acre (0.0 acre)	0 acre for both	0.87 acre (0.03 acre)	2.46 acre (0.01acre)	0.14 acre (0.05 acre)	0.40 acre (0.25acre)
Alternative 12	0 acre	0 acre	0.91 acre	8.95 acres	0.20 acre	1.18 acres

Source: California Department of Transportation Natural Environmental Study 2008

No-Build Alternative

No impacts to wetlands and other waters of the U.S. would be anticipated under the No-Build Alternative.

Least Environmentally Damaging Practicable Alternative

The alternative that has the least impact to the environment and best balances the Route 156 West Corridor Project’s purpose and need is Alternative 11.

Both build alternatives for the Route 156 West Corridor have comparable environmental impacts. Alternatives 11 and 12 are similar in impacts to growth, relocations, emergency services, traffic and transportation, hydrology/floodplain, geology/soils, air quality, noise, hazardous waste, cultural and paleontological resources, and plant and animal species.

Alternative 11 overall has fewer impacts to wetlands and other waters of the U.S. (see Table 2.27). At the proposed bridge in the westerly limits of the realignment of State Route 156, biofiltration strips and swales would reduce flow volume and thereby reduce sediment delivered to the wetland. The proposed bridge would also reduce the impact on the wetland that connects to Moro Cojo Slough about 0.7 mile downstream by reducing the embankment area and in turn reducing downstream flow, velocity and sedimentation.

Eight design-specific retaining walls are proposed for this project. The walls would reduce impacts to businesses and potential long-term chronic erosion control problems from large cuts in erodible soil types.

Alternative 11 has fewer permanent impacts to aquatic and upland habitat of the California tiger salamander, Santa Cruz long-toed salamander, and California red-legged frog (see Summary of Major Potential Impacts from Alternatives, pages v to xi).

Alternative 11 has fewer impacts to coast live oak and riparian natural communities (see Summary of Major Potential Impacts from Alternatives, pages v to xi).

Alternative 11 would preserve the existing oak trees on the south side of State Route 156. Alternative 12 would remove the existing oak trees on the south side of State Route 156.

The Draft Environmental Impact Report/Environmental Assessment was circulated to the public from June 30, 2009 to August 17, 2009. Comments received from the public indicated a preference for Alternative 11 as the preferred alternative.

A comparison between the two build alternatives indicates that Alternative 11 would have the fewest impacts on listed/sensitive biological resources and therefore would be the biologically preferred alternative for the project.

Design Considerations

Under Alternative 11, the existing roadway would be maintained as a frontage road to provide local access to the new freeway. Local residents along State Route 156 could use the frontage road for access to shopping and business centers on U.S. Route 101 without competing with recreational and interregional traffic. Construction of a new alignment for State Route 156 would allow uninterrupted traffic flow for recreational travelers to the Monterey Peninsula. Alternative 11 fulfills the project's purpose and need by improving safety and operations, local road access to State Route 156, interregional traffic flow and route continuity along State Route 156, as well as relieving existing congestion and providing capacity for future increases in traffic volume.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Avoidance and minimization measures include building retaining walls to reduce impacts to perennial and seasonal wetlands, establishing environmentally sensitive areas, having onsite biological monitoring to maintain environmentally sensitive areas throughout construction, and controlling erosion by incorporating appropriate storm water best management practices into the project. In addition, construction activities would be restricted to the dry season, typically May 1 to November 1.

Compensatory mitigation for the temporary and permanent impacts associated with the project includes restoring wetland areas to their original condition within the Caltrans right-of-way and preserving perennial wetlands that occur on the property purchased by Caltrans in the 1960s. If this land is in part or in whole unavailable by construction, then additional parcels of appropriate soil and habitat types would be identified and acquired before project construction; this would be part of an advanced mitigation plan within the Elkhorn Slough watershed if onsite mitigation is not feasible or at high enough levels to accommodate mitigation requirements. The number of acres required for compensating for impacts would be based on resource agency recommendations, as well as the function and quality of aquatic habitat that needs to be replaced.

A California Department of Fish and Game 1602 Agreement, U.S. Army Corps of Engineers 404 permit and a Regional Water Quality Control Board 401 permit would be required for this project. Caltrans would coordinate with the U.S. Army Corps of

Engineers, U.S. Fish and Wildlife Service, and Central Coast Regional Water Quality Control Board.

No-Build Alternative

No avoidance, minimization and/or mitigation measures would be required for the No-Build Alternative.

Wetlands Only Practicable Finding

The Executive Order for the Protection of Wetlands (11990) also regulates the activities of federal agencies with regard to wetlands. This order states that a federal agency, such as the Federal Highway Administration, and Caltrans as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

There would be no impacts to wetlands under the No-Build Alternative. However, the No-Build Alternative would not address the purpose and need of the project. Under the No-Build Alternative, State Route 156 and the U.S. Route 101/State Route 156 interchange would stay in their present conditions. No improvements would be made to State Route 156 or the U.S. Route 101/State Route 156 interchange. No measures would be taken to increase capacity, reduce congestion, or improve safety and operations. There would be no drainage improvements.

Alternative 11, the preferred alternative, would affect wetlands. Impacts to wetlands are due to the proposed cut and fill required for construction of the new two-lane alignment of State Route 156, placement of pillars to support the bridges, and culvert and channel relocation.

Avoidance and minimization measures would include building retaining walls to reduce impacts to perennial and seasonal wetlands, establishing environmentally sensitive areas, having on-site biological monitoring to maintain environmentally sensitive areas throughout construction, and controlling erosion by incorporating appropriate storm water best management practices into the project. In addition, construction activities would be restricted to the dry season, typically May 1 to November 1.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action

includes all practicable measures to minimize harm to wetlands that may result from such use.

2.3.3 Plant Species

Regulatory Setting

The U.S. Fish and Wildlife Service and California Department of Fish and Game share 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 afforded 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 and/or the California Endangered Species Act. See Threatened and Endangered Species, Section 2.3.5, in this document for detailed information on those species.

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

The regulatory requirements for the Federal Endangered Species Act can be found at U.S. Code 16, Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. The regulatory requirements for the California Endangered Species Act 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, Sections 1900-1913, and the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

Affected Environment

A Natural Environment Study was completed for the project in October 2008.

Pajaro Manzanita and Hooker’s Manzanita (Phase 1 and Phase 2)

Pajaro manzanita (*Arctostaphylos pajaroensis*) and Hooker’s manzanita (*Arctostaphylos hookeri* ssp. *hookeri*) are evergreen shrubs with dark red exfoliating bark and white flowers. Pajaro manzanita grows up to 13.1 feet high and blooms from December to March at elevations from 230 to 1,181 feet. Hooker’s manzanita grows

up to 9 feet high and blooms from January to June at elevations from 280 to 1,770 feet. Both plants grow in sandy soils of chaparral habitats.

Pajaro manzanita and Hooker's manzanita were seen in the Caltrans planted right-of-way near the U.S. Route 101/State Route 156 interchange (see Figures 4-4 and 4-5). They grow in isolated islands throughout the east side for both build alternatives around the U.S. Route 101/State Route 156 interchange. These locations are mostly within coast live oak woodlands, central maritime chaparral, and to some degree in developed and non-native grassland edges. A few scattered individual plants occur farther west along State Route 156 and south along U.S. Route 101 within the Caltrans right-of-way.

Monterey Pine (Phase 1 and Phase 2)

Monterey pine (*pinus radiata*) is an evergreen conifer. It grows up to 115 feet high and at elevations from 83 to 610 feet. These trees are found in cismontane woodlands and closed-cone coniferous forests. Monterey pines are present throughout the project area and are planted as ornamentals on private property.

Environmental Consequences

Alternatives 11 and 12 (Phase 1 and Phase 2)

Pajaro manzanita (*Arctostaphylos pajaroensis*) and Hooker's manzanita (*Arctostaphylos hookeri* ssp. *hookeri*) plants may be removed during reconstruction of the U.S. Route 101/State Route 156 interchange.

Monterey pine (*pinus radiata*) trees may be removed for construction of the Route 156 West Corridor project.

No-Build Alternative

No impacts to Pajaro manzanita (*Arctostaphylos pajaroensis*), Hooker's manzanita (*Arctostaphylos hookeri* ssp. *hookeri*) and Monterey pine (*pinus radiata*) are anticipated under the No-Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

To protect Pajaro manzanita (*Arctostaphylos pajaroensis*) and Hooker's manzanita (*Arctostaphylos hookeri* ssp. *hookeri*) from accidental impacts associated with construction activities, access to the construction area would be limited to the minimum necessary to accomplish the work. An environmentally sensitive area would be established and maintained where these species occur by the work areas.

Most of the individual Pajaro manzanita and Hooker's manzanita plants that would be lost during construction would be replaced when mitigation measures for coast live oak woodland and central maritime chaparral natural community types are implemented.

To minimize impacts where plants cannot be avoided, individual plants that can be salvaged would be moved and replanted at designated sites within the project limits. If feasible, seeds and topsoil free of noxious weeds would be collected and stored to use for re-seeding the temporarily disturbed areas where these species occur.

Monterey pines that would be lost during construction would be replaced at an appropriate replacement ratio.

No-Build Alternative

No avoidance, minimization and/or mitigation measures are required for the No-Build Alternative.

2.3.4 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 Fisheries Service, and the California Department of Fish and Game are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in section 2.3.5 below. All other special-status animal species are discussed here, including California Department of Fish and Game fully protected species and species of special concern, and U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration Fisheries Service candidate species.

Federal laws and regulations pertaining to wildlife include the following:

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

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1601–1603 of the Fish and Game Code
- Sections 4150 and 4152 of the Fish and Game Code

In addition to state and federal laws regulating impacts to wildlife, there are often local regulations (county or city) that need to be considered when developing projects. If work is being done on federal land (Bureau of Land Management or Forest Service land, for example), then those agencies' regulations, policies, and habitat conservation plans are followed.

Affected Environment (Phase 1 and Phase 2)

A Natural Environment Study was completed for the project in October 2008.

Southwestern Pond Turtle

The southwestern pond turtle (*Actinemys marmorata pallida*), the only native turtle in California, is an aquatic species ranging in size from 4.7 to 8.3 inches long. The turtle lives in water or on land, basking on floating debris or on the shore of water bodies during warmer periods of the day.

Mating typically occurs in late April or early May, but can also occur year-round. Females will excavate a nest to lay eggs (1 to 3 eggs per female) on land near the aquatic habitat they normally inhabit. Most hatchling turtles emerge from the nest and move to water in the spring.

Changes in land and water use, and grazing practices, have negatively affected the southwestern pond turtle populations in the Pajaro and Salinas rivers. In addition, non-native bullfrogs prey on hatchling turtles.

A single southwestern pond turtle was seen on the stream bank west of U.S. Route 101 between San Miguel Canyon Road and the U.S. Route 101/State Route 156 interchange at Vierra Canyon Road. The turtle was seen in Prunedale Creek, which is the same stream that flows through the project area at Blackie Road/Reese Circle where there is pond turtle habitat. Therefore, there is potential for southwestern pond turtles to inhabit this portion of the project area.

Migratory Birds

Migratory birds may be found to nest in trees within the project area.

Environmental Consequences (Phase 1 and Phase 2)

Alternatives 11 and 12

Southwestern Pond Turtle

Temporary impacts to the southwestern pond turtle would include displacement of individuals during construction and temporary loss of the use of aquatic and riparian habitat in areas right next to construction.

No permanent impacts are anticipated for the southwestern pond turtle.

Migratory Birds

No impacts to migratory birds are anticipated as long as tree removal would not occur during the nesting season.

No-Build Alternative

No impacts to southwestern pond turtles or migratory birds are anticipated under the No-Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Southwestern Pond Turtle

Avoidance and minimization measures for southwestern pond turtles include pre-construction surveys. If pond turtles are found, environmentally sensitive areas would be established, and onsite biological monitoring would occur throughout construction activities in aquatic/riparian areas. To further reduce impacts in areas that have suitable habitat for pond turtles, where feasible, vegetation would be removed by hand and vegetation in temporarily disturbed areas would be cut off at ground level rather than being cleared with heavy equipment.

Migratory Birds

To avoid impacts to migratory birds that nest in trees, any trees that need to be removed for this project would be removed between September 1 and February 1.

The biologist/environmental monitor or designee would be contacted at least one month before trees are removed to allow a qualified biologist time to inspect trees for active nests of birds that are protected under the Migratory Bird Treaty Act.

No-Build Alternative

No avoidance, minimization and/or mitigation measures are required for the No-Build Alternative.

2.3.5 Threatened and Endangered Species

Regulatory Setting

The main federal law protecting threatened and endangered species is the Federal Endangered Species Act: 16 U.S. Code, Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and subsequent 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, and Caltrans as assigned, are required to consult with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration 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 change 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 is a Biological Opinion or an incidental take statement. Section 3 of the Federal Endangered Species Act 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, California Fish and Game Code, Section 2050, et seq. The California Endangered Species Act 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 Game is the agency responsible for implementing the California Endangered Species Act. 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.” The California Endangered Species Act 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 Game.

For projects requiring a Biological Opinion under Section 7 of the Federal Endangered Species Act, the California Department of Fish and Game may also

authorize impacts to the California Endangered Species Act species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

Affected Environment

A Natural Environment Study was completed for the project in October 2008.

Animals (Phase 1 and Phase 2)

Animals found in the project area include the California tiger salamander (*Ambystoma californiense*) and California red-legged frog (*Rana aurora draytonii*). Animals that could occur in the project area (suitable habitat is present) include the Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*), conservancy fairy shrimp (*Branchinecta conservation*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp (*Branchinecta lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardii*).

California Tiger Salamander (Phase 1 and Phase 2)

The California tiger salamander (*Ambystoma californiense*) is federally listed as threatened. Although critical habitat has been proposed for this species, this project does not fall within the proposed designated area. The California tiger salamander is also listed as threatened under the California Endangered Species Act.

California tiger salamanders are native to California and occur west of the Sierra Nevada in the Sierra foothills, the Central Valley, and the Coast Range, and in intermountain valleys near Petaluma and Sacramento in the north to Tulare and Santa Barbara counties in the south. California tiger salamanders have lost an estimated 75 percent of their habitat due to human activities in the uplands.

Restricted to grasslands and oak savannah plant communities from sea level to foothill regions (generally under 1,640 feet), salamanders breed in vernal pools as well as human-made permanent and seasonal ponds. Mass migrations of adults to breeding ponds occur annually with the onset of reliable, pool-filling rains. Adult salamanders spend only a few days or weeks in breeding pools during the wet season (usually November to March). California tiger salamanders typically do not breed until they are two to six years old, and many breed only once in their lifetime. During the dry season, adults as well as juveniles remain inactive in small rodent burrows, such as those of the California ground squirrel and the Botta's pocket gopher.

Protocol-level spring aquatic surveys were done for the California tiger salamander in 2006. The studies confirmed the presence of the California tiger salamander within the project area.

Santa Cruz Long-toed Salamander (Phase 1)

The Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*) is federally listed as endangered and state listed as endangered. The Santa Cruz long-toed salamander is a fully protected species under the California Endangered Species Act. There are 21 confirmed breeding sites in southern Santa Cruz and northern Monterey counties. In Monterey County, the breeding sites are McCluskey Slough, Bennett/Struve Slough, Zmudowski State Beach and Moro Cojo Slough.

Santa Cruz long-toed salamanders spend most of the year in rodent burrows, under leaf litter, underneath surface objects, and in rotting logs within dense oak woodlands, riparian vegetation and moist coastal scrub. Adults migrate from upland habitats to seasonal/semi-perennial breeding ponds at night, during late fall and winter rains, from November through March. The young disperse mostly during the first substantial fall rains, sometimes as early as August.

Long-toed salamanders travel in nearly straight lines. Some have migrated a half-mile from breeding ponds to upland habitat. Others have been seen a mile from the nearest breeding pond.

Mating and egg-laying generally peak in January and February. The female deposits 200 to 400 eggs on stems of plants emerging from the pond. After mating, the adults return to upland habitat by March or April. Eggs hatch within 15 to 30 days and transform into juveniles between May and September, depending on aquatic conditions. In drought years, larvae may perish before transformation due to insufficient water levels.

Salamanders seek land refuge right next to the breeding pond and remain until dispersing during the first fall rains. Early rains may induce salamanders to move up to 200 feet from the breeding pond. Important prey for juveniles and adults include pillbugs, beetles, centipedes, earthworms and spiders.

Aquatic surveys were done for the Santa Cruz long-toed salamander in spring 2006 and winter 2007. The studies did not confirm the presence of the Santa Cruz long-toed salamander within the project area. Presence is assumed, however, because of suitable habitat.

Later aquatic surveys were done for the Santa Cruz long-toed salamander in spring and winter 2010 and spring 2011. The studies confirmed the presence of the Santa Cruz long-toed salamander within the project area.

California Red-legged Frog (Phase 1 and Phase 2)

The California red-legged frog (*Rana aurora draytonii*) was federally listed as threatened in May 1996, and a final recovery plan was approved on September 12, 2002. Designated critical habitat was listed on April 6, 2006 and updated March 17, 2010. This species is also a California species of special concern.

This species is the largest native frog in the western U.S., ranging from 1.5 to 5.1 inches long. Tadpoles range from 0.6 to 3.1 inches long and are dark brown and yellow with dark spots. Breeding occurs in streams, deep pools, backwaters within streams and creeks, ponds, marshes, sag ponds, dune ponds, lagoons, and stock ponds. California red-legged frogs breed from as early as late November through April and May. Larvae remain in breeding ponds until metamorphosis in the summer. The species also uses non-aquatic habitats for refuge and dispersal. One frog was seen at Moro Cojo Slough in seasonal wetland, and one frog was seen in perennial wetland associated with an agricultural pond (see Figure J-3).

Bullfrogs, crayfish and mosquito fish were seen in the project area and likely compete with California red-legged frog populations in the Prunedale area. The presence of these species and conversion of open grasslands and oak woodlands to intensive farming, which affect water quality and upland habitat, may hinder breeding for California red-legged frogs in Prunedale Creek.

Fairy Shrimp (Phase 1 and Phase 2)

Fairy shrimp appear in vernal pools, potholes and other ephemeral pools. They live in freshwater or saltwater, but do not live in oceans or seas. Fairy shrimp adapt to living in arid areas where water is present for only part of the year. Their eggs will survive drought for several years and hatch after rains fill the pools where they live. Some eggs may not hatch until going through several wet/dry cycles, ensuring the species' survival through times that the pools do not last long enough for the shrimp to reproduce. Most fairy shrimp are small, about one-half inch in size.

California is home to many species of fairy shrimp, five of which are threatened or endangered: the vernal pool fairy shrimp (*Branchinecta lynchi*, threatened), the conservancy fairy shrimp (*Branchinecta conservatio*, endangered), the San Diego fairy shrimp (*Branchinecta sandiegonensis*, endangered), the longhorn fairy shrimp

(*Branchinecta longiantenna*, endangered), and the Riverside fairy shrimp (*Streptocephalus wootoni*, endangered). According to the California Natural Diversity Database, vernal pool fairy shrimp do not occur near the project area. Access restrictions to property prevented field surveys for fairy shrimp in the project area.

Plants

Surveys were completed for two special-status plants: Monterey spineflower (*Chorizanthe pungens* var. *pungens*) and Yadon's Rein-orchid (*Piperia yondonii*).

Monterey Spineflower (Phase 1)

The Monterey spineflower (*Chorizanthe pungens* var. *pungens*) is federally listed as threatened; designated critical habitat was published for this species on May 29, 2002. Portions of the proposed Route 156 West Corridor project fall within designated critical habitat Unit G: Prunedale Unit.

The Monterey spineflower, an annual herb with white- to rose-colored flowers, blooms from April to June at elevations from 9 to 1,476 feet. It grows in maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, foothill and valley grasslands. The Monterey spineflower is fairly common in the Prunedale hills. The California Natural Diversity Database reports a nearby population in Manzanita Park. Urbanization, recreational activities and development, agriculture, military activities and non-native plants threaten this plant.

Small-scattered populations were found in the Crazy Horse Canyon/U.S. Route 101 intersection. Monterey spineflower was also observed at South Berta East of U.S. Route 101 in an area maintained for high-power electrical lines. However, no Monterey spineflower individuals were found within the project area. Even though no Monterey spineflower individuals were found within the project area, the species has the potential to occur in the area.

Yadon's Rein-orchid (Phase 2)

Yadon's Rein-orchid (*Piperia yondonii*) is listed as federally endangered. It is a perennial orchid with white flowers that grows up to 1.5 feet high and blooms from May to August at elevations from 33 to 1,680 feet. It is found in sandy soils of chaparral habitats. Critical habitat for Yadon's Rein-orchid was designated in October 2007.

Yadon's Rein-orchid was found in two spots along the U.S. Route 101/State Route 156 interchange outside the Caltrans right-of-way. Several plants that sit just outside of the project area would not be affected.

Agency Coordination

In August 2006, Caltrans requested and received a species list from the U.S. Fish and Wildlife Service showing plants and animals listed as federally endangered or threatened, or having candidate status update (see Appendix G). The species list and biological surveys indicate that the California red-legged frog (*Rana aurora draytonii*) and California tiger salamander (*Ambystoma californiense*) occur in the project area, and the Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*) had the potential to occur in the project area.

A protocol spring season survey was done for the California tiger salamander and Santa Cruz long-toed salamander. On July 6, 2006, Caltrans submitted the results of the survey to the U.S. Fish and Wildlife Service. The results reported that California tiger salamanders were seen south of State Route 156 during protocol surveys; Santa Cruz long-toed salamanders were not seen but, as they occur in the same habitat, would be afforded protection through mitigation measures implemented for the California tiger salamander.

Caltrans requested and later received approval to continue with a drift-fence survey during fall 2006 and an additional survey during spring 2007. These studies were to determine whether the California tiger salamander and Santa Cruz long-toed salamander were present north of State Route 156. However, the surveys were stopped due to vandalism of the drift fencing in 2007.

The U.S. Fish and Wildlife Service and Caltrans exchanged communication via email on March 23 and March 26, 2012 about proposed amphibian barriers to exclude salamanders from entering the construction zones.

The Santa Cruz long-toed salamander is a fully protected species. As such, "take" of any fully protected species is prohibited, and the Department of Fish and Game cannot authorize "take" for development. On December 12, 2011, the U.S. Fish and Wildlife Service, Caltrans and Department of Fish and Game (via telephone) met to discuss recommendations for the Biological Opinion with regard to the Santa Cruz long-toed salamander. It was decided that mitigation and compensation must address impacts to Santa Cruz long-toed salamander habitat as opposed to compensating for impacts associated with direct "take" of the species. Discussions with the Department

of Fish and Game and Caltrans about the Santa Cruz long-toed salamander are ongoing.

Biological Opinion

On June 7, 2012, the U.S. Fish and Wildlife Service (Service) issued a Biological Opinion for the Route 156 West Corridor project. Implementation of measures would reduce or avoid short- and long-term impacts of project actions to California red-legged frogs, Santa Cruz long-toed salamanders, and California tiger salamanders. The Biological Opinion located in Appendix O:

Environmental Consequences

Alternatives 11 and 12

See Appendix J, Figures J-1 to J-4, for maps of impacts discussed in this section.

California Tiger Salamander (Phase 1 and Phase 2)

Under Alternative 12, the removal of the soil wall at Moro Cojo Slough would allow saltwater to the north to flow into the wetland. The wetland would become inhospitable to breeding amphibians, resulting in 8.94 acres of permanent impacts. Alternative 11 would result in 0.95 acre of permanent impacts to California tiger salamander aquatic habitat as a result of the filling of the perennial wetland. California tiger salamander deaths could occur if salamanders are present during construction at these locations.

Potential temporary impacts to California tiger salamander aquatic habitat would occur from temporary dewatering of aquatic habitat for culvert and bridge work. Total potential temporary impacts to California tiger salamander aquatic habitat are estimated at 2.46 acres (2.45 acres for Phase 1 and 0.01 acre for Phase 2) for Alternative 11 and no acres for Alternative 12.

Little is known about California tiger salamander dispersal in dense shrub or woodland habitats; such habitat exists in the project limits. In grassland areas, adult California tiger salamanders are known to migrate up to 1.24 miles from their upland sites to breeding ponds; dispersing juvenile California tiger salamanders have been found to travel as far as a mile from breeding sites to upland habitat. Based on these dispersal patterns, the project could permanently affect 17.59 acres (13.09 acres for Phase 1 and 4.05 acres for Phase 2) of California tiger salamander upland habitat under Alternative 11 and 45.46 acres of that habitat under Alternative 12.

Potential temporary impacts to the California tiger salamander would include displacement of individual salamanders during construction and loss of the use of potential upland habitat in areas right next to the work area. Construction activities such as moving equipment, grading, clearing, removing vegetation, stockpiling, dredging, filling, draining, and installing water control devices could result in harm or harassment to California tiger salamanders. Noise and vibration may cause California tiger salamanders to leave the work area; this disturbance and displacement may increase the potential for predation, desiccation, and competition for food and shelter.

Temporary impacts to the California tiger salamander for upland habitat would total 35.46 acres (29.45 acres for Phase 1 and 6.01 acres for Phase 2) for Alternative 11 and 28.93 acres for Alternative 12.

Santa Cruz Long-toed Salamander (Phase 1)

Removal of the soil wall at Moro Cojo Slough under Alternative 12 would allow saltwater to the north to flow into the wetland. The wetland would become inhospitable to breeding amphibians, resulting in 8.94 acres of permanent impacts under Alternative 12. Alternative 11 would result in 0.95 acre of permanent impacts to Santa Cruz long-toed salamander aquatic habitat as a result of the filling of the perennial wetland. Santa Cruz long-toed salamander deaths could occur if salamanders are present during construction at these locations.

Potential temporary impacts to Santa Cruz long-toed salamander aquatic habitat would occur from temporary dewatering of aquatic habitat for culvert and bridge work. Total potential temporary impacts to Santa Cruz long-toed salamander aquatic habitat are estimated at 2.46 acres for Alternative 11 and no acres for Alternative 12.

Little is known about Santa Cruz long-toed salamander dispersal in dense shrub or woodland habitat; such habitat exists in the project limits. In grassland areas, adult Santa Cruz long-toed salamander are known to migrate up to 1.24 miles from their upland sites to breeding ponds, and dispersing juvenile Santa Cruz long-toed salamanders have been found as far as a mile from breeding sites in upland habitat. Based on these dispersal patterns, the project could permanently affect 40.03 acres of Santa Cruz long-toed salamander upland habitat under Alternative 11 and 45.46 acres of that habitat under Alternative 12.

Potential temporary impacts to Santa Cruz long-toed salamanders would include displacement of individual salamanders during construction and loss of the use of potential upland habitat in areas right next to the work area. Construction activities

such as moving equipment, grading, clearing, removing vegetation, stockpiling dredging, filling, draining, and installing water control devices could result in harm or harassment to Santa Cruz long-toed salamanders. Noise and vibration may cause Santa Cruz long-toed salamanders to leave the work area; this disturbance and displacement may increase potential for predation, desiccation, and competition for food and shelter.

Temporary impacts to Santa Cruz long-toed salamander upland habitat would total 37.72 acres for Alternative 11 and 28.93 acres for Alternative 12.

California Red-legged Frog (Phase 1 and Phase 2)

Temporary impacts to potential habitat would include displacement of individual California red-legged frogs during construction and loss of the use of aquatic and riparian habitat in areas right next to the work area. The total temporary impacts to habitat between the cut/fill and inside the proposed right-of-way would be 7.03 acres for Alternative 11 and 5.47 acres for Alternative 12.

Permanent impacts to occupied habitat would include the loss of aquatic and riparian habitat within the new highway right-of-way. These impacts would occur during the initial grading of the new route. Frog deaths could occur if frogs are present during construction. The estimated acres of habitat for this species that would be permanently affected within the cut/fill line would be 5.22 acres (2.95 acres for Phase 1 and 2.27 acres for Phase 2) for Alternative 11 and 14.49 acres for Alternative 12.

Construction activities such as moving equipment, grading, clearing, removing vegetation, stockpiling dredging, filling, draining, and installing water control devices could result in harm or harassment to the California red-legged frog. Noise may cause California red-legged frogs to leave the work area; this disturbance and displacement may increase potential for predation, desiccation, and competition for food and shelter.

Exotic species in the area—bullfrogs, crayfish and mosquito fish—are likely competing with California red-legged frog populations in the Prunedale area, especially near Blackie Road/Reese Circle where all three species are abundant, and may hinder breeding for the California red-legged frog in that stretch of Prunedale Creek. Additionally, conversion of open grasslands and oak woodlands to intensive farming is affecting water quality and upland habitat in the Prunedale area.

Table 2.28 shows the anticipated effects on listed animal species for this project.

Table 2.28 Anticipated Effects on Listed Animal Species

Federal and State Status	Level of Effect
California red-legged frog (federally threatened)	Not likely to jeopardize
California tiger salamander (federally threatened, state threatened)	Not likely to jeopardize
Santa Cruz long-toed salamander (federally endangered, state endangered, state fully protected)	Not likely to jeopardize

Source: U.S. Fish and Wildlife Service Biological Opinion 2012

Monterey Spineflower (Phase 2)

No permanent or temporary impacts to individual Monterey spineflowers would be expected if all avoidance measures were followed.

Only a small portion (19.8 acres) of the proposed project falls within the specific soil types necessary to constitute an adverse modification to habitat. Of these 19.8 acres within the project area, approximately 6.4 acres of Monterey spineflower critical habitat with the primary constituent elements could be permanently changed, but not adversely modified (see Figure 2-18).

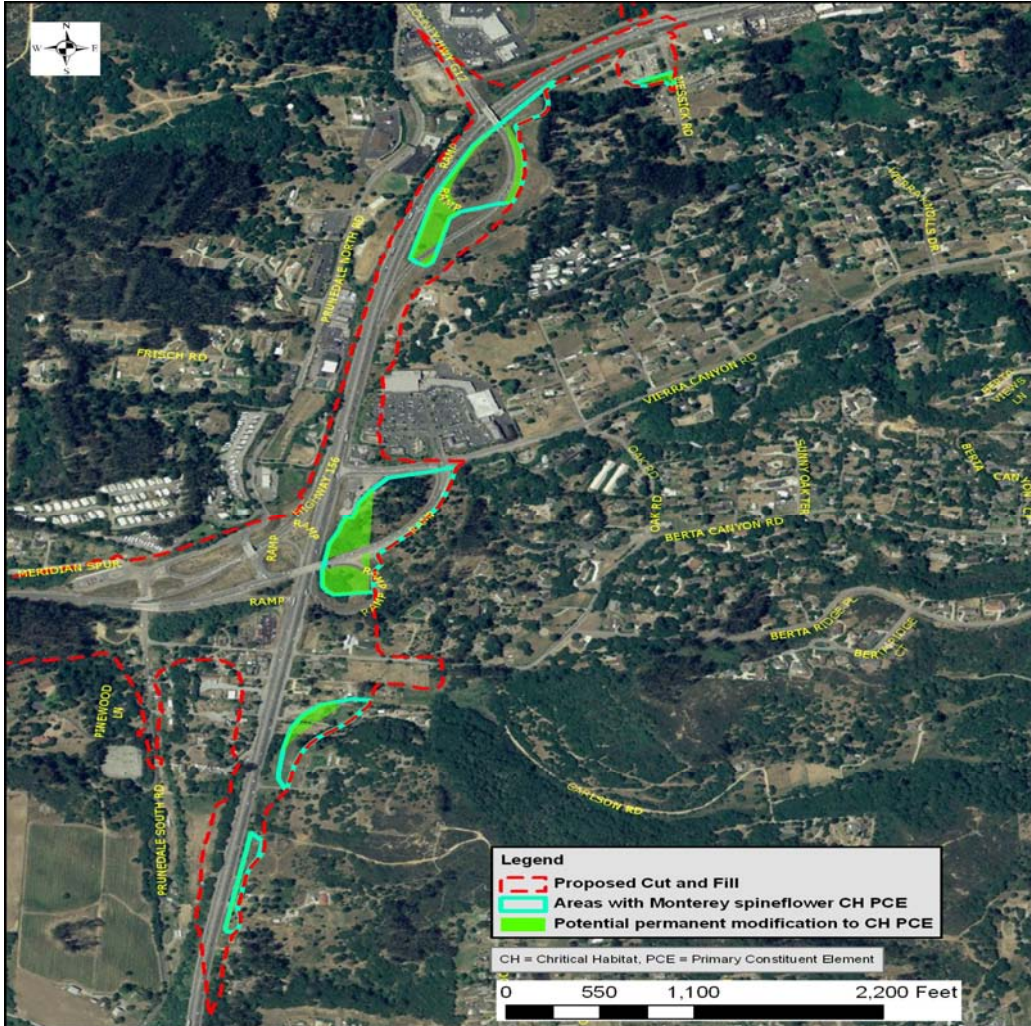


Figure 2-18 Potential changes to Monterey Spineflower critical habitat primary constituent elements

Yadon's Rein-orchid

No permanent or temporary impacts to the Yadon’s Rein-orchid would be expected if all avoidance measures were followed.

Table 2.29 shows the anticipated effects on listed plant species for this project.

Table 2.29 Anticipated Effects on Listed Plant Species

Federal and State Status	Level of Effect
Monterey spineflower (federally threatened)	No effect
Designated critical habitat for the Monterey spineflower	Not likely to adversely modify
Yadon’s Rein-orchid (federally endangered)	No effect

Source: California Department of Transportation Natural Environment Study 2008

No-Build Alternative

No impacts to threatened and/or endangered species are anticipated for the No-Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures

The terms and conditions identified in the Biological Opinion issued by the U.S. Fish and Wildlife Service under Section 7 consultation for this project would be implemented to further avoid and reduce impacts to California Red-Legged Frog, Santa Cruz long-toed Salamander, and California Tiger Salamander. The Biological Opinion was issued to Caltrans on June 7, 2012.

California Red-Legged Frog, Santa Cruz Long-Toed Salamander, and California Tiger Salamander

Avoidance and minimization measures incorporated into the project include:

- Only Service-approved biologists will participate in activities associated with the capture, handling and monitoring of Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs.
- Prior to the start of construction activities, a qualified biologist will conduct training program for all construction workers.
- A Service-approved biologist will survey the project site no more than 48 hours prior to work activities. If any adults, juveniles, or larvae of the California tiger salamander or California red-legged frog or any adults or juveniles of the Santa Cruz log-toed salamander are found and these individuals are likely to be killed or injured by work activities, the approved-biologist will be allowed time to move them from the site and relocate them to suitable habitat not affected by the proposed project.
- When in known or potential habitat for federally listed amphibians and prior to the use of heavy equipment and surface-disturbing activities, the work area will be cleared under the direction of the Service-approved biologist. Vegetation will initially be removed by hand to the maximum extent practicable. Piles of woody debris will be cleared by hand. If Santa Cruz long-toed salamanders, California red-legged frogs or California tiger salamanders are observed incidentally during vegetation and debris removal, work that may affect the species will cease until

the individuals are relocated to the nearest appropriate habitat by a Service-approved biologist.

- A Service-approved biologist will be present at the work site until completion of survey for, capture and removal of Santa Cruz long-toed salamanders, California red-legged frogs, and California tiger salamanders, instruction of workers and any actions resulting in habitat disturbance. After this time, Caltrans will designate a person to monitor onsite compliance with all minimization measures.
- During project activities, all trash will be properly contained, removed and disposed of regularly.
- Refueling, maintenance and staging of vehicles and equipment will occur at least 60 feet from riparian habitat or water bodies and in a location where a spill would not drain toward aquatic habitat.
- Habitat contours will be returned to their original condition at the end of project activities.
- Environmentally Sensitive Areas will be delineated to confine access routes and construction areas to the minimum necessary to complete construction and minimize impacts to federally listed amphibian species.
- Work activities, when conducted in potential habitat for California red-legged frogs, California tiger salamanders and Santa Cruz long-toed salamanders, will be completed between May 1 and November 1.
- The project would implement best management practices as outlined under the authorities of the Clean Water Act to control sedimentation during and after project implementation.
- If the work site is to be dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent larvae, juvenile and adult salamanders and frogs from entering the pumping system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Alteration of the stream bed will be minimized to the maximum extent possible; any imported material will be removed from the stream bed upon completion of the project.

- A Service-approved biologist will permanently remove any individuals of non-native animal species from the project area.
- Project sites will be revegetated with native riparian, wetland and upland vegetation suitable for the area.
- Caltrans will not use herbicides as a primary method to control invasive, exotic plants. If herbicide use is the only feasible method for controlling invasive plants at a specific project site, additional protective measures must be implemented.

Least Bell's Vireo

No avoidance, minimization and/or mitigation measures would be required for Least Bell's vireo.

Monterey Spineflower

Avoidance measures include:

- Building retaining walls to reduce the project footprint where feasible.
- Doing pre-construction surveys to establish environmentally sensitive areas.
- Onsite biological monitoring to maintain environmentally sensitive areas throughout construction. All individual plants would be avoided.

Yadon's Rein-orchid

Avoidance measures include:

- Building retaining walls to reduce the project footprint where feasible.
- Doing pre-construction surveys to establish environmentally sensitive areas.
- Onsite biological monitoring to maintain environmentally sensitive areas throughout construction. All individual plants would be avoided.

No-Build Alternative

No avoidance, minimization and/or mitigation measures would be required for the No-Build Alternative.

2.3.6 Invasive Species

Regulatory Setting

On February 3, 1999, President Bill Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the U.S. 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.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the National Environmental Policy Act analysis for a proposed project.

Affected Environment

A Natural Environment Study was completed for the project in October 2008, and a Water Quality Assessment Report was completed in August 2008 and updated in May 2012.

Invasive Plants (Phase 1 and Phase 2)

Ice plant, pampas grass, and Scotch broom are invasive plant species found in the right-of-way, which is highly disturbed due to maintenance activities (such as mowing) and vehicular traffic:

- Iceplant (*Carpobrotus edulis*) is a succulent that was brought from South Africa to prevent erosion. It forms dense low-growing mats, grows quickly out of control and chokes out native plants in coastal dunes and coastal scrub habitats.
- Pampas grass (*Cortaderia selloana*) is native to South America, but used in California as an ornamental plant in landscaping. It colonizes bare disturbed ground and competes with native plants.
- Scotch broom (*Cytisus scoparius*) is a perennial shrub 6 to 10 feet tall and native to Europe and North Africa. It was introduced as an ornamental plant and is used for erosion control in California.

Other invasive species found in the project area include vinca major, acacia, blue gum eucalyptus, and cape ivy.

Exotic Wildlife

Exotic wildlife species are not native to the area or the state, but occur in other portions of the U.S. or are introduced from a foreign country. Exotic wildlife species found in the project area include bullfrogs (*Rana catesbeiana*) and crayfish. The bullfrog and crayfish were introduced for human consumption. They eventually escaped or were released into the wild, invading streams throughout California.

Environmental Consequences

Alternatives 11 and 12 and the No-Build Alternative

Ice plant is scored as severe with regard to its impact and distribution, and moderately invasive by the California Invasive Plants Council and is the subject of several weed eradication programs within Monterey County.

The California Invasive Plants Council scores pampas grass as severe in its impact and invasiveness, with a moderate distribution.

Scotch broom is common in disturbed areas, but can also invade undisturbed grassland and shrubland.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 11 and 12

Construction activities would likely remove invasive species from the project area and would not cause them to spread beyond their current locations. Hydroseeding of disturbed areas after construction would not use invasive plant species. Seed mixtures would conform with the California State Seed Law of the Department of Agriculture.

In compliance with the Executive Order on Invasive Species, Executive Order 13112, and subsequent guidance from the Federal Highway Administration, the landscaping and erosion control included in the project would not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions would be taken if invasive species were found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

No-Build Alternative

Status of invasive species would remain unchanged with the No-Build Alternative.

2.4 Cumulative Impacts

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this 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 conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement 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.

California Environmental Quality Act Guidelines Section 15130 describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under the California Environmental Quality Act can be found in Section 15355 of the California Environmental Quality Act Guidelines. A definition of cumulative impacts under the National Environmental Policy Act can be found in 40 Code of Federal Regulations, Section 1508.7 of the Council on Environmental Quality regulations.

Affected Environment

Four Caltrans projects and one City of Castroville project are in early planning stages:

- A proposed Caltrans centerline rumble strip project on State Route 156 would require little or no change in land use.
- At the circulation of the Draft Environmental Impact Report/Environmental Assessment, three Caltrans transportation projects—a bridge replacement, construction of an interchange (San Juan interchange), and access routes to the Oak Hills community—were expected to result in a Negative Declaration/Finding of No Significant Impact with disclosure of all impacts and alternatives. And an Environmental Impact Report/Finding of No Significant Impact was completed for the Prunedale Improvement Project, which was scheduled to start construction in 2010.

One of the Caltrans projects—access routes to the Oak Hills community—is no longer a project. And the Prunedale Improvement Project is now in construction.

- The City of Castroville is planning for a train station to accommodate a passenger rail service extension from Gilroy to Salinas. The proposed location is north of State Route 156 between the Union Pacific Railroad tracks and Castroville Boulevard. A station platform passenger drop-off area is planned for the west side of the tracks; a commuter parking lot is planned for the east side of the tracks.

Environmental Consequences

Land Use

The bridge replacement, interchange construction, and access routes to the Oak Hills community and the Prunedale Improvement Project, along with the Route 156 West Corridor project, would convert residential, agricultural, commercial and industrial uses to transportation uses.

The City of Castroville's Community Plan describes Opportunity Areas; such areas have been identified for future development to meet the community's housing and economic needs. Development includes a mix of low-, medium- and high-density residential housing and commercial uses.

The Caltrans projects take into account the land use goals and transportation needs identified in the Monterey County General Plan 2007, Castroville Community Plan and Monterey County Regional Transportation Plan. Cumulative impacts with regard to land use conversion are recognized, planned and anticipated for the area. Cumulative impacts would be considered negligible.

Farmland

Conversion of farmland is required for construction of the Route 156 West Corridor project. The only option to avoid the conversion of farmland would be the No-Build Alternative, which does not meet the purpose and need of the project. Cumulative impacts to farmland are occurring for the Prunedale Improvement Project, and through planning for the San Juan Interchange Project, and the proposed City of Castroville commuter train station development. These projects and infrastructure to support them, taken in conjunction with other proposed projects in the area, would result in cumulative impacts to farmland in the area.

Growth

The Caltrans projects (Prunedale Improvement Project, San Juan interchange, Oak Hills access and bridge replacement) are not expected to induce growth because they do not provide access to previously inaccessible locations, do not substantially reduce traveler commute times, and do not increase capacity.

Visual Resources

The inherent size and engineered appearance of the new highway facility, regardless of build alternative, would cause a permanent change to the visual setting of State Route 156 and U.S. Route 101 corridors. The character of the highway corridors would appear more urbanized as the highway facilities become larger in scale, introduce several concrete structures, and add more pavement and roadway accessories into the view.

The visual impact of individual project components may not be significant when considered separately; however, they can have broader regional implications when viewed together. Additionally, it is appropriate to examine the cumulative impact on the visual context when combined with other transportation projects and development within the corridor.

Although bridge structures and associated ramps are not uncommon in highway settings, the general visual scale of the highway facility would have an effect on the rural character of the corridor. The proposed State Route 156/U.S. Route 101 connector flyover with its approximately 1,800-foot-long bridge would be reminiscent of a structure typically found in urban environments. The scale of the wall along eastbound State Route 156, west of Prunedale South Road across from McGuffie Road, and the resulting spatial change would visually dominate the setting and would easily be seen throughout the area. Because of its size (140 feet long by 65 feet high), the wall may become known as a visual landmark for the region. Replacing the existing planted slope with an approximately 700-foot-long wall along northbound U.S. Route 101 north of Vierra Canyon Road would substantially change the look of the highway corridor in that area.

Construction of these structures requires grading and removal of mature vegetation and skyline trees. The effect of tree removal in this area would mostly be the loss of roadside plants as well as a change in the skyline as seen from certain spots in the surrounding area.

The local community of Castroville identifies itself with its agricultural and rural heritage. The City of Castroville is known as the “Artichoke Capital of the World,” and artichoke icons are used in many of the businesses in the community. However, Castroville is also located within the wider context of Monterey County and the Central Coast, and as such is subject to the transportation needs and aesthetic sensitivities of a greater regional population.

The rolling hills, rows of strawberries and artichokes, mature trees and the Moro Cojo Slough reinforce the rural impression of State Route 156 within the project area. Multiple at-grade intersections exist along the route. The most noticeable cumulative impact from the proposed project would be more visually prominent overhead structures and retaining walls.

Changes to the intactness of the view outside the confines of the paved highway due to the loss of mature vegetation and skyline trees are also likely to contribute to a cumulative decrease in generally scenic rural character of the area, especially when considering the expected sensitivity of local viewers of the roadway, surrounding neighborhoods, and the State Scenic Highway designation of the route.

Water Quality

The bridge replacement, interchange construction, and access routes to the Oak Hills community and the Prunedale Improvement Project, along with the Route 156 West Corridor project, would add more impervious surface. The City of Castroville’s planned commuter train station and associated housing and business development would also contribute to more impervious surface to the area. Further analysis of the effects on water quality would be investigated during environmental review, and the extent to its contribution to cumulative impacts is unknown at this time. Caltrans projects are designed to minimize increases in storm water discharge rates by installing appropriate treatment best management practices to encourage storage and infiltration of storm water within the right-of-way. Cumulative impacts to water quality from these projects are considered negligible.

Biological Resources

Natural Communities

The Route 156 West Corridor project in addition to future Caltrans projects in and next to the project area would have minor cumulative impacts on coast live oak woodland and central maritime chaparral because mitigation measures (mostly onsite) are incorporated into these projects.

Wetlands and Other Waters

There is no record of historic impacts to jurisdictional perennial wetlands or jurisdictional seasonal wetlands within or near the project area, so these past projects cannot be included in the cumulative impact analysis for this resource.

Completed projects in or near the project area have changed or degraded jurisdictional other waters of the U.S., but have not caused a significant net loss. The Route 156 West Corridor project in addition to future Caltrans projects in and next to the project area would have minor cumulative impacts on jurisdictional perennial wetlands, jurisdictional seasonal wetlands and jurisdictional other waters of the U.S. because mitigation measures (mostly onsite) are incorporated into these projects. No net loss to jurisdictional other waters of the U.S. is anticipated.

Plants

Completed projects within or near the project area have affected central maritime chaparral. The Pajaro manzanita and Hooker's manzanita are plant species associated with central maritime chaparral. The Route 156 West Corridor project in addition to future Caltrans projects in and next to the project area would have minor cumulative impacts on the Pajaro manzanita and Hooker's manzanita because mitigation measures (mostly onsite) are incorporated into these projects.

Animals

Completed projects in or near the project area have affected, changed and/or degraded southwestern pond turtle habitat (water channels with riparian cover), but have not caused a significant net loss. Some projects may have resulted in a net increase in habitat through the creation of retention and stock ponds as a result of conversion to farmland. The Route 156 West Corridor project in addition to future projects in and next to the project area would not contribute to cumulative effects because all impacts would be fully mitigated resulting in no net loss of southwestern pond turtle habitat.

Threatened/Endangered Species

Yadon's Rein-orchid was found outside the Caltrans right-of-way and project area and would not be affected. Least Bell's vireo was not seen in the area. Cumulative effects are not anticipated for the Monterey spineflower, Yadon's Rein-orchid or Least Bell's vireo.

There are no records indicating presence of fairy shrimp in the area, therefore no cumulative impacts are anticipated. However, this determination is subject to change if access to previously restricted parcels is granted and presence is confirmed.

Cumulative impacts are expected to be minor to the California red-legged frog, California tiger salamander and Santa Cruz long-toed salamander from the Route 156 West Corridor project and other planned Caltrans projects. Impacts to the California red-legged frog, California tiger salamander and Santa Cruz long-toed salamander would be fully mitigated resulting in no net loss of habitat.

Avoidance, Minimization, and/or Mitigation Measures

Land Use

Farmland

Zoning maps indicate that land south of State Route 156 would continue in agricultural use.

Caltrans considered measures to convert fewer acres of farmland. Remnant parcels of farmland were avoided as much as possible by acquiring right-of-way in slivers (linear strips) of property next to the existing parcels. When possible, Caltrans would allow farmland to be kept in production (after purchase) until needed for construction.

The Caltrans Relocation Advisory Assistance Program helps locate suitable replacement property, and the Relocation Payment Program reimburses for certain costs involved in relocating. Types of payments include moving and related expenses (personal property not being acquired for the highway project), reestablishment expenses (expenses related to replacement property), and in-lieu payment (a fixed payment in-lieu of moving and related expenses).

Additionally, farmland acquired for the Route 156 West Corridor project lies within the coastal zone, and mitigation for farmland impacts would be a condition of the local coastal permit for the project.

Visual Resources

Measures to maintain the visual quality of the U.S. Route 101 and State Route 156 corridors and decrease the visual impact caused by the project include:

- Landscaping bridge structures, retaining walls and soundwalls to reduce the perceived scale of the structures and provide a natural transition from adjacent landscape to the project. All trees that cannot be saved would be replaced by native or other horticulturally appropriate trees. All plantings should include a plant establishment period.
- Applying aesthetic treatments that fit the visual character of the area.

- Using forms and materials that are well related to other existing elements.
- Applying contour-grading and slope-rounding to new slopes along State Route 156 (where such measures would not cause additional tree removal or effects to other resources). This measure would minimize the engineered appearance of the project and result in more natural-appearing landforms.

Biological Resources

Measures would include:

- Pre-construction surveys, onsite biological monitoring, and establishing environmentally sensitive areas within the proposed project limits (similar to natural communities).
- Using the Caltrans right-of-way for restoration to improve habitat as well as replace vegetation lost during construction. If onsite mitigation was not practical, mitigation would be accomplished through a mitigation bank currently being developed for advanced mitigation for transportation projects within the Elkhorn Slough watershed. Refer to section 2.3.5 for more information.

Chapter 3 California Environmental Quality Act Evaluation

3.1 Determining Significance under the California Environmental Quality Act

The proposed project is a joint project by the 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 the California Environmental Quality Act and the National Environmental Policy Act. The Federal Highway Administration's responsibility for environmental review, consultation, and any other action required in accordance with the National Environmental Policy Act 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 U.S. Code 327. Caltrans is the lead agency under the California Environmental Quality Act and the National Environmental Policy Act.

One of the main differences between the National Environmental Policy Act and the California Environmental Quality Act is the way significance is determined. Under the National Environmental Policy Act, significance is used to determine whether an Environmental Impact Statement, or some lower level of documentation, will be required. The National Environmental Policy Act requires that an Environmental Impact Statement 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 the California Environmental Quality Act may not be of sufficient magnitude to be determined significant under the National Environmental Policy Act. Under the National Environmental Policy Act, once a decision is made regarding the need for an Environmental Impact Statement, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. The National Environmental Policy Act does not require that a determination of significant impacts be stated in the environmental documents.

The California Environmental Quality Act, 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 Environmental Impact Statement must be prepared. Each and every significant effect on the environment must be disclosed in the Environmental Impact Statement and mitigated if feasible.

In addition, the California Environmental Quality Act Guidelines list a number of mandatory findings of significance, which also require the preparation of an Environmental Impact Statement. There are no types of actions under the National Environmental Policy Act that parallel the findings of mandatory significance of the California Environmental Quality Act. This chapter discusses the effects of this project and the California Environmental Quality Act significance.

3.2 Discussion of Significant Impacts

See Chapter 2 for a discussion of affected environments, potential impacts and avoidance, minimization and/or mitigation measures. This chapter discusses the impacts addressed in Chapter 2 that fall under the jurisdiction of the California Environmental Quality Act.

3.2.1 Less than Significant Effects of the Proposed Project

- **Visual/Aesthetic:** The entire length of State Route 156 throughout the project limits is an officially designated State Scenic Highway. Measures to maintain the visual quality of the U.S. Route 101 and State Route 156 corridors and decrease the visual impact caused by the project are detailed in section 2.1.7.
- **Threatened/Endangered Species:** Measures to avoid and minimize project effects to threatened/endangered species and their habitat are detailed in section 2.3.5.
- **Wetlands and Other Waters:** Measures to minimize project effects are detailed in section 2.3.2.
- **Natural Communities:** Measures to avoid and minimize project effects to natural communities are detailed in section 2.3.1.
- **Geology:** Both build alternatives would require extensive cuts and fills, which are susceptible to erosion. Measures to reduce the effects from the extensive cuts and fills are detailed in section 2.2.3.
- **Hydrology/Floodplain:** Measures to reduce project effects to the floodplain are detailed in section 2.2.1.
- **Air Quality:** Measures to minimize effects of construction dust are detailed in section 2.2.5.
- **Water Quality:** Pollution control measures per the National Pollutant Discharge Elimination System permit would be implemented. Refer to section 2.2.2 for more information.
- **Coastal Zone:** Measures to minimize effects within the coastal zone are detailed in section 2.1.1.3.

- Noise: When determining whether a noise impact is significant under the California Environmental Quality Act, comparison is made between the no-build noise level and the build noise level. The California Environmental Quality Act noise analysis is completely independent of the National Environmental Policy Act 23 Code of Federal Regulations 772 analysis, which is centered on noise abatement criteria. Under the California Environmental Quality Act, the assessment looks 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.

Fifteen locations in the project area were chosen as areas with the highest current and potential future noise levels. The sensitive receivers at these 15 locations represent nearby residences, a school and a church. In accordance with Caltrans *Traffic Noise Analysis Protocol* (2006), a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12-decibel or more increase). The 2006 Caltrans *Traffic Noise Analysis Protocol* was used for determining noise impacts of the project for the 2009 draft environmental document. None of the sensitive noise receivers identified for the project was predicted to have a noise increase of 12 decibels or more; therefore, construction of the proposed project would not result in a significant noise impact under the California Environmental Quality Act.

Currently, noise impact evaluations do not use the 12-decibel threshold when determining significant impacts under the California Environmental Quality Act. Evaluations are based on comparing the existing baseline noise level and the build noise levels. The predicted noise level increase at the 15 noise receptor locations range from 1 to 4 decibels. The increase of 4 decibels between the existing noise levels and the build alternative would be minimally perceptible to the human ear. Most of the noise receptors represent residences in rural areas. Twelve receptors represent over 70 residences adjacent to State Route 156 on the north. The proposed project would construct four lanes on new alignment south of the existing State Route 156. Highway traffic noise would be removed farther away from most of the residential areas. Construction of the proposed project would not result in a significant noise impact under the California Environmental Quality Act.

3.2.2 Significant Environmental Effects of the Proposed Project

Caltrans has determined, according to California Environmental Quality Act guidelines, the project has the potential to have significant effects to farmland. Farmland to be converted for the proposed project is within the coastal zone. This farmland is designated as coastal agricultural preserve land use along State Route 156 within the proposed project area.

3.2.3 Unavoidable Significant Environmental Effects

Farmland conversion was a consideration in determining which alternatives would warrant further consideration and which alternatives would be withdrawn. However, significant environmental effects to farmland are unavoidable because farmland exists along the south side of State Route 156 and any change or new alignment of the route inevitably would affect farmland. Alternatives to the north would lessen the farmland conversion, but would result in numerous residential and utility relocations. The alternatives considered and withdrawn are discussed in section 1.3.4.

3.2.4 Climate Change under the California Environmental Quality Act

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 gases, 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's in 1988 has led to increased efforts devoted to greenhouse gas emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of greenhouse gases related to human activity that include carbon dioxide (CO₂), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

There are typically two terms used when discussing the impacts of climate change.

“Greenhouse Gas Mitigation” is a term for reducing greenhouse gas emissions in order to reduce or “mitigate” the impacts of climate change. “Adaptation” refers to the effort of planning for and adapting to impacts due to climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)¹.

Transportation sources (passenger cars, light-duty trucks, other trucks, buses and motorcycles) in the state of California make up the largest source (second to electricity generation) of greenhouse gas-emitting sources. Conversely, the main source of greenhouse gas emissions in the United States is electricity generation, followed by transportation. The dominant greenhouse gas emitted is carbon dioxide (CO₂), mostly from fossil fuel combustion.

There are four primary strategies for reducing greenhouse gases emissions from transportation sources: 1) improve system and operation efficiencies, 2) reduce growth of vehicle miles

traveled, 3) transition to lower greenhouse gas fuels and 4) improve vehicle technologies. To be most effective, all four should be pursued collectively. The following regulatory setting section outlines state and federal efforts to comprehensively reduce greenhouse gas emissions from transportation sources.

Regulatory Setting

State

With the passage of several pieces of legislation including State Senate and Assembly Bills and Executive Orders, California launched an innovative and proactive approach to dealing with greenhouse gas emissions and climate change at the state level.

Assembly Bill 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases (AB 1493), 2002: This bill requires the California Air Resources Board (CARB) to develop and implement regulations to reduce automobile and light-truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the U.S. Environmental Protection Agency (U.S. EPA) Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own greenhouse gas emission standards for motor vehicles beginning with model year 2009. California agencies will be working with federal agencies to conduct joint rulemaking to reduce greenhouse gas emissions for passenger car model years 2017-2025.

Executive Order S-3-05 (signed on June 1, 2005, by then-Governor Arnold Schwarzenegger): The goal of this order is to reduce California's greenhouse gases emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006: AB 32 sets the same overall greenhouse gases emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that California Air Resources Board create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the State's Climate Action Team.

Executive Order S-01-07: Then-Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

¹ http://climatechange.transportation.org/ghg_mitigation/

Senate Bill 97 (Chapter 185, 2007): This bill required the Governor’s Office of Planning and Research to develop recommended amendments to the State California Environmental Quality Act Guidelines for addressing greenhouse gas emissions. The amendments became effective on March 18, 2010.

Federal

Although climate change and greenhouse gas reduction are a concern at the federal level, currently no legislation or regulations have been enacted specifically addressing greenhouse gas emissions reductions and climate change at the project level. Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the “National Clean Car Program” and Executive Order 13514-*Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the interagency Climate Change Adaptation Task Force, which is engaged in developing a U.S. strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act and that the U.S. Environmental Protection Agency has the authority to regulate greenhouse gases. The court held that the U.S. Environmental Protection Agency Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. Environmental Protection Agency Administrator signed two distinct findings on greenhouse gases under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. Environmental Protection Agency's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009². On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register.

The U.S. Environmental Protection Agency and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced greenhouse gas emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever greenhouse gas regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle greenhouse gas regulations. These steps were outlined by President Barack Obama in a memorandum on May 21, 2010.³

The final combined U.S. Environmental Protection Agency and National Highway Traffic Safety Administration standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards will cut greenhouse gas emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On January 24, 2011, the U.S. Environmental Protection Agency along with the U.S. Department of Transportation and the State of California announced a single timeframe for proposing fuel economy and greenhouse gas standards for model years 2017-2025 cars and light trucks. Proposing the new standards in the same timeframe (September 1, 2011), signals continued collaboration that could lead to an extension of the current National Clean Car Program.

Project Analysis

An individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of greenhouse gas.⁴ In assessing cumulative

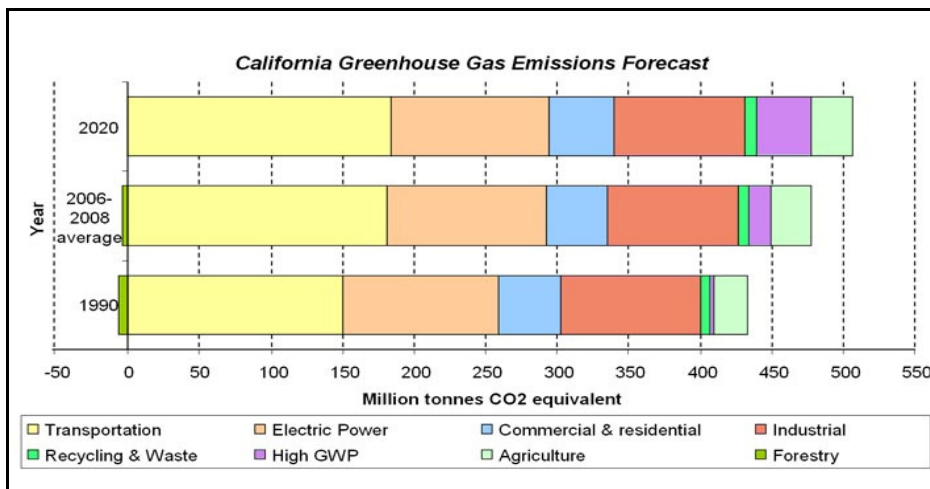
² <http://www.epa.gov/climatechange/ endangerment.html>

³ <http://epa.gov/otaq/climate/regulations.htm>

⁴ This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents*

impacts, it must be determined if a project’s incremental effect is “cumulatively considerable.” See California Environmental Quality Act Guidelines Sections 15064(h)(1) and 15130. To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult if not impossible task.

The AB 32 Scoping Plan contains the main strategies California will use to reduce greenhouse gas. As part of its supporting documentation for the Draft Scoping Plan, the California Air Resources Board released the greenhouse gases inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. See Figure 3-1. The base year used for forecasting emissions is the average of statewide emissions in the greenhouse gas inventory for 2006, 2007, and 2008.



⁵ Source: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>

Figure 3-1 California Greenhouse Gas Forecast

The Department and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing greenhouse gas emission reduction and climate change. Recognizing that 98 percent of California’s greenhouse gas emissions are from the burning of fossil fuels and 40 percent of all human-made greenhouse gas emissions are from transportation,

(March 5, 2007), as well as the SCAQMD (Chapter 6: The CEQA Guide, April 2011) and the U.S. Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

⁵ Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006 (see Climate Action Program at Caltrans (December 2006)).

One of the main strategies in the Department's Climate Action Program to reduce greenhouse gas emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0-25 miles per hour (see Figure 3-2). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors, greenhouse gas emissions, particularly CO₂, may be reduced.

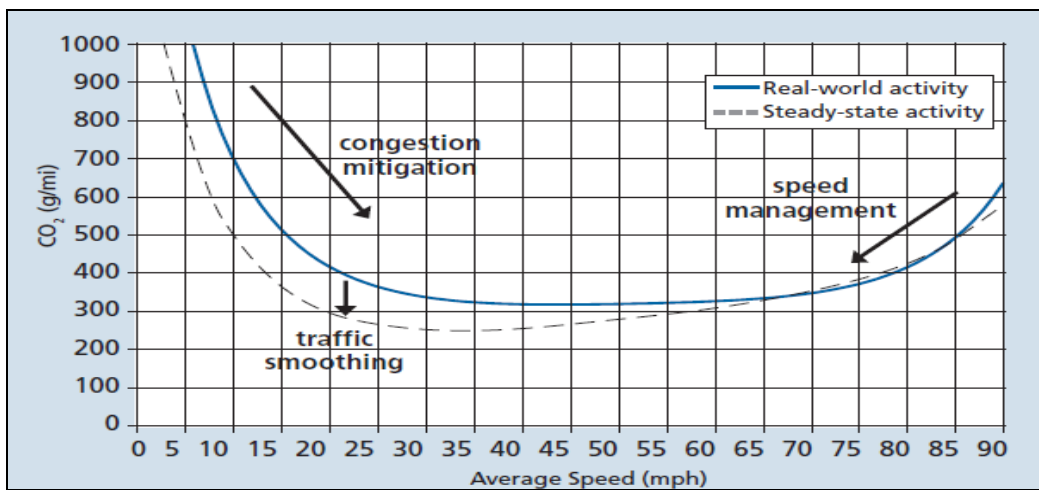


Figure 3-2 Possible Effect of Traffic Operation Strategies in Reducing On-Road CO₂ Emission⁶

Outside of the cities of Salinas, Seaside, Soledad and Monterey, Monterey County is a largely rural/agricultural area. The unincorporated areas of the county are mostly characterized by low-density land use, with schools, retail and employment separated by distances that necessitate driving and make alternative transportation such as public transit, walking or biking less likely.

Monterey County had a 2007 population of 425,960, an increase of 0.7 percent over 2006. During the same period, California grew at an annual average rate of 1.3 percent.

Monterey County has proposed policy changes to the Draft General Plan (OS-10.11) that state in part:

⁶ Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010) <<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>>

- “Within 24 months of the adoption of the General Plan, Monterey County will develop a Greenhouse Gas Reduction Plan with a target to reduce emissions by 2020 by 28 percent relative to the estimated business as usual emissions.”
- “During preparation of the Greenhouse Gas Reduction Plan, the County shall also evaluate potential options for changes in County policies regarding land use and circulation as necessary to further achieve the 2020 and 2030 reduction goals and measures to promote urban forestry and public awareness concerning climate change.”

The proposed changes to the General Plan do not specifically address highway projects, but the proposed project’s congestion relief properties do support the County’s Greenhouse Gas Reduction Plan.

The project sits within the North Central Coast Air Basin, which is currently classified as “in attainment/unclassified” for all current federal air quality standards and in an “unclassified” area for state standards. Carbon dioxide is a common indicator of the various greenhouse gases. Carbon dioxide and most of the greenhouse gases are not currently listed in the Clean Air Act as Priority Pollutants; therefore, there is no federal or state ambient air quality limit for these gases.

Since the project air quality studies were completed, a new focus has been made on greenhouse gas emissions. The dominant pollutant in greenhouse gasses is carbon dioxide that makes up more than 80 percent of these pollutants. Much of carbon dioxide emissions are said to come from mobile sources that include automobiles, trucks, trains, buses and airplanes. To analyze the effect of the project on local carbon dioxide levels in air quality, a burden analysis was performed for traffic on State Route 156 using CTEMFAC version 2.5. The California Air Resources Board approved the CTEMFAC computer program for estimating the amounts of greenhouse gas pollutants generated by mobile sources.

Inputs to the program were traffic volumes for 2006, and for the build and no-build conditions in 2016 (the anticipated project construction year), and 2036, (the project design year), as well as predicted speeds for each of 10 scenarios, the length of the highway segment (3.9 miles), and the county that the project would be constructed in (Monterey County). Annual average daily traffic volumes were broken down to automobiles and heavy-duty trucks, and each scenario was run for peak hour and off peak hour traffic volumes (note the difference in heavy-duty truck percentages between peak and off-peak hours). Traffic inputs and emissions results are shown on Table 3.1. Traffic volumes have been updated from the project study report stage.

Table 3.1 Analysis for CO₂ with CTEMFAC V2.5—Mon-156 W (3.9 mi)

Scenario	Hours	Year				
		2006	2016 No-Build	2016 Build	2036 No-Build	2036 Build
Annual Average Daily Traffic		28,438	30,729	32,396	30,834	40,208
Peak Hours	1.5	1,316				
	2.0		1,331			
	1.0			1,555		1,930
	3.5				1,302	
Speeds		31	30	70	29	70
Vehicle Percentages: Autos (99.5), Trucks-3+ axles (0.5)						
Off-peak hours	22.5	1,176				
	22.0		1,276			
	23.0			1,341		1,665
	20.5				1,282	
Speeds		53	53	70	53	70
Vehicle Percentages: autos (95), Trucks-3+ axles (5)						

Traffic projected from D-5 Forecasting Memo
December 4, 2008

Annual tons	peak CO ₂	3.27	4.41	2.92	7.78	3.64
Annual tons	offpk CO ₂	41.82	43.87	60.90	41.12	75.76

Total CO₂ (tons)		45.08	48.28	63.82	48.90	79.39
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Table 3.1 shows that based on the CTEMFAC runs, the project would create more greenhouse gases (CO₂) than the no-build condition. Future levels of CO₂ are higher than present levels. This is mainly because of higher predicted traffic volumes (10,000 more vehicles per day with the build alternative than the no-build in 2036) and speeds allowed by the two additional lanes that the project would add to the highway. The lowest emission factors for CO₂ occur at about 45-50 miles per hour. As speeds both increase and decrease from this point, emission factors for CO₂ increase, so even if the traffic volumes for the build and no-build conditions were the same, the project would still show an apparent increase in CO₂ emissions.

Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate CO₂ emissions from mobile sources, the model does have limitations when it comes to accurately reflecting CO₂ emissions. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008), studies have revealed that brief but rapid accelerations can contribute significantly to a vehicle's carbon monoxide and hydrocarbon emissions during a typical urban trip.

Current emission-factor models are insensitive to the distribution of such modal events (i.e., cruise, acceleration, deceleration, and idle) in the operation of a vehicle and instead estimate emissions by average trip speed. This limitation creates an uncertainty in the model's results when compared to the estimated emissions of the various alternatives with baseline in an attempt to determine impacts.

Although work by the Environmental Protection Agency and California Air Resources Board is under way on modal-emission models, neither agency has yet approved a modal emissions model that can be used to conduct this more accurate modeling. In addition, EMFAC does not include speed corrections for most vehicle classes for CO₂ – for most vehicle classes, emission factors are held constant, which means that EMFAC is not sensitive to the decreased emissions associated with improved traffic flows for most vehicle classes. Therefore, unless a project involves a large number of heavy-duty vehicles, the difference in modeled CO₂ emissions due to speed change will be slight.

The California Air Resources Board is currently not using EMFAC to create its inventory of greenhouse gas emissions. It is unclear why the California Air Resources Board has made this decision. Its website states only:

REVISION: Both the EMFAC and OFFROAD Models develop CO₂ and CH₄ [methane] emission estimates; however, they are not currently used as the basis for [CARB's] official [greenhouse gas] inventory which is based on fuel usage information. . . However, ARB is working towards reconciling the emission estimates from the fuel usage approach and the models.

Other Variables

With the current science, project-level analysis of greenhouse gas emissions is limited. Although a greenhouse gas analysis is included for this project, there are numerous key greenhouse gas variables that are likely to change dramatically during the design life of the proposed project and would therefore dramatically change the projected CO₂ emissions.

First, vehicle fuel economy is increasing. The Environmental Protection Agency's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2008 (<http://www.epa.gov/oms/fetrends.htm>)," 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 has improved each year beginning in 2005, and is now the highest since 1993.

Most of the increase since 2004 is due to higher fuel economy for light trucks, following a long-term trend of slightly declining overall fuel economy that peaked in 1987. These vehicles also

have a slightly lower market share, peaking at 52 percent in 2004 with projections at 48 percent in 2008.

Table 3.2 shows the alternatives for vehicle fuel economy increases studied by the National Highway Traffic Safety Administration in its Final Environmental Impact Statement for New Corporate Average Fuel Economy (CAFE) Standards (October 2008).

Table 3.2 Model Year 2015 Miles per Gallon

Model Year 2015 Required Miles Per Gallon by Alternative							
No Action		25% Below Optimized	Optimized (Preferred)	25% Above Optimized	50% Above Optimized	Total Costs Equal Total Benefits	Technology Exhaustion
Cars	27.5	33.9	35.7	37.5	39.5	43.3	52.6
Trucks	23.5	27.5	28.6	29.8	30.9	33.1	34.7

Second, near-zero carbon vehicles will come into the market during the design life of this project. According to a March 2008 report released by University of California at Davis Institute of Transportation Studies:

“Large advancements have occurred in fuel cell vehicle and hydrogen infrastructure technology over the past 15 years. Fuel cell technology has progressed substantially resulting in power density, efficiency, range, cost, and durability all improving each year. In another sign of progress, automotive developers are now demonstrating over 100 fuel cell vehicles (FCVs) in California – several in the hands of the general public – with configurations designed to be attractive to buyers. Cold-weather operation and vehicle range challenges are close to being solved, although vehicle cost and durability improvements are required before a commercial vehicle can be successful without incentives. The pace of development is on track to approach pre-commercialization within the next decade.

“A number of the U.S. DOE 2010 milestones for FCV development and commercialization are expected to be met by 2010. Accounting for a five to six year production development cycle, the scenarios developed by the U.S. DOE suggest that 10,000s of vehicles per year from 2015 to 2017 would be possible in a federal demonstration program, assuming large cost share grants by the government and industry are available to reduce the cost of production vehicles.”⁷

⁷ Cunningham, Joshua, Sig Cronich, Michael A. Nicholas. March 2008. Why Hydrogen and Fuel Cells are Needed to Support California Climate Policy, UC Davis, Institute of Transportation Studies, pp. 9-10.

Third and as previously stated, California has recently adopted a low-carbon transportation fuel standard. The California Air Resources Board’s low carbon fuels regulations were approved and became effective April 2010 with full implementation January 2011.

Fourth, driver behavior has been changing as the U.S. economy and oil prices have changed. In its January 2008 report, “Effects of Gasoline Prices on Driving Behavior and Vehicle Market,” (<http://www.cbo.gov/ftpdocs/88xx/doc8893/01-14-GasolinePrices.pdf>), the Congressional Budget Office found the following results based on data collected from California: 1) freeway motorists have adjusted to higher gas prices by making fewer trips and driving more slowly; 2) the market share of sports utility vehicles is declining; and 3) the average prices for larger, less-fuel-efficient models have declined over the past five years as average prices for the most-fuel-efficient automobiles have risen, showing an increase in demand for the more fuel-efficient vehicles.

Limitations and Uncertainties with Impact Assessment

Taken from p. 3-70 of the National Highway Traffic Safety Administration Final Environmental Impact Statement for New CAFE Standards (October 2008), Figure 3-3 illustrates how the range of uncertainties in assessing greenhouse gas impacts grows with each step of the analysis:

“Cascade of uncertainties typical in impact assessments showing the “uncertainty explosion” as these ranges are multiplied to encompass a comprehensive range of future consequences, including physical, economic, social, and political impacts and policy responses.”

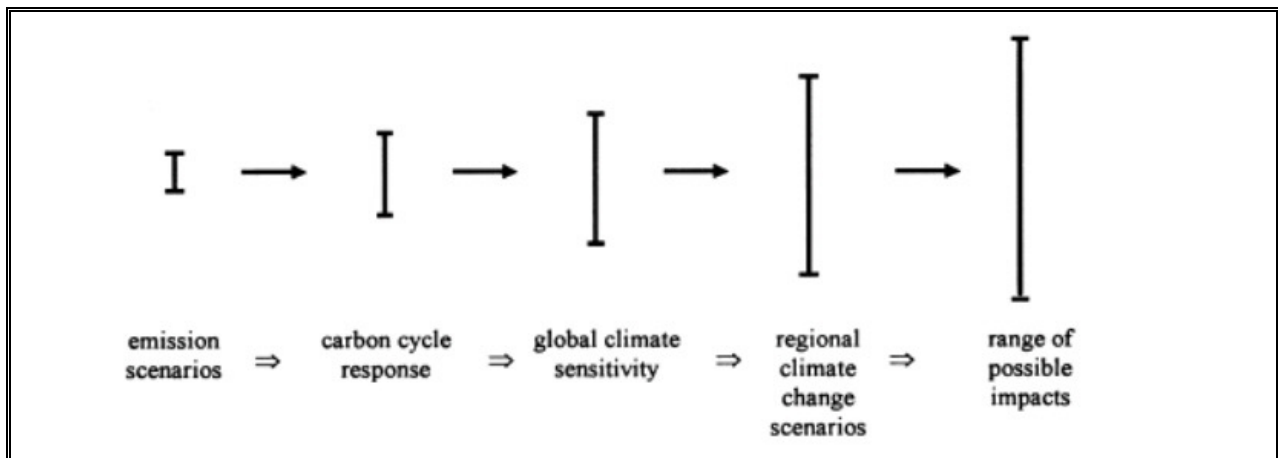


Figure 3-3 Cascade of Uncertainties

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 CO₂ emissions would mean for climate change given the overall California greenhouse gas emissions inventory of approximately 430 million tons of CO₂ equivalent. This uncertainty only increases when viewed globally.

The Intergovernmental Panel on Climate Change has created multiple scenarios to project potential future global greenhouse gas emissions and 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, amount of overall growth, and the steps taken to reduce greenhouse gas emissions. Non-mitigation Intergovernmental Panel on Climate Change scenarios project an increase in global greenhouse gas emissions by 9.7 up to 36.7 billion metric tons CO₂ from 2000 to 2030, which represents an increase of between 25 and 90 percent.⁸

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 CO₂ 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.

The complexities and uncertainties associated with project-level impact analysis are further borne out in the recently released Final Environmental Impact Statement completed by the National Highway Traffic Safety Administration CAFE standards, October 2008. As the text quoted below shows, even when dealing with greenhouse gas emission scenarios on a national scale for the entire passenger car and light-truck fleet, the numerical differences among alternatives is very small and well within the error sensitivity of the model.

"In analyzing across the CAFE 30 alternatives, the mean change in the global mean surface temperature, as a ratio of the increase in warming between the B1 (low) to A1B (medium) scenarios, ranges from 0.5 percent to 1.1 percent. The resulting change in sea level rise (compared to the No Action Alternative) ranges, across the alternatives, from 0.04 centimeter to 0.07 centimeter. In summary, the impacts of the model year 2011-2015 CAFE alternatives on global mean surface temperature, sea level rise, and precipitation are relatively small in the context of the expected changes associated with the emission trajectories. This is due primarily to the global and multi-sectoral nature of the climate problem.

⁸ 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>.

Emissions of CO₂, the primary gas driving the climate effects, from the United States automobile and light truck fleet represented about 2.5 percent of total global emissions of all greenhouse gases in the year 2000 (EPA, 2008; CAIT, 2008). While a significant source, this is a still small percentage of global emissions, and the relative contribution of CO₂ emissions from the United States light vehicle fleet is expected to decline in the future, due primarily to rapid growth of emissions from developing economies (which are due in part to growth in global transportation sector emissions).” [NHTSA Draft EIS for New CAFE Standards, June 2008, pp.3-77 to 3-78]

Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction greenhouse gases emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from 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.

CEQA Conclusion

As discussed above, both the future with the project and future no-build show increases in CO₂ emissions over the existing levels; the future build CO₂ emissions are higher than the future no-build emissions. In addition, as discussed above, there are also limitations with EMFAC and with assessing what a given CO₂ 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 California Environmental Quality Act significance, it is too speculative to make a determination regarding significance of the project’s direct impact and its contribution on 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.

AB 32 Compliance

The Department continues to be actively involved on the Governor’s Climate Action Team as the California Air Resources Board works to implement the Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies the Department is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Former Governor Arnold Schwarzenegger’s Strategic Growth Plan calls for a

\$222 billion infrastructure improvement program to fortify the state’s transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding during the next decade.

The Strategic Growth Plan targets a significant decrease in traffic congestion below today’s level and a corresponding reduction in greenhouse gas emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment



Figure 3-4: Mobility Pyramid

options has been created that combined together are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 3-4 The Mobility Pyramid.

The Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. The Department is working closely with local jurisdictions on planning activities; however, the Department does not have local land use planning authority.

The Department is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light- and heavy-duty trucks; the Department is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by the U.S. Environmental Protection Agency and California Air Resources Board.

Lastly, the use of alternative fuels is also being considered; the Department is participating in funding for alternative fuel research at the University of California, Davis.

Table 3.3 summarizes the Department and statewide efforts that the Department is implementing to reduce greenhouse gas emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 3.3 Climate Change Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & Greenhouse Gas into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, Cal EPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.45 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Other greenhouse gas measures include:

- The proposed project would be designed to minimize removal of existing trees, especially mature trees. The project would plant the intersections/interchanges and other disturbed areas with a variety of native and drought tolerant trees and shrubs in ratios sufficient to replace the air quality and cooling benefits of trees removed by construction of the project. Additional trees would be planted as space allows to further increase those benefits. Trees would be planted from large-size containers to accelerate reestablishment of the greenhouse gas sink and to shade the pavement. Riparian planting would also be included to maintain shade along creek corridors.
- Landscaping reduces surface warming, and through photosynthesis, decreases CO₂. The project would seed slopes, drainage channels, and other disturbed areas with native and drought-tolerant shrubs, perennials and grasses.
- Crossing the highway from the west side of the community to the east side is currently safely possible only by vehicle. Sidewalks would be incorporated into the overhead structure to help facilitate pedestrian use allowing crossing of the highway by means other than car, such as on foot or by bicycle.
- The project would incorporate the use of energy-efficient lighting such as LED traffic signals.
- Monterey County provides ridesharing services and park-and-ride facilities to help manage the growth in demand for highway capacity. A park-and-ride facility within the current project limits would be relocated and incorporated within the proposed project. The relocated park-and-ride lot would include a lockable locker for bicycles and a pedestrian bus shelter and benches. Use of the locker would be based on a first-come, first served basis or coordinated through a reservation system administered by the Monterey Salinas Transit or Monterey County.
- The Transportation Agency for Monterey County is sponsoring a project called the Commuter Rail Extension to Monterey County Project. This project proposes to extend rail service south to Salinas as discussed in the 2010 Regional Transportation Plan. The extension includes three new station stops: Pajaro/Watsonville, Castroville and Salinas. Even though additional rail service is being planned in the area, it is many years away from being up and running. Even

when fully operational, the new rail system would have little effect on mitigating the projected (2041) traffic volumes on State Route 156.

- The Ridership Validation Report (January 2009) that was completed as part of the Commuter Rail Extension Project found that the projected (2035) ridership would be about 800 a day. Compared to the projected Annual Average Daily Traffic (AADT) count of 40,200 on State Route 156, there would be only a 2 percent improvement realized by the improved rail service. This small improvement is insufficient to mitigate the existing and future traffic volumes on State Route 156. Therefore, adding additional lanes to State Route 156 is necessary with or without improvements to the rail system. (The Ridership Validation Report can be found online at:
http://tamcmonterey.org/programs/rail/pdf/Ridership_Validation_Final_Report.pdf).

The following “green” practices and materials would be used in the project as part of highway planting and erosion control work:

- Compost and soil amendments derived from recycled wood products and green waste materials.
- Fiber produced from recycled pulp such as newspaper, chipboard, cardboard.
- Wood mulch made from green waste and/or clean manufactured wood or natural wood.
- Native and drought-tolerant seed and plants species.
- Irrigation controllers including water conservation features.
- Restricted pesticide use and reduction goals.

The following measures would be used in the project to address construction emissions:

- Apply chemical soil stabilizers on inactive construction areas.
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations and hydro-seed area.
- Cover all trucks hauling dirt, sand, or loose materials when traveling on public roads.
- Water all active construction areas. Frequency should be based on the type of operation, soil and wind exposure.

- Plant vegetative cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Sweep streets if visible soil is carried out from the construction site.

The State of California maintains several websites, which provide public information on measures to improve renewable energy use, energy efficiency, water conservation and efficiency, land use and landscape maintenance, solid waste measures, and transportation alternatives.

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. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects would vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

Climate change adaptation must also involve the natural environment as well. Efforts are under way on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

Sea Level Rise

Sea level rise poses a serious threat to residents and the built environments (including transportation assets) along the California coast. In an effort to better understand potential amounts of rise and the associated impacts, then-Governor Arnold Schwarzenegger signed Executive Order S-13-08. The former governor called for a proactive approach by directing agencies, who are planning construction projects in areas vulnerable to sea level rise, to begin planning for potential impacts by considering a range of sea level rise scenarios for the years 2050 and 2100. Although Executive Order S-13-08 allowed for some exemptions for routine maintenance projects and for projects programmed for construction through 2013, the intent was to

plan ahead to assess project vulnerability and reduce anticipated risks associated with sea level rise. Other California state agencies, commissions and climate action teams are already moving forward to implement guidance on how to address this issue.

Executive Order S-13-08 directs the Natural Resources Agency, in cooperation with Caltrans and other state agencies, to commission the National Academy of Sciences through the Natural Resources Council to assemble a team of experts to produce a West Coast sea level rise assessment report for California, Oregon, and Washington. Though the report was originally scheduled for completion by December 2010, it is now not planned for release until sometime in 2012. When released, the report will include sea level rise scenarios for the entire state.

The Coastal-Ocean Climate Action Team is composed of senior level staff from California state agencies with ocean and coastal resource management responsibilities. The Coastal-Ocean Climate Action Team's task is to ensure the state's ability to adapt to climate change impacts on ocean and coastal resources while supporting implementation of global warming emission reduction programs. One of the tasks of the Coastal-Ocean Climate Action Team has been to develop interim sea level rise scenarios for the state while waiting for the release of the National Academy of Sciences study. The Coastal-Ocean Climate Action Team released final draft interim guidance on October 28, 2010 and on March 11, 2011; the Ocean Protection Council adopted this guidance. Caltrans is a member of the Coastal-Ocean Climate Action Team workgroup and has been providing comments as the interim sea level rise scenarios have been developed and adopted.

Because of Executive Order S-13-08 and interest expressed by the public and regulatory agencies, Caltrans must be proactive in addressing sea level rise. Despite the delay of the National Academy of Sciences study, regulatory agencies such as the California Coastal Commission are urging Caltrans to incorporate sea level rise impacts into project planning; failure to do so could potentially result in costly project delivery delays. Planning for potential impacts to California's infrastructure due to sea level rise requires addressing and including in our planning documents, the cost, scope and schedule of including these measures in our projects. Items that will need to be considered (in addition to enhancing the design of structures) include the potential increased costs of permit fees and mitigation to implement the enhanced designs. It is important to include these considerations in current project planning to reduce the cost and impacts to future project delivery.

Impacts of Sea-Level Rise on the California Coast

In March 2011, the Ocean Protection Council adopted statewide sea level rise guidelines that were used to establish sea level rise scenarios and ultimately develop interim guidance. Using the adopted guidelines, the statewide sea level rise scenarios were developed by the California Climate Action Team. This team included Caltrans, the California Coastal Commission, and 14 other state agencies whose efforts led to the Caltrans “Guidance on Incorporating Sea Level Rise” (March 2011). This common set of values will enable all California state agencies to plan for sea level rise with the same assumptions.

The sea level rise projections developed from this effort estimate a 40- to 55-inch increase in mean sea level by 2100 (using 2000 as a baseline). Assuming a 55-inch sea level rise, Caltrans prepared mapping to show those areas at risk. The 100-year flood elevation’s base flood elevation (from flood insurance studies published by the Federal Emergency Management Agency) was used as the base elevation for comparisons against additional sea level rise projections. It is important to note that these maps were not the result of detailed site studies and were created to quantify potential risk over a large geographic area and should not be used to assess actual coastal hazards. In addition, the mapping did not include localized uplift or subsidence, bathymetry, or geological conditions as part of the analysis. However, there is currently no officially accepted mapping available to date. Therefore, this mapping was generated as a rough estimate of potential sea level rise impacts to the infrastructure being proposed with this project assuming that the Public Interest Energy Research numbers are correct for the worst-case scenario.

Impacts from 55-inch Sea Level Rise in 2100

The Route 156 West Corridor project sits near the communities of Castroville and Prunedale. Caltrans had the Pacific Institute prepare mapping—projected to 2100—showing potential flooding risks due to sea level rise. The mapping indicated that two locations may be at risk with a 55-inch sea level rise and there would be no areas at risk of coastal erosion in 2100.

One area at risk is near post mile 1.6 in Castroville. There are no homes or businesses within the immediate area, so potential damage to structures by flooding due to sea level rise would be minimal. The elevation of the highway in that area is 37 feet. Castroville Boulevard would be realigned, and an interchange would be built where it meets the new highway alignment south of the existing State Route 156.

The second location is at Moro Cojo Slough. Presently, there is a culvert at the slough. The project proposes to build a bridge for eastbound and westbound traffic on the new alignment. The current highway elevation at the slough is 44 feet. The proposed bridge and new alignment would be at higher elevation. The land use adjacent to the highway is agricultural; there are no beachfront properties within the project limits. Flooding would occur to agricultural lands before reaching the highway. Additionally, the distance from the Pacific Ocean is more than 10 miles. Considerations during project design included features that would reduce impacts to the highway from potential flooding.

Impacts from 16-Inch Sea Level Rise in 2050

According to California Energy Commission's Public Interest Energy Research Climate Change Research Program and the U.S. Geological Survey, there is potential for up to 16 inches of sea level rise by 2050. However, there is currently no mapping available to indicate areas at risk from flooding and erosion resulting from a 16-inch sea level rise. Assumptions give a general approximation of inundation elevations—such as the 2100 geophysical information system data from the Pacific Institute.

Chapter 4 **Comments and Coordination**

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, 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 Caltrans' efforts to identify, address, and resolve project-related issues through early and continuing coordination.

The County of Monterey and the Transportation Agency of Monterey County are active participants in the planning, development, and funding of the proposed project.

The following coordination has occurred:

- A Scoping Information Meeting/Open House was held from 4:00 p.m. to 8:00 p.m. on November 15, 2006 at the North Monterey County High School in Castroville, California. Notices were printed in local newspapers, and invitations were mailed to interested parties, businesses and government agencies. The format of the meeting included an open house, with a brief overview presentation at 6:00 p.m. Approximately 155 people attended the meeting. During the open house, attendees could view display boards and maps, obtain handouts, and ask questions of the project team. An interpreter of Spanish was available during the meeting. The public submitted comment cards by mail, email and fax or by turning in their comment cards at the meeting. Some of the main concerns were safety, traffic, life issues like noise and community character, and access to local roads and businesses.
- A Community Advisory Group was set up in February 2007 to allow people in the community to study the alternatives in a more in-depth format. Some of the subjects studied by the Community Advisory Group included the project development timeline, environmental laws and regulations, project alternatives, traffic modeling and analysis, growth inducement, and toll funding. The Community Advisory Group members (approximately 20 individuals) represented environmental advocacy, regional business, agriculture, local business interests

and homeowner associations. Members of the general public could also attend the Community Advisory Group meetings. As of May 2008, seven Community Advisory Group meetings had been held. Meeting notes were taken at each meeting and are available for review on the Transportation Agency of Monterey County website.

- In 2007, the Monterey County District 2 County Supervisor created a group called the Highway 156 Safety Task Force. This group was charged with examining short- and medium-range safety improvements within the State Route 156 corridor. To date, the group has evaluated rumble strips in the median, no-passing zones, improved yield signs at the U.S. Route 101/State Route 156 junction, traffic signals, and tree trimming along the corridor.
- Caltrans staff met or corresponded with representatives of various resource agencies and governmental bodies (see Table 4.1).

Table 4.1 Agency Meeting Dates and Descriptions

Date	Activity
March 2006	The biologist requested and received approval from the U.S. Fish and Wildlife Service to begin a protocol spring season survey for the California tiger salamander and Santa Cruz long-toed salamander.
September 2006	Caltrans received a letter from David M. Pereksta, Assistant Field Supervisor of the Ventura U.S. Fish and Wildlife Office, approving a request for the biologist to continue with protocol-level surveys in fall 2006 and spring 2007.
August 2006	Caltrans requested and received a species list from the U.S. Fish and Wildlife Service. The list identified all federally listed and candidate plant and animal species potentially occurring within areas represented by U.S. Geological Survey 7.5-minute quadrangles for Moss Landing, Prunedale, San Juan Bautista, Marina, Salinas, and Natividad in Monterey County.
July 2006	Caltrans submitted the results of the biologist's survey to U.S. Fish and Wildlife Service biologist Bill McIver. The results reported that California tiger salamanders were seen during protocol surveys. Caltrans requested approval to continue with a drift-fence survey in fall 2006 and an additional survey in spring 2007.
July 2008	The State Historic Preservation Officer was consulted.
March 2012	Email communications occurred between the U.S. Fish and Wildlife Service and Caltrans regarding amphibian barriers.
June 2012	The U.S. Fish and Wildlife Service issued a Biological Opinion to Caltrans for the Route 156 West Corridor project.

- A Caltrans cultural resource specialist coordinated with Native American representatives about the Route 156 West Corridor project (see Table 4.2).

Table 4.2 Native American Contacts

Linda Yamane Rumsien Ohlone 1585 Mira Mar Ave. Seaside, CA 93955	Ramona Garibay, Representative Trina Marine Ruano 16010 Halmar Lane Lathrop, CA 95330	Juanita Ingalls Mutsun Ohlone 40 Pine Tree Avenue Aromas, CA 95004	Jakki Kehl Mutsun Ohlone 720 North 2 nd Street Patterson, CA 95363
Ed Ketchum Amah Mutsun Tribal Band 35867 Yosemite Avenue Davis, CA 95616	Ann Marie Sayer Indian Canyon Mutsun Band of Costanoan P.O. Box 28 Hollister, CA 95024	Quirina Luna-Costillas Amah Mutsun Tribal Band 3534 Katie Lane Ceres, CA 95307	Elizabeth Orozco Amah Mutsun Tribal Band 12610 Brookpark Road Oakland, CA 94619
Rudy Rosales, Chairperson Ohlone/Costanoan– Esselen Nation P.O. Box 1301 Monterey, CA 93942	Tony Cerda, Chairperson Coastanoan Rumsen Carmel Tribe 3929 Riverside Drive Chino, CA 91710	Louise Miranda-Ramirez, Chairperson Ohlone/Costanoan– Esselen Nation P.O. Box 1301 Monterey, CA 93942	Al Rodriguez, Vice Chairperson Ohlone/Costanoan– Esselen Nation P.O. Box 1301 Monterey, CA 93942
Val Lopez Amah Mutsun Tribal Band 3015 Eastern Avenue #40 Sacramento, CA 95821	Paul Mondragon Amah Mutsun Tribal Band 1152 Devisadero St. Pacific Grove, CA 93950	Michelle Zimmer, Cultural Resource Coordinator Amah/Mutsun Tribal Band P.O. Box 62-558 Woodside, CA 94062	Irene Zwierlein 789 Canada Road Woodside, CA 94062
			Joseph Mondragon 882 Bayview Avenue Pacific Grove, CA 93950

In addition to the above coordination efforts, Caltrans held a public hearing for the Route 156 West Corridor project. The hearing was held on Monday, July 20, 2009 from 5:00 p.m. to 8:00 p.m. in the auditorium at North Monterey County High School at 13990 Castroville Boulevard in Castroville.

Caltrans used Public Notice display advertisements to announce the public hearing. The advertisement was published in the following newspapers:

- *The Salinas Californian*
- *The Monterey County Herald*
- *El Sol*

The public hearing included an informal “open house” component and a formal presentation with comments and questions from attendees. About 140 people attended the public hearing. Informational display boards with maps, aerial photographs and

graphics were located around the room. Representatives from Caltrans, the Transportation Agency for Monterey County (TAMC), and consulting partners were available throughout the room to explain the displays, answer questions, and receive public input. Attendees were encouraged to submit written comments at the meeting or to mail them to Caltrans at a later date. A court reporter also documented oral comments made by attendees for the record at the public hearing.

Comments in the form of email, comment cards and letters were received during the public circulation period (from June 30, 2009 to August 17, 2009) for the draft environmental document. Comments and Caltrans' responses to the comments are provided in a separately bound volume titled *Route 156 West Corridor Comments and Responses from Circulation of the Draft Environmental Document, Volume II of II*.

Chapter 5 **List of Preparers**

This document was prepared by the following Caltrans Central Region staff:

Allam Alhabaly, Transportation Engineer. B.S., California State University, Fresno, School of Engineering; 13 years of experience in environmental technical studies, with emphasis on noise studies. Contribution: Oversight review of the Noise Study Report.

William Arkfeld, P.E., Transportation Engineer. B.S., Environmental Resource Engineering, Humboldt State University; 20 years in Water Quality and Hazardous Waste investigations. Contribution: Water Quality Report and Initial Site Assessment.

Gilberto Baca, P.E., Project Engineer. B.S., Civil Engineering, California State University, Fresno; 10 years of transportation engineering experience. Contribution: Alternative design and Project Report.

Roberto Banda, P.E., Senior Transportation Engineer. B.S., Civil Engineering, California State University, Fresno; 15 years of design experience. Contribution: Project design and Project Report.

Louis Birdwell, Associate Right of Way Agent. B.B.A., Corporation Finance, Texas Tech University, Lubbock, Texas; 28 years of right-of-way and environmental activities experience. Contribution: Relocation Impact Document.

Robert Carr, Associate Landscape Architect. B.S., Landscape Architecture, California Polytechnic State University, San Luis Obispo; 20 years of visual analysis experience. Contribution: Visual Impact Assessment.

Kay Goshgarian, Associate Environmental Planner. M.S., Environmental Management, University of San Francisco; B.S., Agricultural (Plant) Science, California State University, Fresno; 14 years of environmental, agricultural land and water planning experience. Contribution: Environmental document, Community Impact Assessment.

Krista Kiaha, Associate Environmental Planner/Archaeology. M.S., Anthropology, Idaho State University; B.A., Anthropology, University of California, Santa Cruz; 13 years of cultural resource management. Contribution: Historic Properties Survey Report.

Valerie A. Levulett, Senior Environmental Planner. Ph.D. and M.A., Anthropology, University of California, Davis; 38 years of experience in environmental planning and cultural resource studies. Contribution: Oversight of consultant task orders for cultural resource studies and oversight of in-house technical studies for air, noise, paleontology, water quality, and cultural resources studies and Section 106 compliance.

Ramon Lopez, P.E., Transportation Engineer. B.S., Civil Engineering, San Diego State University; 10 years of civil engineering experience. Contribution: Location Hydraulics Study.

Karl J. Mikel, Transportation Engineer. M.S., Civil and Environmental Engineering, California Polytechnic State University, San Luis Obispo; B.S., Environmental Engineering; California Polytechnic State University, San Luis Obispo; 7 years of experience in environmental engineering. Contribution: Air Quality Report, Noise Report.

Wayne W. Mills, Transportation Engineer. B.A., Social Science, San Diego State College; B.A., Earth Science, California State University, Fullerton; 25 years of experience in environmental engineering. Contribution: Air Quality Report, Noise Report and Paleontology Report.

G. William “Trais” Norris III, Senior Environmental Planner. B.S., Urban Regional Planning, California Polytechnic State University, Pomona; 9 years of land use, housing, redevelopment, and environmental planning experience. Contribution: Environmental document review and approval.

Kimely Sawtell, Associate Environmental Planner. M.A., Geography, California State University, Fresno; B.S., Geography, California State University, Fresno; 13 years of environmental planning experience. Contribution: Quality control of the Final Environmental Impact Report/Environmental Assessment.

Jane Sellers, Research Writer. B.A., Journalism, California State University, Fresno; more than 25 years of writing/editing experience; 12 years of technical editing at Caltrans. Contribution: Edited Final Environmental Impact Report/Environmental Assessment.

David M. Silberberger, P.E., PMP, Senior Transportation Engineer. B.S., Civil Engineering, California Polytechnic State University, Pomona; 21 years of transportation engineering and project management experience. Contribution: Project Manager.

Anna Sojourner, P.G., Engineering Geologist. M.S., Geology, San Jose State University; B.S., Geology, San Francisco State University; 13 years of experience. Contribution: Preliminary Geotechnical Report.

Jim Walth, Associate Environmental Planner (Natural Science). M.S., Biological Sciences, California Polytechnic State University, San Luis Obispo; B.S., Biology, California State University, Bakersfield; 3 years of environmental planning experience. Contribution: Natural Environment Study, Biological Assessment.

Dan Waterhouse, Associate Environmental Planner. B.S., Business Administration, California State University, Fresno; more than 20 years of environmental analysis experience. Contribution: Quality control review of the Final Environmental Impact Report/Environmental Assessment.

Chapter 6 Distribution List

<p>Tom Vilsack, Secretary of Agriculture U.S. Department of Agriculture, Stop 0101 1400 Independence Ave. SW Whitten Building Washington, D.C. 20250</p>	<p>Dr. Daniel Mountjoy, Assistant State Conservationist USDA Natural Resources Conservation Service, Area 2 Office 318 Cayuga Street, Suite 206 Salinas, CA 93901-2668</p>	<p>John Lowrie, Acting Assistant Director California Department of Conservation Land Resource Protection 801 K Street, MS 18-01 Sacramento, CA 95814-3528</p>
<p>Laurence Farrell, P.E. Lieutenant Colonel, U.S. Army Commander and District Engineer U.S. Army Corps of Engineers San Francisco District (SPN) USACE-SPN-DC 1455 Market Street, #1673 San Francisco, CA 94103</p>	<p>Dr. Willie Taylor Office of Environmental Policy and Compliance 1849 C Street NW, Room 2340 Washington, D.C. 20240</p>	<p>Patricia Port, Regional Environmental Officer Office of Environmental Policy & Compliance Oakland Region, Jackson Center One 1111 Jackson Street, Suite 520 Oakland, CA 94607</p>
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<p>Mr. Mike Petersen Central Valley Flood Protection Board 3310 El Camino Avenue, Suite LL40 Sacramento, CA 95821</p>	<p>Barbara McDonnell, Chief Calif. Dept. of Water Resources Division of Environmental Services 3500 Industrial Boulevard West Sacramento, CA 95691</p>	<p>California Highway Patrol Special Projects Section 2555 1st Avenue Sacramento, CA 95818</p>
<p>Lynn L. Jacobs, Director California Department of Housing and Community Development Division of Housing Policy Division 1800 3rd Street Sacramento, CA 95811-6942</p>	<p>Valerie Keisler, Assistant Branch Chief California Department of General Services Real Estate Services Division Environmental Services Section 707 Third Street, Suite 6-100 West Sacramento, CA 95605</p>	<p>Kurt Karperos, Chief California Air Resources Board Air Quality and Transportation Planning 1001 I Street, 7th Floor Sacramento, CA 95812</p>

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Native American Heritage Commission 915 Capitol Mall, Room 364 Sacramento, CA 95814	Public Utilities Commission 505 Van Ness Avenue San Francisco, CA 94102	Gail Newton, Division Chief California State Lands Commission Division of Environmental Planning and Management 100 Howe Avenue, Suite 100 South Sacramento, CA 95825-8202
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Dave Feliz, Reserve Manager Elkhorn Slough National Estuarine Research Reserve 1700 Elkhorn Road Watsonville, CA 95076	Nature Conservancy, Central Coast Office 99 Pacific Street, Suite 200G Monterey, CA 93940	North Monterey County Chamber of Commerce 10683 Merritt Street Castroville, CA 95012
Monterey County Historical Society PO Box 3576 Salinas, CA 93912	Land Watch-Monterey County 158 Central Avenue, Suite #3 Salinas, CA 93902-1876	Brian Rianda, Managing Director Monterey County Agricultural and Historical Land Conservancy P.O. Box 1731 Salinas, CA 93902
Caltrans District 5 Public Affairs Office 50 Higuera Street San Luis Obispo, CA 93401-5415	Monterey Peninsula Chamber of Commerce 380 Alvarado Street Monterey, CA 93940	County Director University of California Cooperative Extension-Monterey County 1432 Abbott Street Salinas, CA 93901
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Fort Ord Reuse Authority 100 12 th Street, Building 2880 Marina, CA 93933	Monterey County Convention and Visitors Bureau P.O. Box 1770 Monterey, CA 93942	

Appendix A California Environmental Quality Act Checklist

The following checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. The California Environmental Quality Act impact levels include “potentially significant impact,” “less than significant impact with mitigation,” “less than significant impact,” and “no impact.”

Supporting documentation of all California Environmental Quality Act checklist determinations is provided in Chapter 2 of this Environmental Impact Report/Environmental Assessment. Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Except for noise, discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2. Noise impacts under the California Environmental Quality Act are discussed in Chapter 3.

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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AESTHETICS - Would the project:

- | | | | | |
|---|--------------------------|-------------------------------------|--------------------------|--------------------------|
| a) Have a substantial adverse effect on a scenic vista? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

AGRICULTURE RESOURCES - In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

- | | | | | |
|--|-------------------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

AIR QUALITY - Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Conflict with or obstruct implementation of the applicable air quality plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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d) Expose sensitive receptors to substantial pollutant concentration?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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e) Create objectionable odors affecting a substantial number of people?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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BIOLOGICAL RESOURCES - Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any 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 Game or U.S. Fish and Wildlife Service?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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CULTURAL RESOURCES - Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Archaeological resources are considered “historical resources” and are covered under a).

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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d) Disturb any human remains, including those interred outside of formal cemeteries?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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GEOLOGY AND SOILS - Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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ii) Strong seismic ground shaking?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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iii) Seismic-related ground failure, including liquefaction?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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iv) Landslides?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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b) Result in substantial soil erosion or the loss of topsoil?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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HAZARDS AND HAZARDOUS MATERIALS -
Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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c) Emit hazardous emissions or handle hazardous or acutely hazardous material, substances, or waste within one-quarter mile of an existing or proposed school?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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HYDROLOGY AND WATER QUALITY - Would the project:

a) Violate any water quality standards or waste discharge requirements?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or offsite?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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e) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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f) Otherwise substantially degrade water quality?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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j) Result in inundation by a seiche, tsunami, or mudflow?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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LAND USE AND PLANNING - Would the project:

a) Physically divide an established community?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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MINERAL RESOURCES - Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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NOISE - Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

POPULATION AND HOUSING - Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

PUBLIC SERVICES -

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

Police protection?

Schools?

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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Parks?

Other public facilities?

RECREATION -

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

TRANSPORTATION/TRAFFIC - Would the project:

a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

e) Result in inadequate emergency access?

f) Result in inadequate parking capacity?

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

UTILITY AND SERVICE SYSTEMS - Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

MANDATORY FINDINGS OF SIGNIFICANCE -

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Appendix B Alternative Mapping



Figure B-1 Alternative 11—State Route 156 and Castroville Boulevard

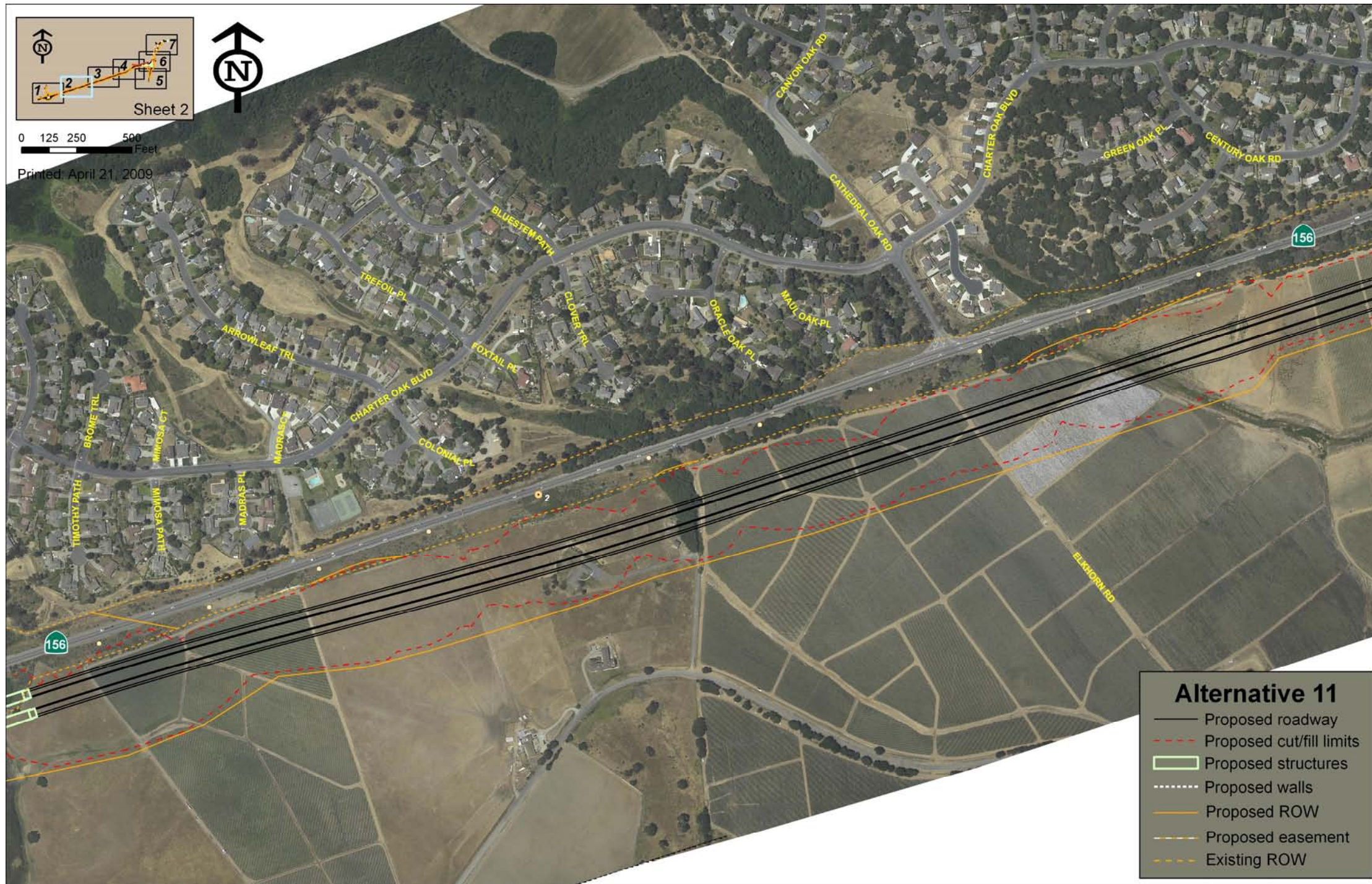


Figure B-2 Figure B-2 Alternative 11—State Route 156 and Cathedral Oak Road



Figure B-3 Alternative 11—State Route 156 and Oak Hills Road



Figure B-4 Alternative 11—State Route 156 and Meridian Road



Figure B-5 Alternative 11—U.S. Route 101 north of Pesante Road



Figure B-6 Alternative 11—U.S. Route 101/State Route 156 interchange near Vierra Canyon Road and Berta Canyon Road



Figure B-7 Alternative 11—U.S. Route 101 near San Miguel Canyon Road



Figure B-8 Alternative 12—State Route 156 and Castroville Boulevard



Figure B-9 Alternative 12—State Route 156 and Cathedral Oak Road

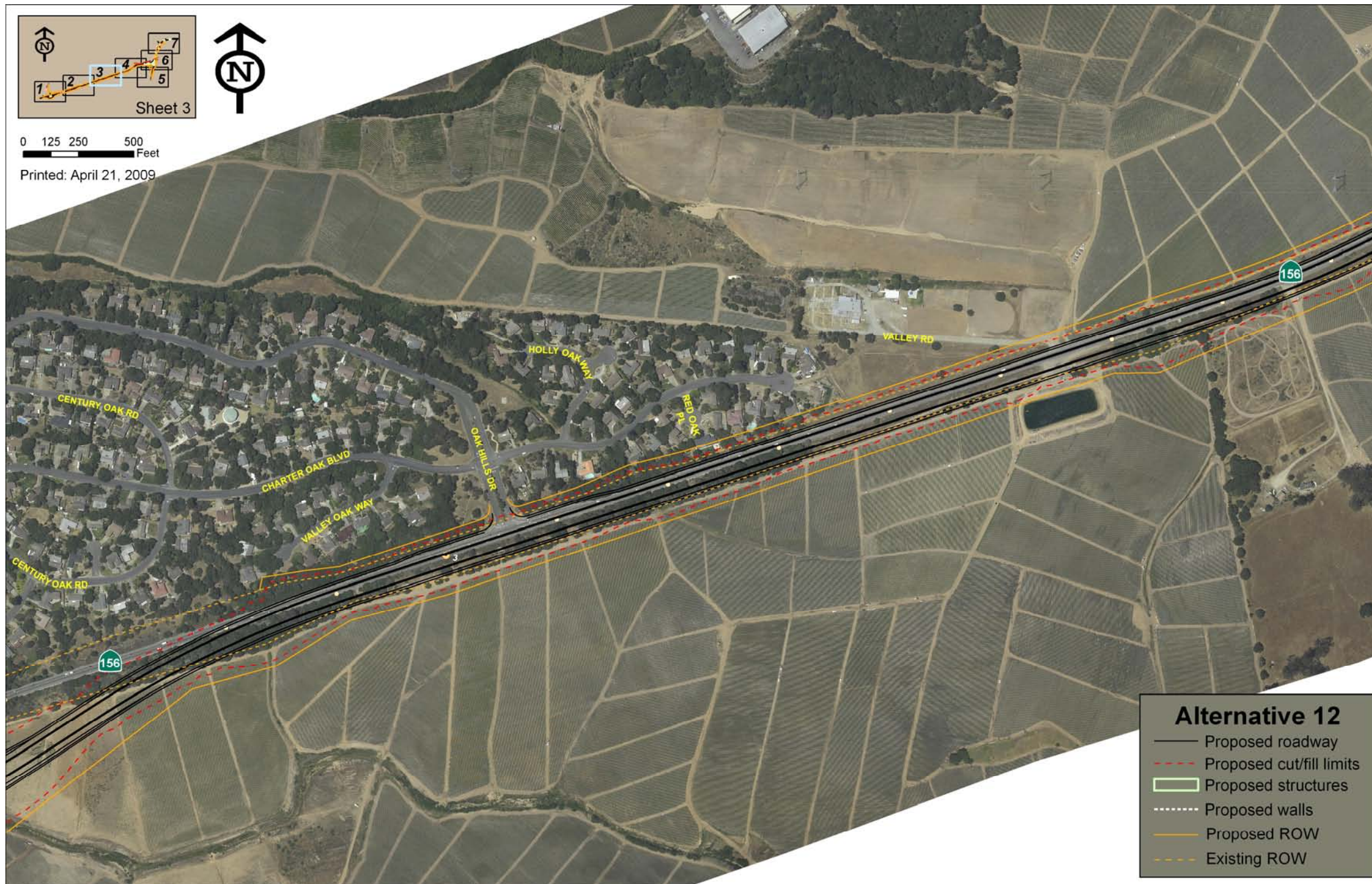


Figure B-10 Alternative 12—State Route 156 and Oak Hills Road



Figure B-11 Alternative 12—State Route 156 and Meridian Road



Figure B-12 Alternative 12—U.S. Route 101 north of Pesante Road



Figure B-13 Alternative 12—U.S. Route 101/State Route 156 interchange near Vierra Canyon Road and Berta Canyon Road



Figure B-14 Alternative 12—U.S. Route 101 and San Miguel Canyon Road



Figure B-15 Preferred Alternative 11—State Route 156 and Castroville Boulevard



Figure B-16 Preferred Alternative 11—State Route 156 and Cathedral Oaks Road



Figure B-17 Preferred Alternative 11—State Route 156 and Oak Hills Road



Figure B-18 Preferred Alternative 11—State Route 156 and Meridian Road



Figure B-19 Preferred Alternative 11—U.S. Route 101 north of Pesante Road

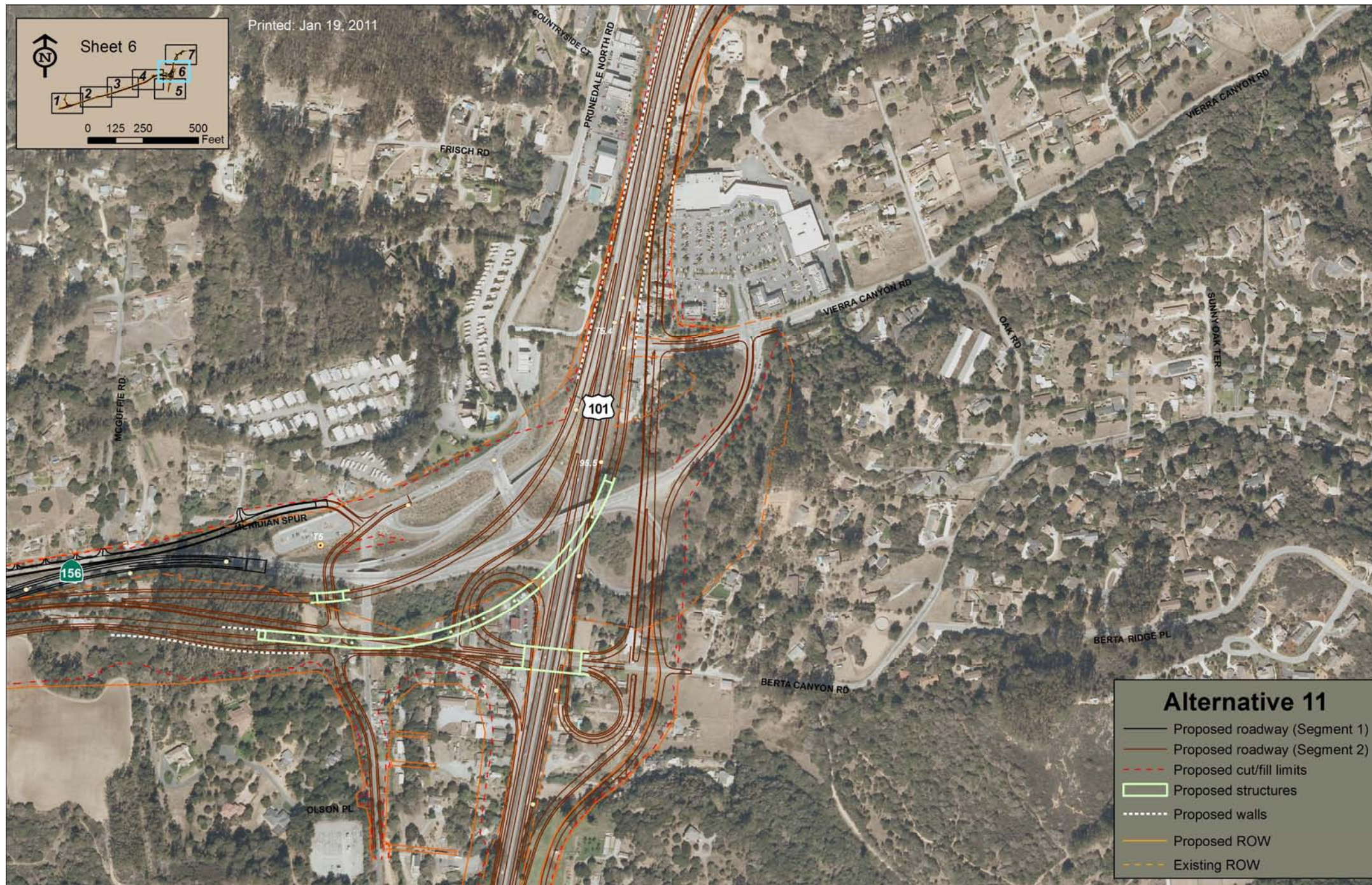


Figure B-20 Preferred Alternative 11—U.S. Route 101/State Route 156 interchange near Vierra Canyon Road and Berta Canyon Road

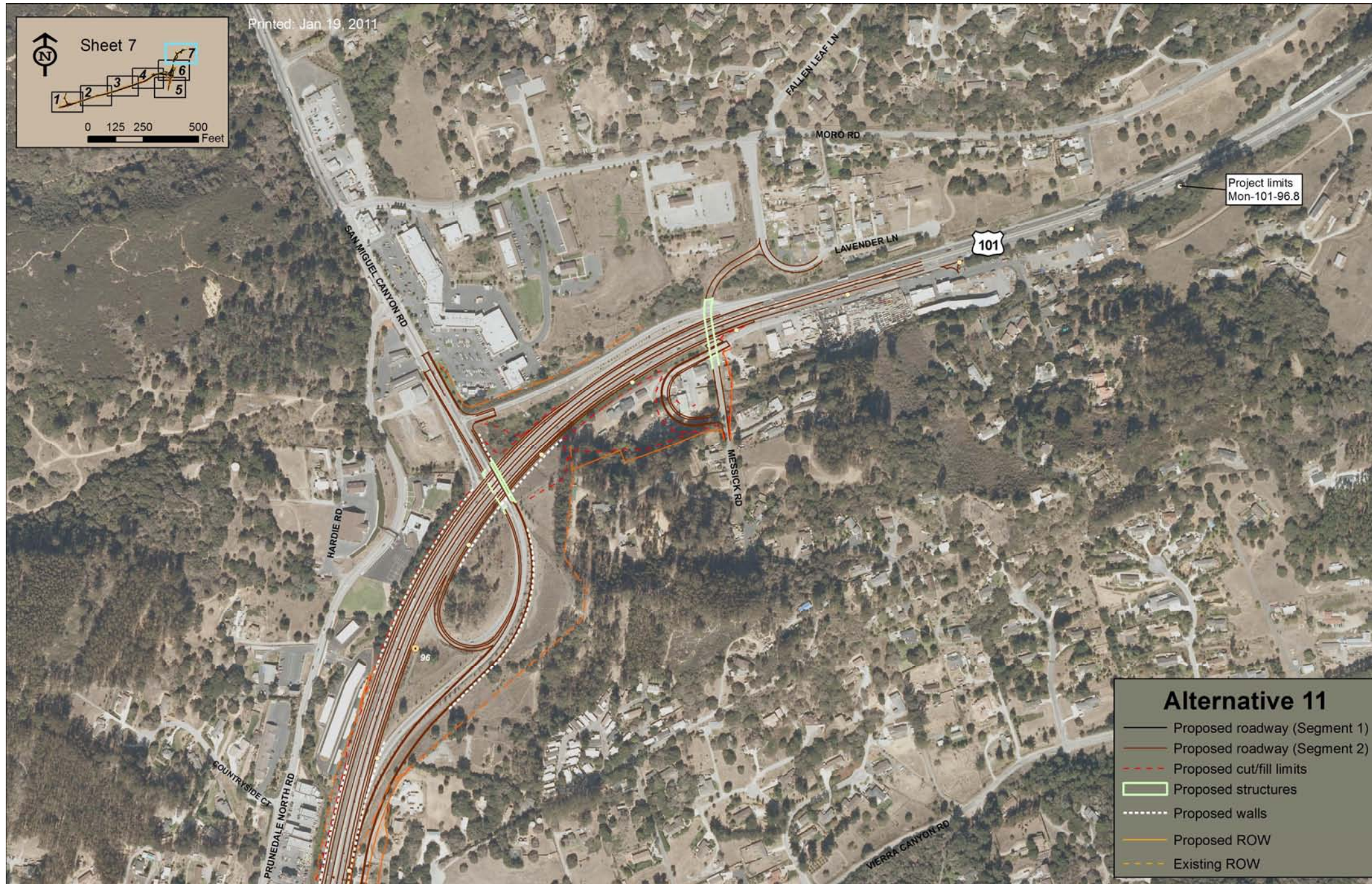


Figure B-21 Preferred Alternative 11—U.S. Route 101 near San Miguel Canyon Road

Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
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SACRAMENTO, CA 94273-0001
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*Flex your power!
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March 16, 2012

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact Mario Solis, Manager, Title VI and Americans with Disabilities Act Program, California Department of Transportation, 1823 14th Street, MS-79, Sacramento, CA 95811. Phone: (916) 324-1353, TTY 711, fax (916) 324-1869, or via email: mario_solis@dot.ca.gov.

A handwritten signature in blue ink that reads "Malcolm Dougherty".

MALCOLM DOUGHERTY
Acting Director

"Caltrans improves mobility across California"

Appendix D Summary of Relocation Benefits

California Department of Transportation Relocation Assistance Program

Relocation Assistance Advisory Services

Caltrans would provide relocation advisory assistance to any person, business, farm, or non-profit organization displaced as a result of Caltrans' acquisition of real property for public use. Caltrans would assist residential displacees in obtaining comparable decent, safe, and sanitary replacement housing by providing current and continuing information on sales price and rental rates of available housing. Non-residential displacees would receive information on comparable properties for lease or purchase.

Residential replacement dwellings would be in equal or better neighborhoods, at prices within the financial means of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, displacees would be offered comparable replacement dwellings that are open to all persons regardless of race, color, religion, sex, or national origin, and are consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance would also include supplying information concerning federal- and state-assisted housing programs, and any other known services being offered by public and private agencies in the area.

Residential Relocation Payments Program

For more information or a brochure on the residential relocation program, please contact Caltrans Associate Environmental Planner Kay Goshgarian at kay_goshgarian@dot.ca.gov, 559-445-6425, or 855 M Street, Suite 200, Fresno, CA 93721.

The brochure on the residential relocation program is also available in English at http://www.dot.ca.gov/hq/row/pubs/residential_english.pdf and in Spanish at http://www.dot.ca.gov/hq/row/pubs/residential_spanish.pdf.

If you own or rent a mobile home that may be moved or acquired by Caltrans, a relocation brochure is available in English at

http://www.dot.ca.gov/hq/row/pubs/mobile_eng.pdf and in Spanish at http://www.dot.ca.gov/hq/row/pubs/mobile_sp.pdf.

Business and Farm Relocation Assistance Program

For more information or a brochure on the relocation of a business or farm, please contact Caltrans Associate Environmental Planner Kay Goshgarian at kay_goshgarian@dot.ca.gov, 559-445-6425, or 855 M Street, Suite 200, Fresno, CA 93721.

The brochure on the business relocation program is also available in English at http://www.dot.ca.gov/hq/row/pubs/business_farm.pdf and in Spanish at http://www.dot.ca.gov/hq/row/pubs/business_sp.pdf.

Additional Information

No relocation payment received would be considered as income for the purpose of the Internal Revenue Code of 1954 or for the purposes of determining eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other federal law (except for any federal law providing low-income housing assistance).

Persons who are eligible for relocation payments and who are legally occupying the property required for the project would not be asked to move without being given at least 90 days advance notice, in writing. Occupants of any type of dwelling eligible for relocation payments would not be required to move unless at least one comparable “decent, safe, and sanitary” replacement residence, open to all persons regardless of race, color, religion, sex, or national origin, is available or has been made available to them by the state.

Any person, business, farm, or non-profit organization, which has been refused a relocation payment by Caltrans, or believes that the payments are inadequate, may appeal for a hearing before a hearing officer or Caltrans’ Relocation Assistance Appeals Board. No legal assistance is required; however, the displacee may choose to obtain legal counsel at his/her expense. Information about the appeal procedure is available from Caltrans’ Relocation Advisors.

The information above is not intended to be a complete statement of all of Caltrans’ laws and regulations. At the time of the first written offer to purchase, owner-occupants are given a more detailed explanation of the state’s relocation services.

Tenant occupants of properties to be acquired are contacted immediately after the first written offer to purchase, and also given a more detailed explanation of Caltrans' relocation programs.

Important Notice

To avoid loss of possible benefits, no individual, family, business, farm, or non-profit organization should commit to purchase or rent a replacement property without first contacting a Department of Transportation relocation advisor at:

State of California
Department of Transportation, District 5
50 Higuera Street
San Luis Obispo, CA 93701

Appendix E Minimization and/or Mitigation Summary

Alternative 11 and Alternative 12

Resource: Farmland

Level of Significance: Significant

Permits/Approval: Coastal development permit

Minimization and/or mitigation measures:

- Both build alternatives would not avoid impacts to farmland, though measures to minimize impacts to farmlands have been incorporated in the project.
- The design proposed would require the smallest possible project footprint necessary to improve safety and operations.
- During project development phases, Caltrans would continue to incorporate design features that further minimize impacts to farmland.
- During construction, provisions for adequate access would ensure that agricultural operations are not impaired.
- In the event that an excess parcel of farmland results from construction, adequate access to water for irrigation of crops would be established.
- This project lies within the coastal zone, and mitigation for farmland impacts would be a condition of the local coastal permit for this project.

Resource: Relocation

Level of Significance: Less than significant

Permits/Approval: Coastal development permit

Minimization and/or mitigation measures:

- Adequate relocation resources for homeowners and renters exist within the affected area.
- The housing stock of Prunedale, Salinas, and Monterey is typical to the displacement area.

- It is estimated that 67 business sites would be available to rent, purchase or develop within the area based on data from the Monterey County Association of Realtors.
- Replacement resources should be adequate for each business affected by the project, except the McDonald's and Valero gas station. The McDonald's would be able to acquire land and rebuild, but would not likely be within a shopping center as it now is. The Valero gas station would be able to relocate within the community, but would not have direct access to U.S. Route 101 and State Route 156 as it now does.
- Businesses affected by the proposed project appear to have the financial ability to replace themselves, after monies paid for acquisition, loss of goodwill, and relocation that are paid to the displacement. The ability to establish new parking on the remainder of the business/retail property would be considered during the appraisal process with payment of damages and/or loss of goodwill provided to the owner and tenant. Displaced employees would be able to find employment in similar industries within Prunedale, Salinas and the North Monterey County area.
- Strip acquisition of land off of agricultural parcels abutting State Route 156 would leave adequate acreage for viable agriculture production. Both alternatives allow for frontage roads to reduce the number of agricultural properties that would be landlocked.
- A Caltrans Relocation Agent would contact all displacees and ensure that eligible displacees receive their full relocation benefits and advisory assistance. All activities would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources would be available to all displacees free of discrimination.
- The Monterey County Housing Authority has programs available to assist tenants with low or moderate incomes.

Resource: Visual/Aesthetics

Level of Significance: Less than significant with mitigation

Permits/Approval: Coastal development permit

Minimization and/or mitigation measures:

- Landscaping would be included as part of all bridge structures. Landscaping would mitigate the urban appearance of the project by using natural elements to reduce the perceived scale of the bridges, filter cumulative views of the ramps,

- frontage roads and other project features where applicable, and provide a natural transition from the adjacent landscape to the project.
- Landscaping would be included as part of all retaining walls and soundwalls. Landscaping would mitigate the potential for graffiti and would reduce the urban appearance of the project by using natural elements to reduce the perceived scale and “canyon effect” of the walls, filter cumulative views of the walls, and provide a natural transition from the adjacent landscape to the project.
 - The large retaining wall on State Route 156 across from McGuffie Road should include measures to reduce its perceived scale, such as stepping it back or tiering. Tiering the wall would reduce its visual dominance and would allow opportunities for integral planting, which would further minimize its potential impacts.
 - Aesthetic treatment would be included on all retaining walls and soundwalls visible from the highways or the community. Aesthetic treatment can reduce the graffiti potential, would reduce the urban appearance, and would result in the project being more consistent with community aesthetic values.
 - Open-type bridge rail should be used on the Moro Cojo Slough bridge. Open-style bridge rail would allow better visual access to the creek bed and would be more in keeping with coastal planning policy.
 - The location and appearance of storm water basins and other highway visible storm water prevention measures should be determined in consultation with the Caltrans Landscape Architect. To the greatest extent possible considering their function, all such storm water features should be placed and designed to appear natural and to minimize their effect on existing vegetation as well as on planting opportunities. Associated fencing shall be minimized. If fencing is required, alternatives to chain link shall be considered. If chain link is required, it shall be vinyl-clad black. Planting shall be included in the design of storm water elements to screen views from public and make the elements visually blend with the surroundings.
 - All overhead utility lines affected by the project along State Route 156 should be placed underground where feasible per State Scenic Highway policy.
 - All new slopes along State Route 156 should include contour-grading and slope-rounding where such measures would not cause additional tree removal or adverse effects to other resources. Unnatural-appearing landform remnants should be removed or re-graded. This measure would minimize the engineered appearance of the project and result in a more natural-appearing landform.

- All project fencing on State Route 156 (except on the bridge structures) should be wood or metal T-post and wire.
- All lighting on bridge structures should be hooded or include cut-off shields to reduce visibility of the light source from off-site locations.
- Along State Route 156, all metal beam guardrail beams and posts should be darkened by acid-etching or a comparable method.
- Avoidance measures such as slope-warping and timber tree wells should be used to protect existing trees to the greatest extent possible.
- All trees that cannot be saved should be replaced by native or other horticulturally appropriate trees at a minimum ratio of 5 to 1, in coordination with other tree planting requirements identified in this document. Replacement trees should be planted along the highway corridors within sight of the highways to the greatest extent possible.
- All planting should include a plant establishment period sufficient to ensure the survival of the plants and consistency with the intent of the planting concept.

Resource: Hydraulics/Floodplain

Level of Significance: Less than significant

Permits/Approval: Coastal development permit

Minimization and/or mitigation measures:

Project impacts on the Moro Cojo Slough floodplain would be negligible because:

- Existing and proposed roadway elevations are much higher than the Moro Cojo Slough water elevation.
- A new bridge is proposed across the slough.

To accommodate the U.S. Route 101/State Route 156 interchange, the existing culvert under State Route 156 would:

- Be extended approximately 300 feet downstream or
- Remain in place and an additional culvert built downstream to replace the existing culvert at Berta Canyon Road. Prunedale Creek would be re-engineered to connect the culverts.

- Retaining walls are proposed on the west side of the southbound U.S. Route 101 and San Miguel Canyon Road to avoid longitudinal encroachments to the Prunedale Creek floodplain. Additional culverts would be installed to convey the streams across the new State Route 156, U.S. Route 101 and local roads.

Resource: Water Quality

Level of Significance: Less than significant

Permits/Approval: Coastal development permit, Clean Water Act section 401, nationwide Natural Pollutant Discharge Elimination Systems permit

Minimization and/or mitigation measures:

Best management practices would be incorporated into the project during the design phase.

Before the start of project construction, the contractor would be required to prepare a Storm Water Pollution Prevention Plan that satisfies the requirements of the California Department of Transportation's statewide National Pollutant Discharge Elimination Systems Permit and the General Construction Permit. The permits require the following:

- A Storm Water Pollution Prevention Plan is to be prepared and implemented during construction to the satisfaction of the resident engineer.

To reduce potential storm water impacts to the site, the design incorporates the following measures:

- Retaining walls would be used.
- Cut and fill slopes would be 4:1 (horizontal: vertical) or flatter.
- Slopes would be rounded.
- Collect concentrated flows in stabilized drains and channels
- Use benches/terraces on high cut and fill slopes
- Excavation and slope work would start at the end of the rainy seasons.
- Permanent storm water pollution controls (paved slopes, vegetated slopes, basins and conveyance systems) would be installed early in the construction process.

- Impervious surface area would be minimized, and pervious material would be used for hardened surfaces outside of the roadway.
- Grade slopes to blend with the natural terrain
- Promote sheet flow to vegetated areas that can provide water quality benefits and promote infiltration
- Permanent drainage facilities would be designed through the use of permanent check dams.
- Permanent vegetated drainage ditches would be built to decrease the velocity of and volume of discharge by promoting infiltration, allowing pollutant removal and maintain existing vegetated areas.

Resource: Geology

Level of Significance: Less than significant with mitigation

Permits/Approval: Coastal development permit

Minimization and/or mitigation measures:

- Embankment material will be developed from the cut slopes. Cut slope material samples will be re-compacted to represent embankment conditions and be tested for strength.
- It is recommended that embankments built using excavated material and cut slopes have slope angles of 2:1 (horizontal: vertical) or flatter. Benches are required for embankments higher than 50 feet.
- Six design-specific retaining walls for slope retention are planned for each alternative. A structures foundation report will be prepared for each retaining wall.
- Geotechnical exploration would be necessary to determine groundwater levels, soil types and strengths, and susceptibility to liquefaction, landslides, or settlement.
- Constructed slopes must include a vegetation and erosion control program.

Resource: Hazardous Waste

Level of Significance: Less than significant

Permits/Approval: None

Minimization and/or mitigation measures:

- Before any excavation or soil disturbance within the project boundaries, a project-specific Lead Compliance Plan must be developed and implemented.
- Steps would be taken to reduce airborne dust. Water should be available at all times where work activities are performed.
- The contractor would use proper health and safety measures to minimize the exposures of workers to potential asbestos or lead-based paint from affected buildings and structures.
- It is recommended that a licensed contractor registered with Cal/OSHA for asbestos-related work perform activities that would disturb this material.
- If apparent soil contamination is encountered during soil excavation activities done during construction, the potentially affected soil should be excavated, stockpiled, and characterized to evaluate appropriate reuse or disposal alternatives. Groundwater encountered during construction may require treatment and/or special handling before discharge/disposal.

Resource: Air Quality

Level of Significance: Less than significant with mitigation

Permits/Approval: Coastal development permit

Minimization and/or mitigation measures:

- Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil and wind exposure.
- Prohibit all grading activities during periods of high wind (over 15 miles per hour).
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut-and-fill operations, and hydro-seed area.
- Cover all trucks hauling dirt, sand, or loose materials. If covering is not possible, haul trucks must maintain at least 0.6 m (2.0 feet) of freeboard.

- Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land.
- Plant vegetative cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Haul trucks shall maintain at least 2 feet of freeboard.
- Cover all trucks hauling dirt, sand, or loose materials.
- Sweep streets if visible soil is carried out from the construction site.
- Post a publicly visible sign that specifies the telephone number and person to contact regarding dust complaints. This person would respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District would be visible to ensure compliance with Rule 402 (Nuisance).
- Minimize the area under construction at any one time.

Use of appropriate measures from this list can further reduce emissions of fugitive dust from the project.

Information required to quantify construction emissions is not available at this time, so standard minimization measures have been included to address health risks associated with the project. Minimization measures made available to the Resident Engineer and implemented as feasible include:

- Maintain all construction equipment according to manufacturer's specifications.
- Fuel all off-road and portable diesel-powered equipment including bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, and auxiliary power units, with low-sulfur diesel fuel certified by the California Air Resources Board (non-taxed version suitable for off-road).
- Maximize, to the extent feasible, the use of diesel construction equipment meeting California Air Resources Board's 1996 or newer certification standard for off-road heavy-duty diesel engines.
- Electrify equipment where feasible.
- Substitute gasoline-powered for diesel-powered equipment where feasible.

- Use alternatively fueled construction equipment onsite, where feasible, such as compressed natural gas, liquefied natural gas, propane, or bio-diesel.
- Use equipment that has Caterpillar pre-chamber diesel engines.
- Develop a comprehensive construction activity management plan designed to minimize the amount of large construction equipment operating during any given time period.
- Schedule construction truck trips during non-peak hours to reduce peak hour emissions.
- Limit the length of the construction work day, if necessary.
- Phase construction activities, if appropriate.
- Haul trucks shall maintain at least 2 feet of freeboard.
- Cover all trucks hauling dirt, sand, or loose materials.

Resource: Noise

Level of Significance: Less than significant with mitigation

Permits/Approval: None

Minimization and/or mitigation measures:

- Noise abatement is recommended for three locations.
- Notice should be published in local news media of the dates and duration of proposed construction activity. A telephone number should be included so a contact person can answer questions about the project from local residents.
- When possible, noisier construction activities should be scheduled during the earlier parts of the evening or afternoon, when closest to the nearest residences.
- If complaints are received, temporary noise barriers can be constructed where construction activities are conducted near residential receptors.
- When construction of recommended noise barriers would not interfere with subsequent construction activity, they should be among the first items of work to minimize the impacts of construction (noise, dust, light, and glare) for residences adjacent to the construction zone.

Resource: Natural Communities

Level of Significance: Less than significant with mitigation

Permits/Approval: Section 7 of the U.S. Fish and Wildlife Code

Minimization and/or mitigation measures:

- Avoidance and minimization measures include construction of retaining walls to reduce the project footprint, pre-construction surveys to establish environmentally sensitive areas, and onsite biological monitoring to maintain environmentally sensitive area throughout construction and erosion control with storm water best management practices.
- Environmentally Sensitive Area markers would be identified on project plans and drawings and installed at the construction site by the project biologist before any ground disturbance activities. All access, staging and equipment storage areas will be clearly defined on project plans and at the construction site.
- The coast live oak is one of the species susceptible to infection by Sudden Oak Death. Monterey County is currently under state and federal quarantine for this disease. Specific regulations regarding the movement and use of susceptible plants as well as state and federal guidelines for sanitation practices for working in infested areas will be followed.
- Temporary and permanent impacts to sensitive plant communities, that include upland habitats for wildlife and special status plants, would be mitigated onsite by restoring areas within the Caltrans right-of-way. Restoration would be planned to improve habitat as well as replace vegetation lost during construction. If onsite mitigation were not practical because of constraints such as water supply, soil types, or size of area required to adequately mitigate losses, the offsite mitigation would occur on the same habitat types chosen to mitigate for impacts.

Resource: Wetlands and Other Waters

Level of Significance: Less than significant with mitigation

Permits/Approval: Section 7 of the U.S. Fish and Wildlife Code, Clean Water Act section 401, Clean Water Act section 404, Section 1600 of the California Fish and Game Code (Streambed Alteration Agreement), Coastal development permit

Minimization and/or mitigation measures:

- Construction of retaining walls to reduce impacts to perennial and seasonal wetlands, establishment of environmentally sensitive areas, onsite biological monitoring to maintain environmentally sensitive areas throughout construction,

and erosion control with appropriate storm water best management practices have been incorporated into the project.

- Construction activities would be restricted to the dry season, typically May 1 to November 1.
- Wetland areas would be restored to their original condition within the Caltrans highway right-of-way and perennial wetlands that occur on the property purchased by Caltrans in the 1960s would be preserved. If this land is in part or in whole unavailable by construction, then additional parcels of appropriate soil and habitat types will be identified and acquired before project construction as part of an advanced mitigation plan within the Elkhorn Slough watershed if onsite mitigation is not feasible or at high enough levels to accommodate mitigation requirements.
- The number of acres required for compensating for impacts would be based on resource agency recommendations, as well as the function and quality of aquatic habitat that needs to be replaced.

Resource: Plant species

Level of Significance: Less than significant with mitigation

Permits/Approval: Section 7 of the U.S. Fish and Wildlife Code, Coastal development permit

Minimization and/or mitigation measures:

- An environmentally sensitive area would be established and maintained where this species occurs adjacent to the work areas.
- Most of the individual Pajaro manzanita and Hooker's manzanita plants that are lost during construction would be replaced when mitigation measures for coast live oak woodland and central maritime chaparral natural community types are implemented.
- Individual plants that can be salvaged would be moved and replanted at designated sites within the project limits. If feasible, seeds and topsoil free of noxious weeds would be collected and stored to use for re-seeding the temporarily disturbed areas where this species occurs.
- Monterey pines that are lost during construction would be replaced at an appropriate replacement ratio.

Resource: Animal species

Level of Significance: Less than significant with mitigation

Permits/Approval: Section 7 of the U.S. Fish and Wildlife Code, Coastal development permit

Minimization and/or mitigation measures:

- Pre-construction surveys would be conducted. If pond turtles are found, environmentally sensitive areas will be established, and onsite biological monitoring will occur throughout construction activities in aquatic/riparian areas. To further reduce impacts in areas that have suitable habitat for pond turtles, where feasible vegetation would be removed by hand and vegetation in temporarily disturbed areas would be cut off at ground level rather than clearing and grubbing with heavy equipment.
- To avoid impacts to migratory birds that nest in trees, any trees that need to be removed for this project shall be removed between September 1 and February 1.
- The biologist/environmental monitor or designee shall be contacted at least one month before trees are removed to allow a qualified biologist time to inspect trees for active nests of birds that are protected under the Migratory Bird Treaty Act.

Resource: Threatened, Endangered Species

Level of Significance: Less than significant with mitigation

Permits/Approval: Section 7 of the U.S. Fish and Wildlife Code, Coastal development permit

Minimization and/or mitigation measures:

California Red-Legged Frog, Santa Cruz Long-Toed Salamander, and California Tiger Salamander

Avoidance and minimization measures incorporated into the project include:

- Only Service-approved biologists will participate in activities associated with the capture, handling and monitoring of Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs.
- Prior to the start of construction activities, a qualified biologist will conduct training program for all construction workers.

- A Service-approved biologist will survey the project site no more than 48 hours prior to work activities. If any adults, juveniles, or larvae of the California tiger salamander or California red-legged frog or any adults or juveniles of the Santa Cruz log-toed salamander are found and these individuals are likely to be killed or injured by work activities, the approved-biologist will be allowed time to move them from the site and relocate them to suitable habitat not affected by the proposed project.
- When in known or potential habitat for federally listed amphibians and prior to the use of heavy equipment and surface-disturbing activities, the work area will be cleared under the direction of the Service-approved biologist. Vegetation will initially be removed by hand to the maximum extent practicable. Piles of woody debris will be cleared by hand. If Santa Cruz long-toed salamanders, California red-legged frogs or California tiger salamanders are observed incidentally during vegetation and debris removal, work that may affect the species will cease until the individuals are relocated to the nearest appropriate habitat by a Service-approved biologist.
- A Service-approved biologist will be present at the work site until completion of survey for, capture and removal of Santa Cruz long-toed salamanders, California red-legged frogs, and California tiger salamanders, instruction of workers and any actions resulting in habitat disturbance. After this time, Caltrans will designate a person to monitor onsite compliance with all minimization measures.
- During project activities, all trash will be properly contained, removed and disposed of regularly.
- Refueling, maintenance and staging of vehicles and equipment will occur at least 60 feet from riparian habitat or water bodies and in a location where a spill would not drain toward aquatic habitat.
- Habitat contours will be returned to their original condition at the end of project activities.
- Environmentally Sensitive Areas will be delineated to confine access routes and construction areas to the minimum necessary to complete construction and minimize impacts to federally listed amphibian species.

- Work activities, when conducted in potential habitat for California red-legged frogs, California tiger salamanders and Santa Cruz long-toed salamanders, will be completed between May 1 and November 1.
- The project would implement best management practices as outlined under the authorities of the Clean Water Act to control sedimentation during and after project implementation.
- If the work site is to be dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent larvae, juvenile and adult salamanders and frogs from entering the pumping system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Alteration of the stream bed will be minimized to the maximum extent possible; any imported material will be removed from the stream bed upon completion of the project.
- A Service-approved biologist will permanently remove any individuals of non-native animal species from the project area.
- Project sites will be revegetated with native riparian, wetland and upland vegetation suitable for the area.
- Caltrans will not use herbicides as a primary method to control invasive, exotic plants. If herbicide use is the only feasible method for controlling invasive plants at a specific project site, additional protective measures must be implemented.

Monterey Spineflower and Yadon's Rein-orchid

Avoidance measures include:

- Building retaining walls to reduce the project footprint where feasible.
- Doing pre-construction surveys to establish environmentally sensitive areas.
- Onsite biological monitoring to maintain environmentally sensitive areas throughout construction. All individual plants would be avoided.

Resource: Coastal Zone

Level of Significance: Less than significant with mitigation

Permits/Approval: Coastal development permit

Minimization and/or mitigation measures:

Visual Resources, Biology, Hydraulics/Floodplain, Water Quality, Farmland and Air Quality

- Refer to Visual/Aesthetics in Appendix E for minimization and/or mitigation measures in the coastal zone.
- Refer to Natural Communities in Appendix E for minimization and/or mitigation measures in the coastal zone.
- Refer to Animal Species in Appendix E for minimization and/or mitigation measures in the coastal zone.
- Refer to Plant Species in Appendix E for minimization and/or mitigation measures in the coastal zone.
- Refer to Wetlands and Other Waters in Appendix E for minimization and/or mitigation measures in the coastal zone.
- Refer to Threatened and Endangered Species in Appendix E for minimization and/or mitigation measures in the coastal zone.

Appendix F References

Geocon Consultants, Inc. Geocon Project No. S9200-06-09 Initial Site Assessment Mon-101/156 West Corridor Project. January 2008.

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Appendix G U.S. Fish and Wildlife Service Species List

Email confirmation that 2006 Species List is still valid, page 1 of 2



<Chad_Mitcham@fws.gov>
11/14/2012 02:44 PM

To Jimmy Walth <jimmy_walth@dot.ca.gov>
cc Chuck Cesena <chuck_cesena@dot.ca.gov>, Kay Goshgarian <kay_goshgarian@dot.ca.gov>, Larry Bonner <larry_bonner@dot.ca.gov>, Trais Norris
bcc

Subject Re: 156 West Corridor project Species list request

History: This message has been forwarded.

Jim,

Based on our review of the August 29, 2006 species list that we issued for the 156 West Corridor Project; we have determined that the list is still valid. Thank you for your coordination and feel free to contact me if you have any questions.

Chad Mitcham
Fish & Wildlife Biologist
U.S. Fish & Wildlife Service
Ventura Field Office - Santa Cruz Sub-office
1100 Fiesta Way
Watsonville, CA 95076
office (831) 768-7794
cell (805) 512-6805

Jimmy Walth
<jimmy_walth@dot.ca.gov>
>
To <Chad_Mitcham@fws.gov>
cc Larry Bonner <larry_bonner@dot.ca.gov>, Chuck Cesena <chuck_cesena@dot.ca.gov>, Trais Norris <trais_norris@dot.ca.gov>, Kay Goshgarian <kay_goshgarian@dot.ca.gov>
11/14/2012 12:14 PM
Sub 156 West Corridor project Species list request
ject

Chad,

Below you will find two documents. The first is a USFWS species list dated August 29, 2006 for this project. Caltrans is requesting concurrence that list is still valid. If it is deemed invalid than the second document is a formal request for a new USFWS species list (a signed version of this will be sent via USMAIL as well). If we need to send the signed letter via mail please let me know as soon as possible. If we do not hear from your office by the end of the week we will send the letter to your office for a new list. If you have any questions please call me at the numbers below. Thank you.

Page 2 of 2

Jim Walth
Associate Biologist
Central Coast Environmental Management Branch
1150 Laurel Lane, Suite 1750 (Office)
50 Higuera Street (Mail)
San Luis Obispo, CA 93401-5415
(805) 542-4657 (Office)
(805) 550-2045 (Cell)
(805) 549-3233 (FAX)[attachment "USFWS Species List 08-29-2006.pdf" deleted by Chad
Mitcham/R8/FWS/DOI] [attachment "FWS Species List Request Ltr_signed 11-2012.pdf" deleted by Chad
Mitcham/R8/FWS/DOI]



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
PAS 2914.4371.5890

August 29, 2006

Brian Erlandsen
California Department of Transportation
Environmental Division
2015 East Shields Avenue #100
Fresno, California 93726

Subject: Species List for USGS 7.5 Minute Quadrangles – Moss Landing, Prunedale, San Juan Bautista, Marina, Salinas, and Navidad, Monterey County, California

Dear Mr. Erlandsen:

This letter is in response to your request, dated June 27, 2006, and received in our office on June 29, 2006, for a list of endangered, threatened, and other special status species that may occur in the vicinity of U.S. Geological Survey (USGS) 7.5 minute quadrangles – Moss Landing, Prunedale, San Juan Bautista, Marina, Salinas, and Natividad, Monterey County, California. The proposed project would widen a 5.1-mile section of State Route 156 between the cities of Prunedale and Castroville.

The U.S. Fish and Wildlife Service's (Service) responsibilities include administering the Endangered Species Act of 1973, as amended (Act), including sections 7, 9, and 10. Section 9 of the Act prohibits the taking of any federally listed endangered or threatened species. Section 3(18) of the Act defines take to mean to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Service regulations (50 CFR 17.3) define harm to include significant habitat modification or degradation which actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Harassment is defined by the Service as an intentional or negligent action that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. The Act provides for civil and criminal penalties for the unlawful taking of listed species.

Exemptions to the prohibitions against take may be obtained through coordination with the Service through interagency consultation for projects with Federal involvement pursuant to



Brian Erlandsen

2

section 7 or through the issuance of an incidental take permit under section 10(a)(1)(B) of the Act. If the subject project is to be funded, authorized, or carried out by a Federal agency and may affect a listed species, the Federal agency must consult with the Service, pursuant to section 7(a)(2) of the Act. If a proposed project does not involve a Federal agency but may result in the take of a listed animal species, the project proponent should apply for an incidental take permit, pursuant to section 10(a)(1)(B) of the Act. Once you have determined if the proposed project will have a lead Federal agency, we can provide you with more detailed information regarding the section 7 or 10(a)(1)(B) permitting process.

We recommend that you review information in the California Department of Fish and Game's Natural Diversity Data Base. You can contact the California Department of Fish and Game at (916) 324-3812 for information on other sensitive species that may occur in this area.

If you have any questions, please call Douglass Cooper of my staff at (805) 644-1766, extension 272.

Sincerely,



David M. Pereksta
Assistant Field Supervisor
Santa Cruz/San Benito/Monterey

Enclosure

**LISTED SPECIES AND CRITICAL HABITAT
WHICH MAY OCCUR IN
USGS 7.5 MINUTE QUADRANGLES – MOSS LANDING, PRUNEDALE,
SAN JUAN BAUTISTA, MARINA, SALINAS, AND NATVIDAD,
MONTEREY COUNTY, CALIFORNIA**

Mammals

San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	E
Southern sea otter	<i>Enhydra lutris nereis</i>	T

Birds

Bald eagle	<i>Haliaeetus leucocephalus</i>	PD, T
Brown pelican	<i>Pelecanus occidentalis</i>	E
California clapper rail	<i>Rallus longirostris obsoletus</i>	E
California least tern	<i>Sterna antillarum browni</i>	E
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	T, CH
Marbled murrelet	<i>Brachyramphus marmoratus marmoratus</i>	T
California condor	<i>Gymnogyps californianus</i>	E

Amphibians

California red-legged frog	<i>Rana aurora draytonii</i>	T, CH
Santa Cruz long-toed salamander	<i>Ambystoma macrodactylum croceum</i>	E
California tiger salamander	<i>Ambystoma californiense</i>	T, CH

Fish

Tidewater goby	<i>Eucyclogobius newberryi</i>	E
Steelhead trout	<i>Oncorhynchus mykiss</i>	*

Invertebrates

Smith's blue butterfly	<i>Euphilotes enoptes smithi</i>	E
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	E, CH
Longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	E, CH
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	T, CH

Plants

Monterey spineflower	<i>Chorizanthe pungens</i> var. <i>pungens</i>	T, CH
Robust spineflower	<i>Chorizanthe robusta</i> var. <i>robusta</i>	E, CH
Menzies' wallflower	<i>Erysimum menziesii</i>	E
Monterey gilia	<i>Gilia tenuiflora</i> ssp. <i>arenaria</i>	E
Contra Costa goldfields	<i>Lasthenia conjugens</i>	E, CH
Beach layia	<i>Layia carnosa</i>	E
Tidestrom's lupine	<i>Lupinus tidestromii</i>	E
Coastal dunes milk-vetch	<i>Astragalus tener</i> var. <i>titi</i>	E
Yadon's piperia	<i>Piperia yadonii</i>	E

Hickman's potentilla	<i>Potentilla hickmanii</i>	E
Monterey clover	<i>Trifolium trichocalyx</i>	E
Santa Cruz tarplant	<i>Holocarpha macradenia</i>	T, CH

Key:

E - Endangered
CH - Critical habitat

T - Threatened
PD - Taxa proposed for delisting

* Species for which the National Marine Fisheries Service has responsibility. For more information, call the Santa Rosa Field Office at (707) 575-6050 or go to <http://swr/ucsd.edu>

Appendix H State Historic Preservation Officer Letter

Page 1 of 2

STATE OF CALIFORNIA - THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov



July 22, 2008

Reply To: FHWA080625A

Valerie Levulett
District 5 Heritage Resource Coordinator
California Department of Transportation
50 Higuera Street
San Luis Obispo, CA 93401-5415

RE: Determination of eligibility and Finding of No Historic Properties Affected for the Route 156 West Corridor Project, Monterey County, California

Dear Ms. Levulett:

Thank you for consulting with me about the subject undertaking in accordance with the Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (PA).

The California Department of Transportation (Caltrans) is requesting my concurrence, pursuant to Stipulation VIII.C.5 of the PA, that the following properties are not eligible for the National Register of Historic Places and that no historic properties are affected.

Address	APN	Date
Union Pacific Railroad	N/A	Circa 1880s
Castroville Overcrossing	N/A	1942
191 Highway 156	133-072-014	Circa 1945
Unknown	133-072-006	1945
16130 Highway 156	133-011-004	Circa 1940
141 Highway 156	133-101-010	1944
16733 Meridian Road	129-021-010	Circa 1940
16800 Meridian Road	133-111-022	Circa 1925
17530 Highway 156	129-011-039	1944
17360 Highway 156	129-011-066	1939
17370 Highway 156	129-011-069	Circa 1920
17017 Meridian Road	129-011-004	1915/1946
32-34 Meridian Spur	129-012-012	Circa 1940
30 Meridian Spur	129-012-013	1950
1041 El Camino Real	129-012-006	Circa 1925
1054 El Camino Real	129-171-031	1947
1046 El Camino Real	125-171-019	1949
1044 El Camino Real	125-171-020	1950

Address	APN	Date
17580 Vierra Canyon Road	125-171-014	Circa 1940/1950
17693 Berta Canyon Road	125-121-024	Circa 1920
17671 Berta Canyon Road	125-121-025	1930
17609 Berta Canyon Road	125-121-026	Circa 1925
1018 El Camino Real	125-121-001	1932
1014 El Camino Real	125-121-003	Circa 1925
1012 El Camino Real	125-121-004	1933
1010 El Camino Real	125-121-015	1935/1945
900 El Camino Real	125-121-016	Circa 1920 c 1960
901 El Camino Real	133-023-013	1925
905 El Camino Real	133-023-015	1925
1001 El Camino Real	133-023-016	1931-1934
1011 El Camino Real	133-023-062	1928
1013 El Camino Real	133-023-023	Circa 1925
1015 El Camino Real	133-023-024	1940
1017 El Camino Real	133-023-025	1946c1970
8955 Prunedale South Road	133-023-026	1941
1031 El Camino Real	133-023-042-i	Circa 1925
8956 Prunedale South Road	133-023-042-ii	1940/1957
8964 Prunedale South Road	133-023-027	1930
8965 Prunedale South Road	133-023-021	1930
8975 Prunedale South Road	133-023-020	1934-1939
8985 Prunedale South Road	133-023-037	1953
8995 Prunedale South Road	133-023-036	1934
8980 Prunedale South Road	133-023-28	1939
8990 Prunedale South Road	133-023-010	Circa 1925
9575 Prunedale South Road	133-022-005	Circa 1900
9025 Prunedale South Road	133-023-040	1936
9015 Prunedale South Road	133-023-039	1954
17882-178 Moro Road	127-012-037	1956/1991
8007 Messick Road	125-501-025	1920/1942-43/1950
892 El Camino Real North	125-121-019	1940/1976
888 El Camino Real North	125-121-011	1928/1953/1991
882 El Camino Real North	125-121-019	1951

Based on my review of the documentation provided, I concur.

Thank you for considering historic properties during project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 654-0631 or e-mail at nlindquist@parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

Appendix I Natural Resources Conservation Form AD 1006

U.S. Department of Agriculture FARMLAND CONVERSION IMPACT RATING							
PART I (To be completed by Federal Agency)				Date Of Land Evaluation Request 8/13/07			
Name of Project <i>Route 156 West Corridor Project</i>				Federal Agency Involved FHWA			
Proposed Land Use Transportation				County and State Monterey, CA			
PART II (To be completed by NRCS)				Date Request Received By NRCS <i>8-17-07</i>		Person Completing Form: <i>Donna D. Delaney</i>	
Does the site contain Prime, Unique, Statewide or Local Important Farmland? (If no, the FPPA does not apply - do not complete additional parts of this form)				YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	Acres Irrigated <i>260,073</i>	Average Farm Size <i>6,277</i>
Major Crop(s) <i>Strawberries, lettuce, broccoli</i>		Farmable Land In Govt. Jurisdiction Acres: <i>388,633</i> % <i>18.2</i>		Amount of Farmland As Defined in FPPA Acres: <i>224,718</i> % <i>10.6</i>			
Name of Land Evaluation System Used <i>California State Index</i>		Name of State or Local Site Assessment System <i>(NA)</i>		Date Land Evaluation Returned by NRCS			
PART III (To be completed by Federal Agency)				Alternative Site Rating			
				Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly				165	98.02		
B. Total Acres To Be Converted Indirectly				0	0		
C. Total Acres In Corridor				277.5	202.5		
PART IV (To be completed by NRCS) Land Evaluation Information							
A. Total Acres Prime And Unique Farmland				0	0		
B. Total Acres Statewide Important or Local Important Farmland				85.5	53.8		
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				0.0002	0.0002		
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				N/A	N/A		
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)				55	46.8		
PART VI (To be completed by Federal Agency) Site Assessment Criteria (Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)				Maximum Points	Site A	Site B	Site C
1. Area In Non-urban Use				(15)	12	12	
2. Perimeter In Non-urban Use				(10)	9	9	
3. Percent Of Site Being Farmed				(20)	19	19	
4. Protection Provided By State and Local Government				(20)	20	20	
5. Size Of Present Farm Unit Compared To Average				(10)	6	6	
6. Creation Of Non-farmable Farmland				(10)	0	0	
7. Availability Of Farm Support Services				(5)	4	4	
8. On-Farm Investments				(20)	18	18	
9. Effects Of Conversion On Farm Support Services				(10)	0	0	
10. Compatibility With Existing Agricultural Use				(10)	8	8	
TOTAL SITE ASSESSMENT POINTS				160	96	96	
PART VII (To be completed by Federal Agency)							
Relative Value Of Farmland (From Part V)				100	55	46.8	
Total Site Assessment (From Part VI above or local site assessment)				160	96	96	
TOTAL POINTS (Total of above 2 lines)				260	151	142.8	
Site Selected:		Date Of Selection		Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>			
Reason For Selection:							
Name of Federal agency representative completing this form:						Date:	

Form AD-1006 (03-02)

Appendix J Biology Mapping

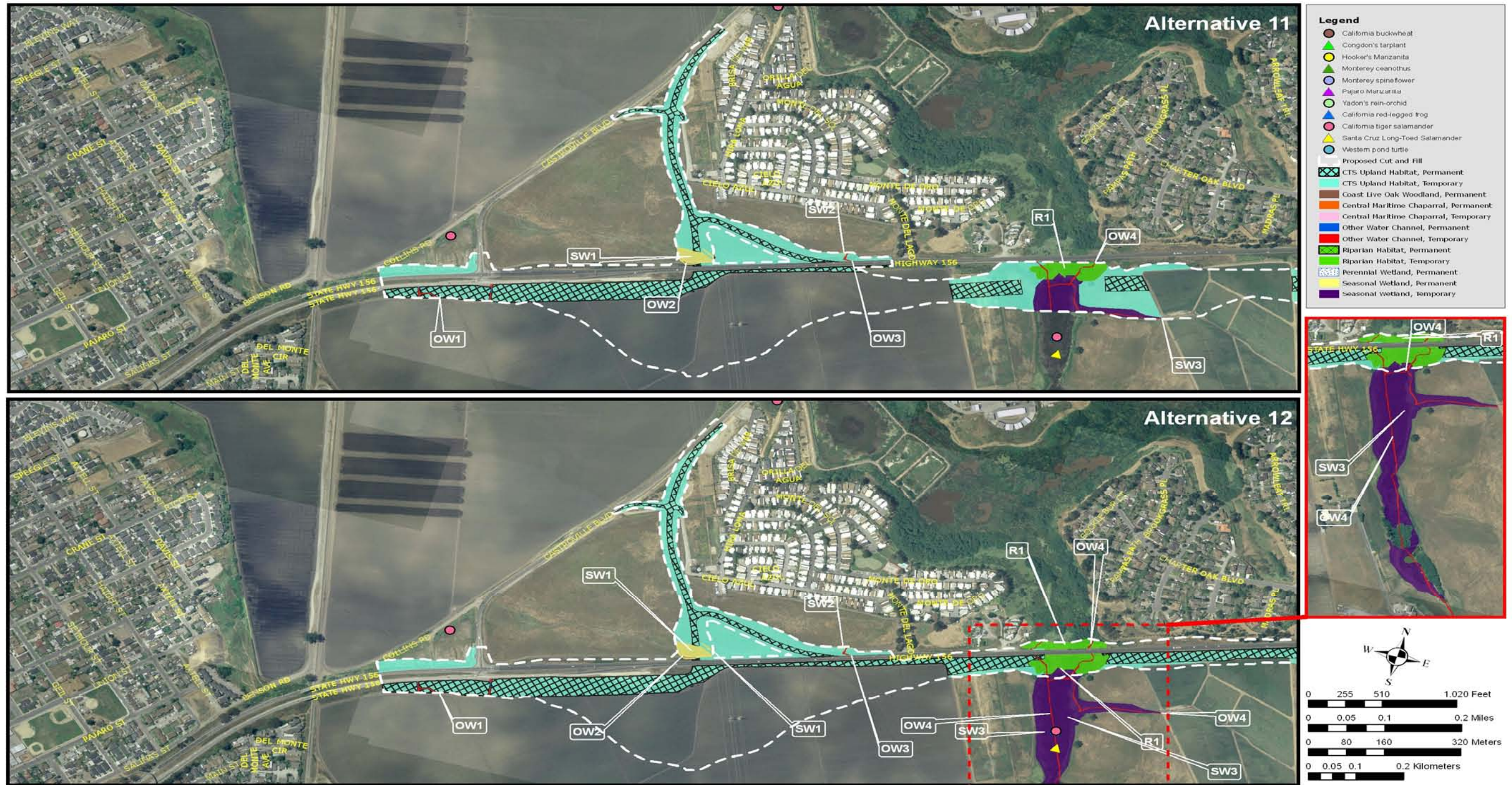


Figure J-1 Special-status Impacts for Castroville Boulevard and Moro Cojo Slough



Figure J-2 Special-status impacts for Cathedral Oak Road and Oak Hills Drive

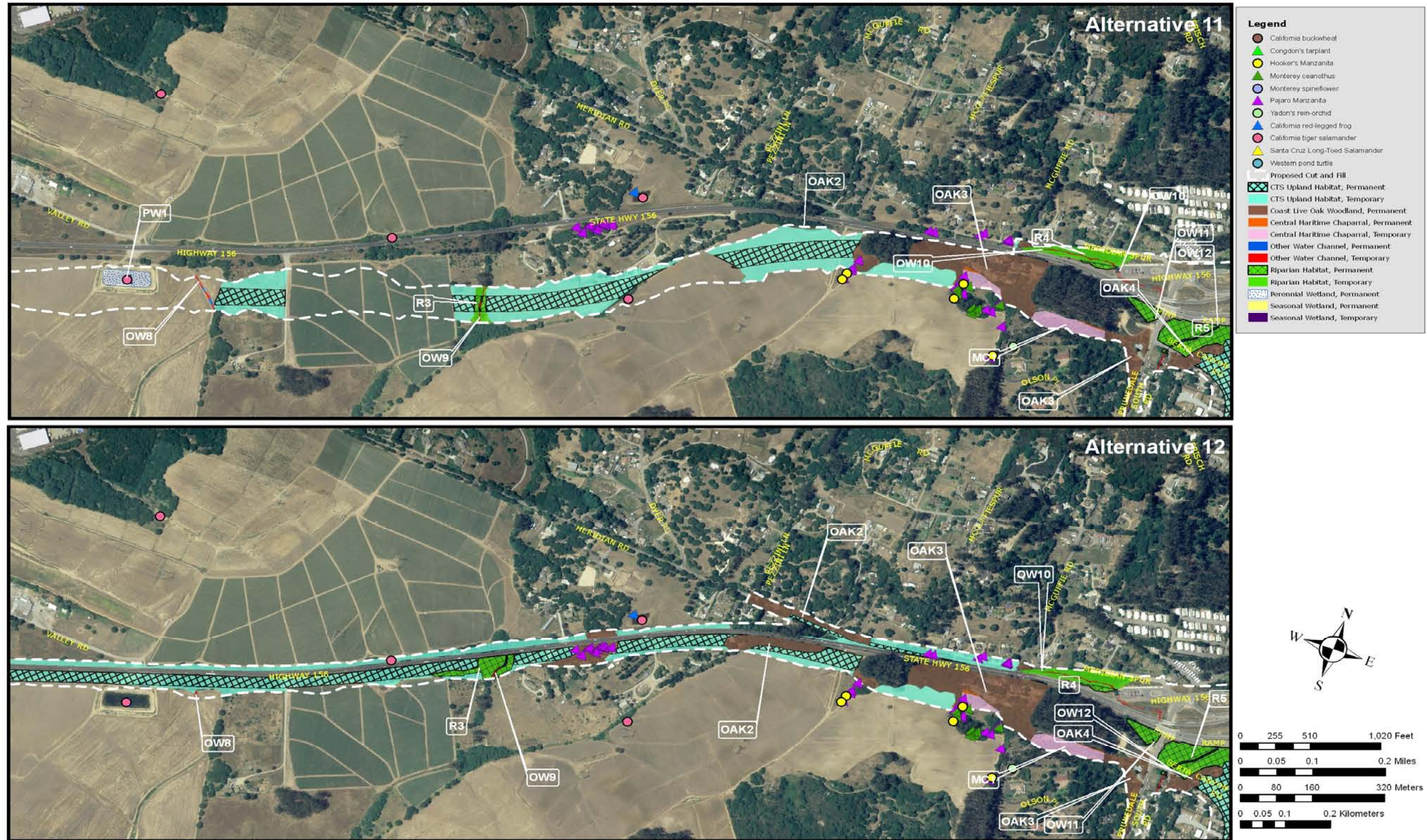


Figure J-3 Special-status impacts for Meridian Area

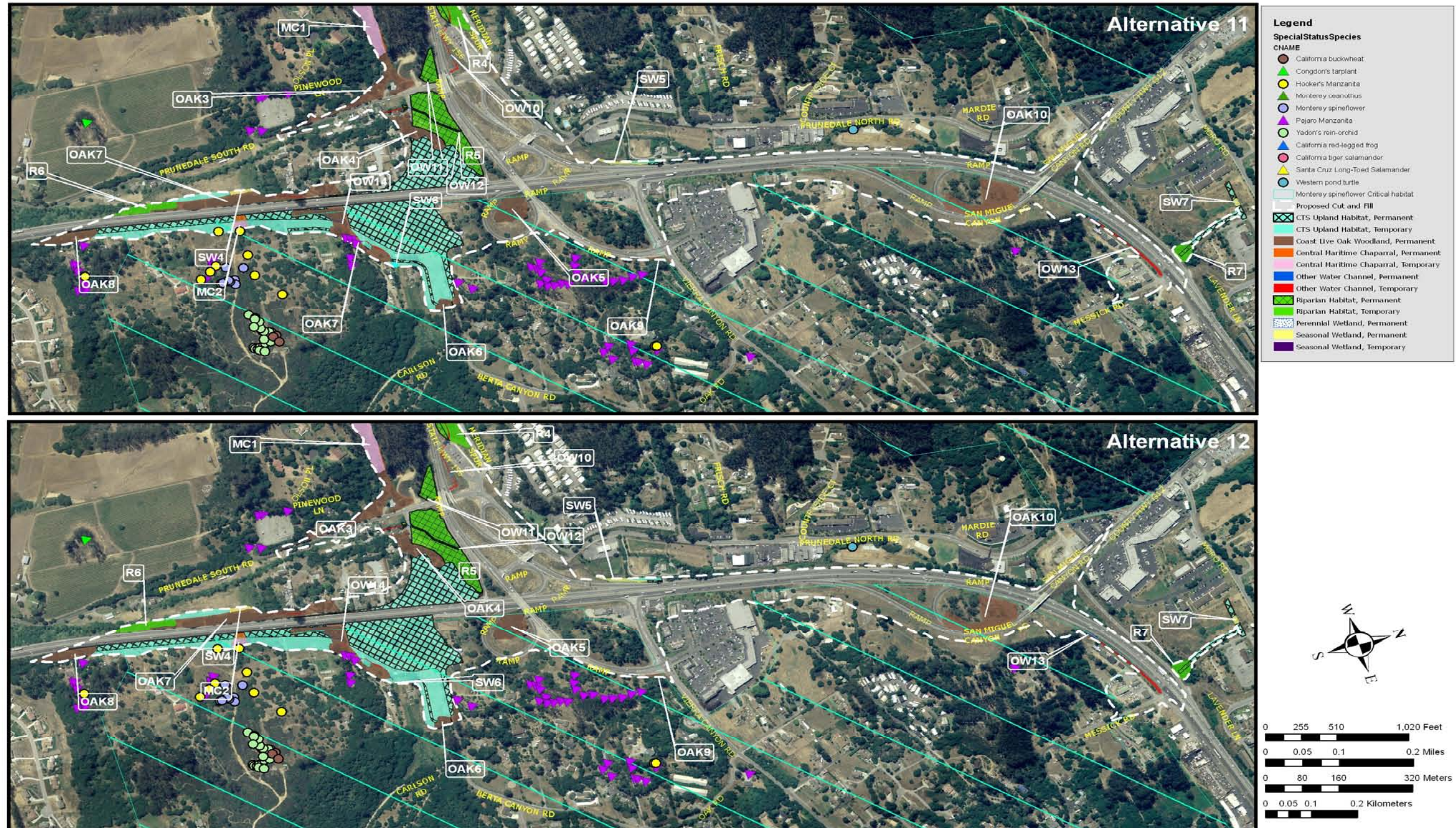


Figure J-4 Special-status impacts for U.S. Route 101/State Route 156 interchange area

Appendix K Farmland Mapping

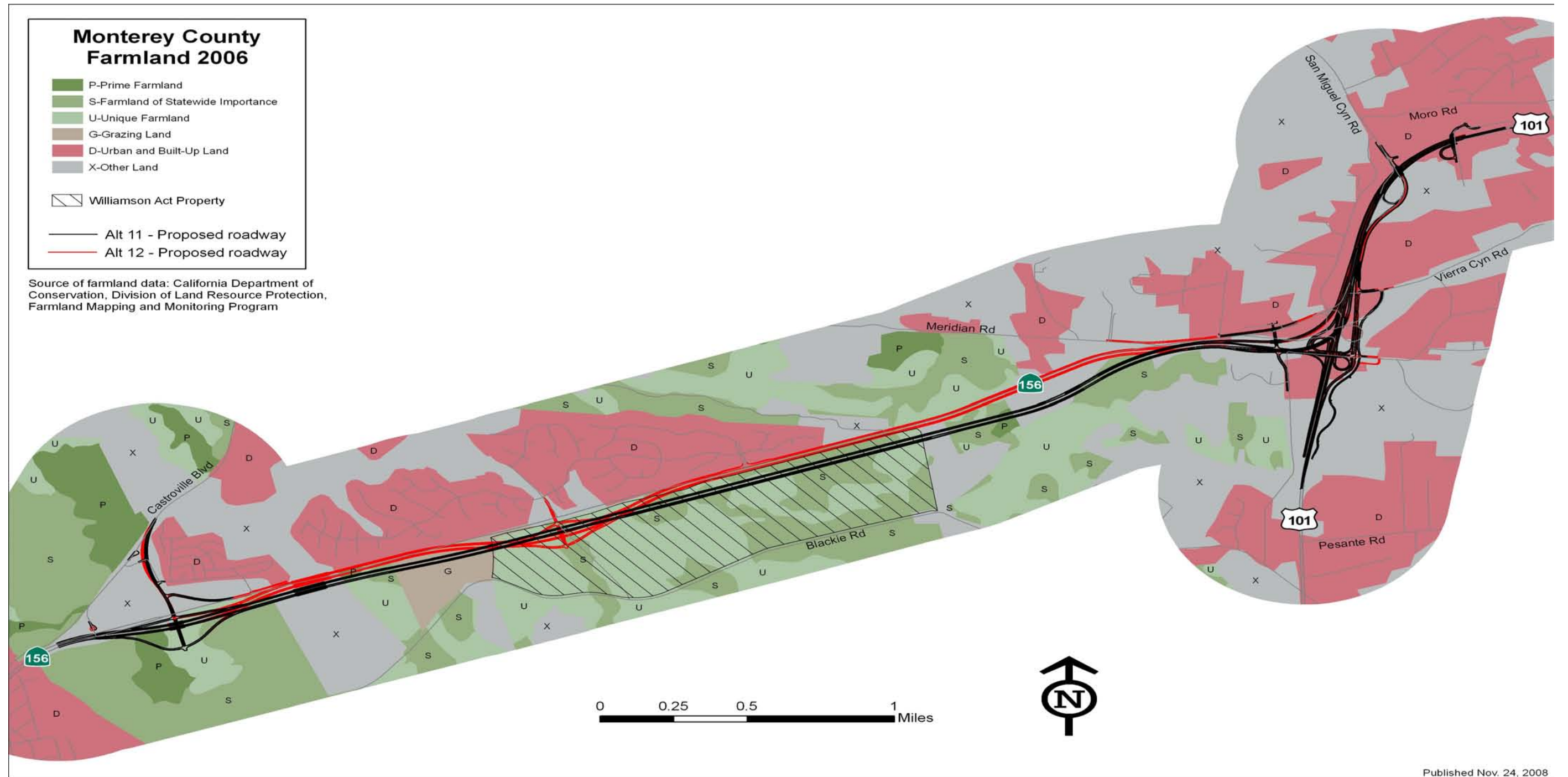


Figure K-1 Farmland Mapping

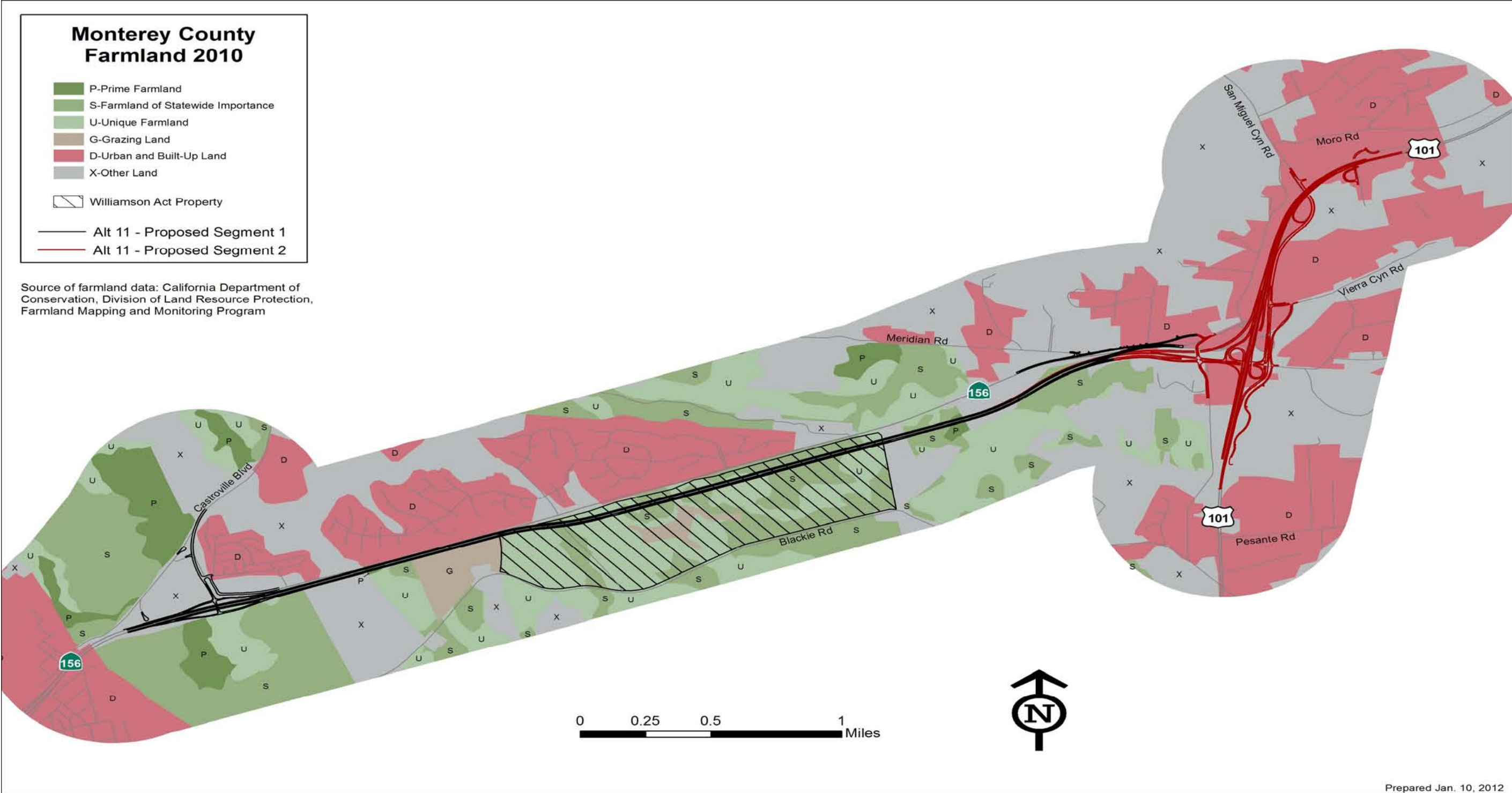
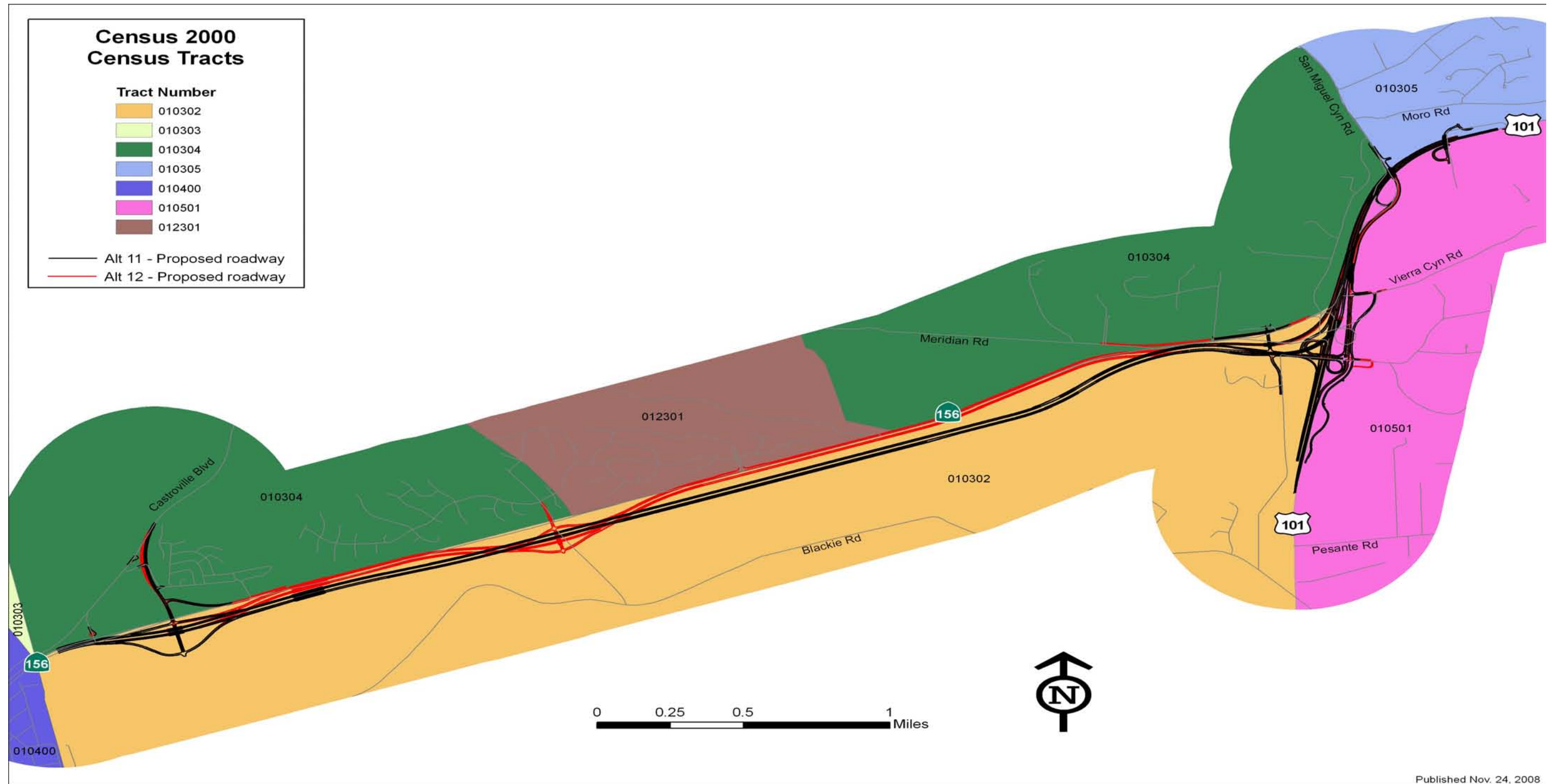


Figure K-2 2010 Farmland Mapping

Appendix L Census Mapping



Published Nov. 24, 2008

Figure L-1 Census Mapping

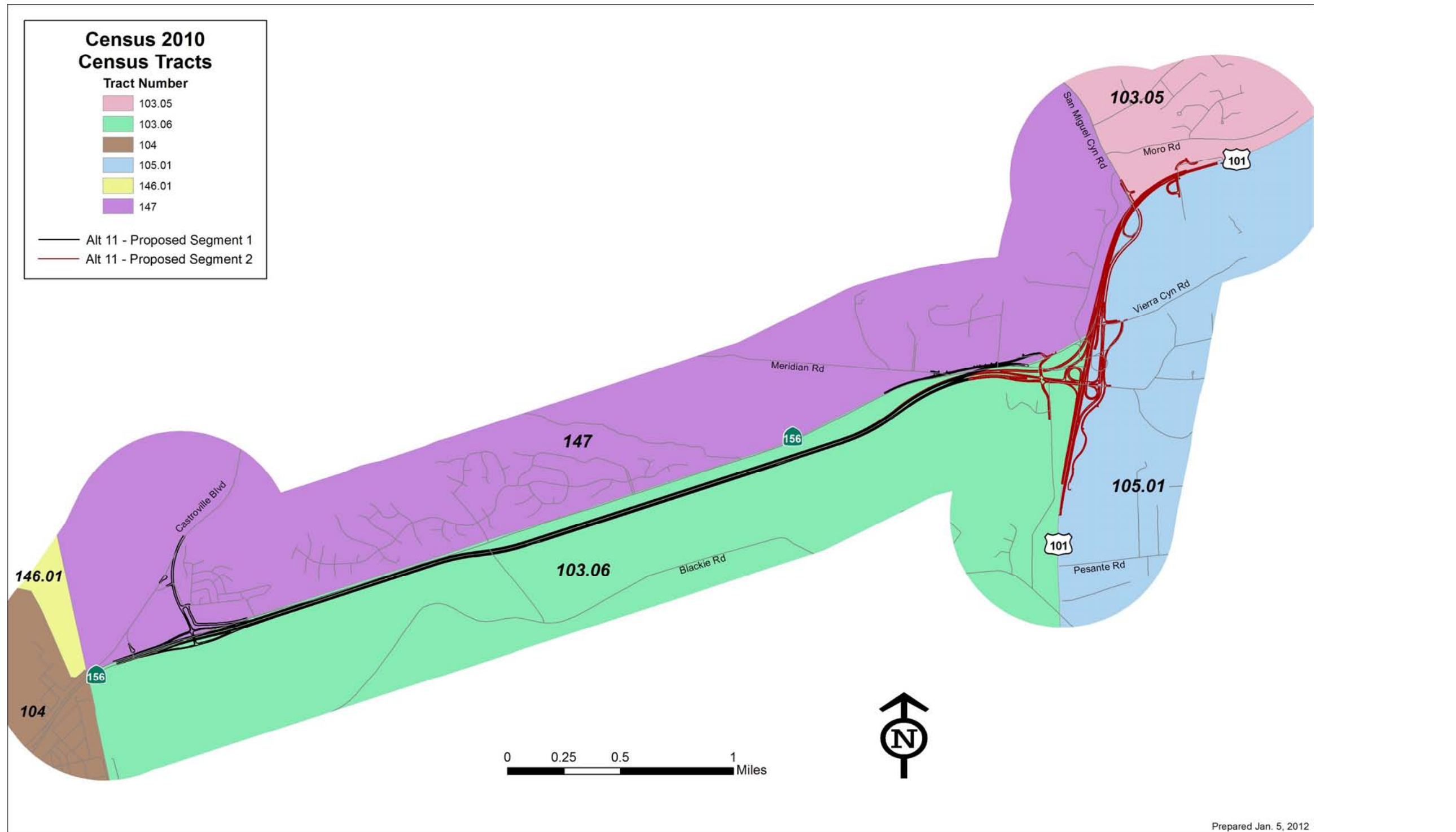


Figure L-2 2010 Census Mapping

Appendix M Land Use Mapping



Figure M-1 Land Use Mapping



Figure M-2 2011 Land Use Mapping

Appendix N Cross Sections

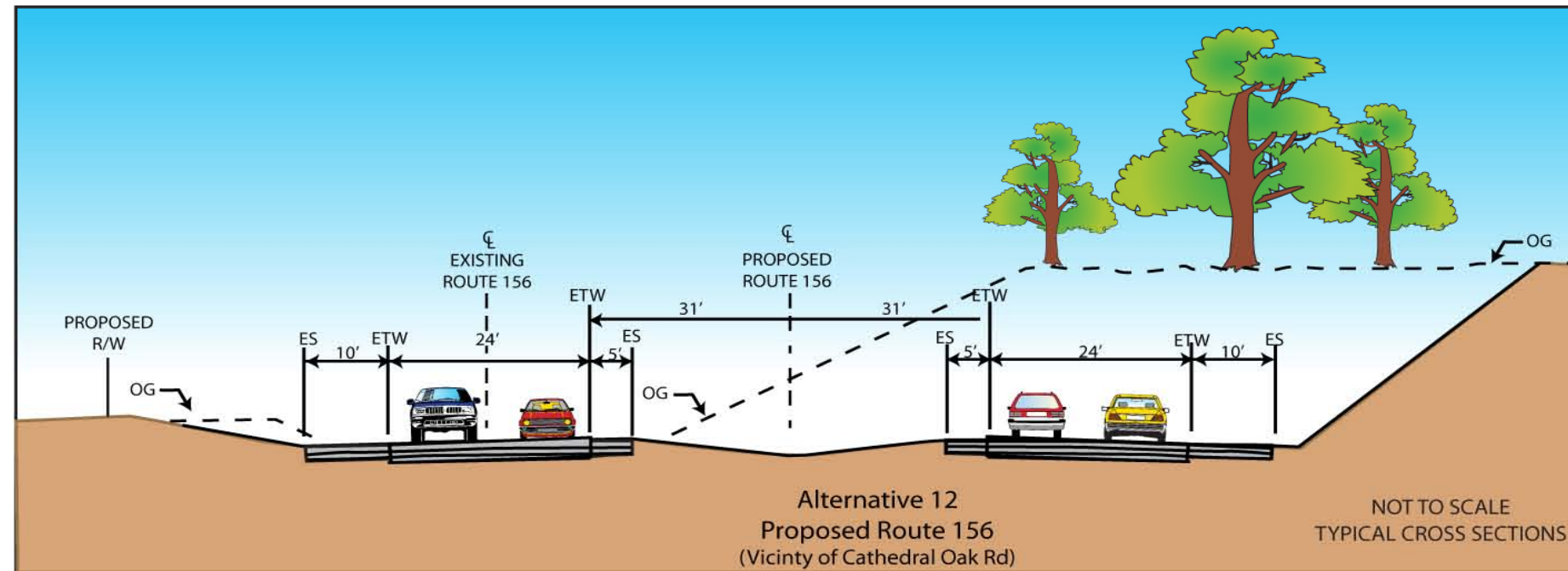
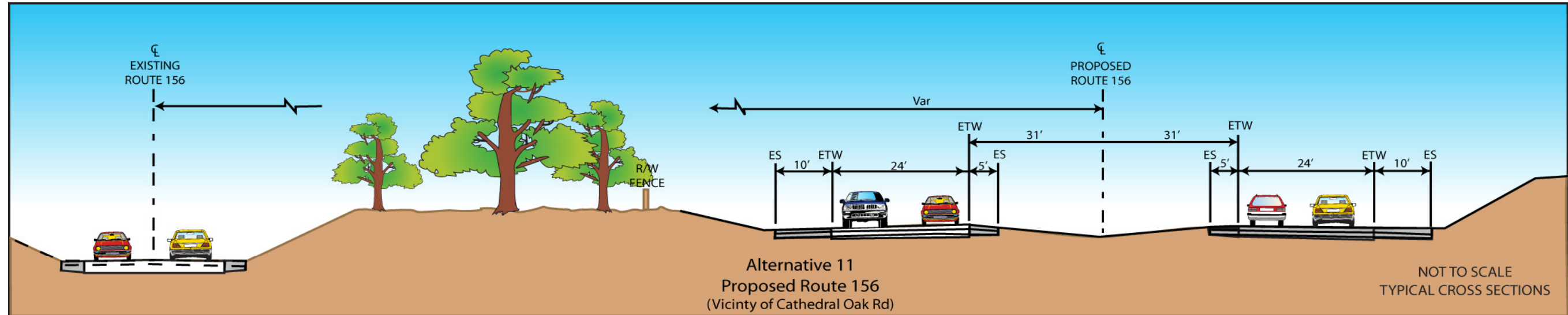


Figure N-1 Alternative 11 and Alternative 12 Cross Sections

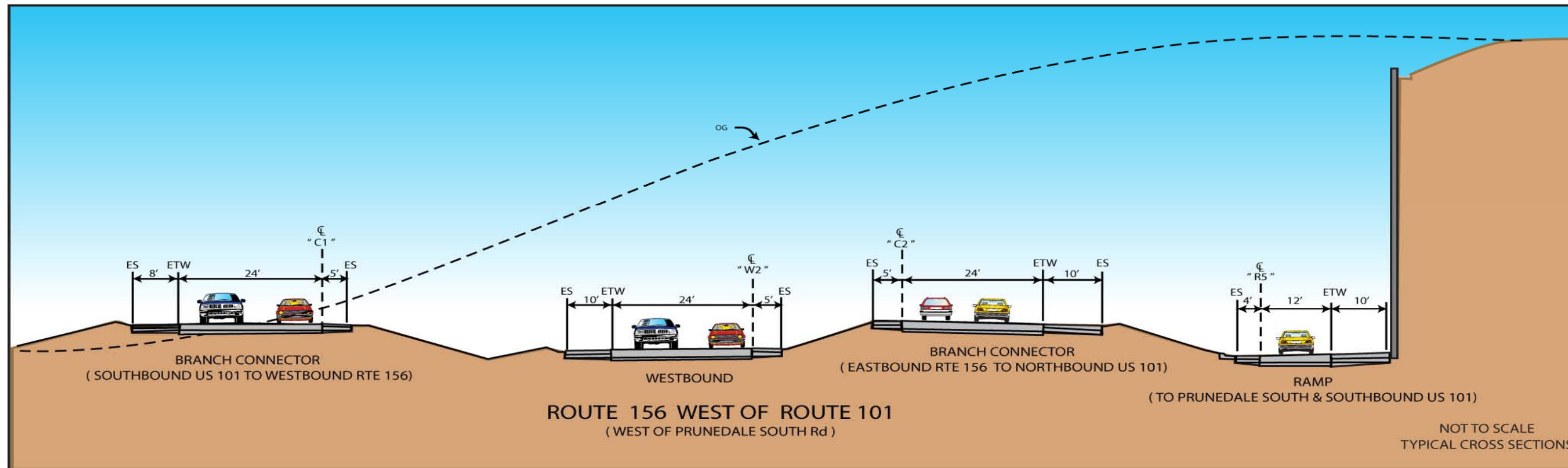
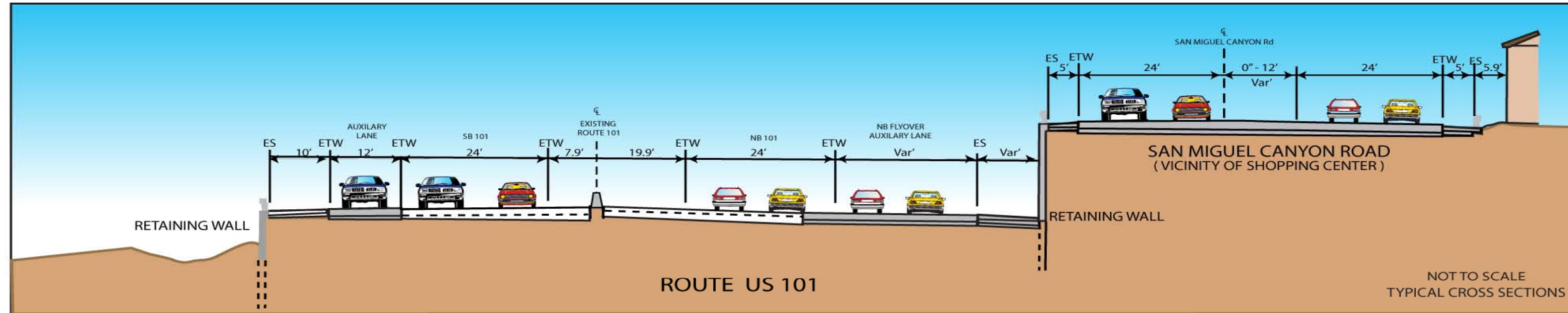


Figure N-2 Cross sections for U.S. Route 101 and State Route 156

Appendix O Biological Opinion

Larry Bonner (8-8-12-F-24)

2

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Caltrans proposes to convert the existing SR 156 from a conventional two-lane highway to a four-lane freeway on a new alignment between Route 101 to just west of Castroville Boulevard and rebuild the Route 101/SR 156 interchange. It was determined that the project may be constructed in two phases. The first phase would convert SR 156 from a two lane highway to a four-lane freeway on a new alignment, while the existing SR 156 would remain as a frontage road. The second phase would rebuild the Route 101/SR 156 interchange in Monterey County. Construction is scheduled to begin in 2016 with phase 1 completed in 2019 followed by phase 2 in 2021. The following additional design elements are proposed for the project:

- Realign Castroville Boulevard and build a compact diamond interchange at the SR 156 new alignment in Castroville, with a tight configuration on the north and south side of the interchange. New ramps are proposed with 12-foot wide travel lanes, 4-foot wide inside shoulders and 8-foot wide outside shoulders.
- Construct SR 156 on a new alignment south of the existing SR 156 that would consist of a four-lane freeway with 12-foot wide traffic lanes, 10-foot wide outside shoulders, and 5-foot wide inside shoulders. The median would be 46 feet wide, and the design speed would be 70 miles per hour.
- Convert the existing SR 156 into a frontage road. At the west end, the frontage road will tie into the proposed realigned Castroville Boulevard and would connect to the existing Prunedale North Road.
- Construct amphibian barriers along existing SR 156 at Moro Cojo Slough. Barriers would consist of 20-inch tall corrugated metal thrie beams overlapped and joined at their ends. The thrie beams would be attached to the outside base of the existing Metal Beam Guardrail (MBGR) and buried 12 inches below the existing surface. This structure would extend approximately 610 feet along both the east and west bound shoulders over the Moro Cojo Slough south finger. Two-foot diameter endcaps would be attached to each end of the amphibian barriers to direct amphibians back towards suitable habitat at the slough.
- Replace/repair the failing culvert that extends under SR 156 at Moro Cojo Slough to maintain and enhance hydrological connectivity. The ground slope at the repaired/replaced culvert on both sides of SR 156 would be graded to smoothly meet the culvert to ensure amphibians can utilize the culvert to cross under SR 156 between the south finger of Moro Cojo Slough and the main Moro Cojo Slough to the north.
- Construct a modified partial-cloverleaf interchange in combination with a freeway-to-freeway interchange at the Route 101/SR 156 separation, with branch connections for the southbound Route 101 to westbound SR 156 and eastbound SR 156 to northbound Route 101. New ramps and branch connectors are proposed with 12-foot wide travel lanes, 4-foot wide inside shoulders and 8-foot wide outside shoulders.

Larry Bonner (8-8-12-F-24)

3

- Extend San Miguel Canyon Road from the existing interchange at Route 101 and connect it to the proposed new interchange at Route 101/SR 156 on an alignment parallel to the existing Route 101.
- Convert Route 101 from a 4-lane expressway to a 4-lane freeway with 12-foot wide lanes, 10-foot wide outside shoulders, and 5-foot wide inside shoulders within the project limits. The median just south of the northbound connector would be 32.5 feet wide. The median width would transition to 15.8 feet wide just north of the connector.
- Build an overcrossing over Route 101 at Messick Road that would tie into Lavender Lane for access to residential properties south of Route 101. Both at-grade intersections located north of the San Miguel Road overcrossing would be permanently closed.
- Build a bridge south of the existing SR 156 over the south arm of Moro Cojo Slough.
- Install approximately 32 cross culverts and build 7 basins for drainage improvements.
- Extend the culvert south of Messick Road for Prunedale Creek.
- Connect Vierra Canyon Road to San Miguel Canyon Road as a "T" intersection.
- Build a frontage road connecting Berta Canyon Road and Vierra Canyon Road to separate residential and highway traffic.
- Build a retaining wall at southbound Route 101.
- Build a retaining wall from the eastbound SR 156 off-ramp to southbound Route 101.
- Build a retaining wall at the northbound Route 101 branch connector.
- Build a retaining wall between the existing Route 101 and the proposed San Miguel Canyon realignment.
- Build two retaining walls at the existing San Miguel Canyon interchange.
- Relocate underground and aboveground utilities.
- Install replacement plantings.
- Install Intelligent Transportation Systems to include changeable message signs, highway advisory radio and surveillance loops.
- Install proposed soundwalls for noise abatement.
- Install maintenance vehicle pullouts.

Implementation of the following measures is proposed to reduce or avoid short and long-term impacts of project actions to California red-legged frogs, Santa Cruz long-toed salamanders, and California tiger salamanders:

1. At least 15 days prior to the onset of activities, the applicant or project proponent will submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities will begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work. Only Service-approved biologists will participate in activities associated with the capture, handling, and monitoring of Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs.
2. Prior to the start of the project activities, the project proponent will retain a qualified biologist to conduct a worker training program for all construction workers. The

Larry Bonner (8-8-12-F-24)

4

education program will consist of a review of the following: 1) the project boundaries; 2) the listed species that may be present, their habitat, and proper identification; 3) required avoidance and minimization measures that would be incorporated into the project; and 4) the proper procedures if a special status species is encountered in an area that would be impacted.

3. A Service-approved biologist will survey the project site no more than 48 hours before the onset of work activities. If any adults, juveniles, or larvae of the California tiger salamander or California red-legged frog or any adults or juveniles of the Santa Cruz long-toed salamander is found and these individuals are likely to be killed or injured by work activities, the approved biologist will be allowed sufficient time to move them from the site before work activities begin. The Service-approved biologist will relocate these individuals the shortest distance possible to a location that contains suitable habitat and will not be affected by activities associated with the proposed project. The relocation site should be located in the same drainage to the extent practicable. Caltrans will coordinate with the Service on the relocation site prior to the capture of federally listed amphibians. If egg masses or larvae of the Santa Cruz long-toed salamander is found during these surveys Caltrans will contact the Service to determine whether relocating these individuals are appropriate.
4. When in known or potential habitat for federally listed amphibians and prior to the use of heavy equipment and any surface-disturbing activities, the work area will be cleared under the direction of a Service-approved biologist. Vegetation will initially be removed by hand (brush-cutters, weed whackers, and chainsaws) to the maximum extent practicable. Piles of woody debris will be cleared by hand. Larger debris will only be moved after being inspected by the Service-approved biologist. If Santa Cruz long-toed salamanders, California tiger salamanders, or California red-legged frogs are observed incidentally during vegetation and debris removal activities, work that may impact the species will cease until the individuals are relocated to the nearest appropriate habitat by a Service-approved biologist.
5. A Service-approved biologist will be present at the work site until completion of all the following activities: surveys for, capture, and removal of Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs; instruction of workers; and any actions resulting in habitat disturbance. After this time, Caltrans will designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist will ensure that this individual receives training outlined above in measure 2 and in the identification of the subject species. If the monitor or the Service-approved biologist recommends that work be stopped because federally listed amphibians would be affected in a manner not anticipated by Caltrans and the Service during review of the proposed action, they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will either resolve the situation by immediately eliminating the adverse

Larry Bonner (8-8-12-F-24)

5

effect or require that all actions causing these effects be halted. If work is stopped, the Service will be notified as soon as possible.

6. During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.
7. All refueling, maintenance, and staging of vehicles and equipment will occur at least 60 feet from riparian habitat or water bodies and in a location from where a spill would not drain directly toward aquatic habitat. Caltrans will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, Caltrans will ensure that a plan is in place for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
8. Habitat contours will be returned to their original condition at the end of project activities. This measure will be implemented in all areas disturbed by activities associated with the project, unless the Service and Caltrans determine that it is not feasible or modification of original contours would be beneficial to the subject species.
9. The number of access routes, size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goals. Environmentally Sensitive Areas will be delineated to confine access routes and construction areas to the minimum necessary to complete construction, and minimize the impact to federally listed amphibian habitats; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.
10. Work activities, when conducted in potential habitat for California red-legged frogs, California tiger salamanders, and Santa Cruz long toed salamanders, will be completed between May 1 and November 1. Should the proponent or applicant demonstrate a need to conduct activities outside this period, Caltrans may authorize such activities after obtaining the Service's approval.
11. To control sedimentation during and after project implementation, Caltrans and the sponsoring agency will implement best management practices outlined in any authorizations or permits issued under the authorities of the Clean Water Act that it receives for the specific project. If best management practices are ineffective, Caltrans will attempt to remedy the situation immediately, in coordination with the Service.
12. If a work site is to be dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent larvae, juvenile, and adult salamanders and frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner

Larry Bonner (8-8-12-F-24)

6

that would allow flow to resume with the least disturbance to the substrate. Alteration of the stream bed will be minimized to the maximum extent possible; any imported material will be removed from the stream bed upon completion of the project.

13. Unless approved by the Service, water will not be impounded in a manner that may attract amphibians.
14. A Service-approved biologist will permanently remove any individuals of non-native species, such as bullfrogs (*Rana catesbeiana*), signal and red swamp crawfish (*Pacifastacus leniusculus*; *Procambarus clarkia*), and centrarchid fishes from the project area, to the maximum extent possible. The Service-approved biologist will be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code.
15. If Caltrans demonstrates that disturbed areas have been restored to conditions that allow them to function as habitat for the subject federally listed amphibians, these areas will not be included in the amount of total habitat permanently disturbed.
16. To ensure that diseases are not conveyed between work sites by the Service-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times.
17. Project sites will be revegetated with an assemblage of native riparian, wetland, and upland vegetation suitable for the area. Locally collected plant materials will be used to the extent practicable. Invasive, exotic plants will be controlled to the maximum extent practicable. This measure will be implemented in all areas disturbed by activities associated with the project, unless the Service and Caltrans determine that it is not feasible or practical.
18. Caltrans will not use herbicides as the primary method to control invasive, exotic plants. However, if Caltrans determines the use of herbicides is the only feasible method for controlling invasive plants at a specific project site, it will implement the following additional protective measures for the Santa Cruz long-toed salamander, California tiger salamander, and California red-legged frog:
 - a. Caltrans will not use herbicides during the breeding season for the Santa Cruz long-toed salamander, California tiger salamander, and California red-legged frog;
 - b. Caltrans will conduct surveys for the Santa Cruz long-toed salamander, California tiger salamander, and California red-legged frog immediately prior to the start of any herbicide use. If found, federally listed amphibians will be relocated to suitable habitat far enough from the project area that no direct contact with herbicides would occur;

Larry Bonner (8-8-12-F-24)

7

- c. Giant reed and other invasive plants will be cut and hauled out by hand and then painted with glyphosate or glyphosate-based products, such as Aquamaster® or Rodeo®;
- d. Licensed and experienced Caltrans staff or a licensed and experienced contractor will use a hand-held sprayer for foliar application of approved herbicides where large monoculture stands occur at an individual project site;

- e. All precautions will be taken to ensure that no herbicide is applied to native vegetation;
- f. Herbicides will not be applied on or near open water surfaces (no closer than 60 feet from open water);
- g. Foliar applications of herbicide will not occur when wind speeds are in excess of 3 miles per hour;
- h. No herbicides will be applied within 24 hours of forecasted rain;
- i. Application of all herbicides will be done by qualified Caltrans staff or contractors to ensure that overspray is minimized, that all applications are made in accordance with label recommendations, and with implementation of all required and reasonable safety measures. A safe dye will be added to the mixture to visually denote treated sites. Application of herbicides will be consistent with the U.S. EPA's Office of Pesticide Programs, Endangered Species Protection Program county bulletins.

ANALYTICAL FRAMEWORK FOR THE JEOPARDY DETERMINATION

Jeopardy Determination

The jeopardy analysis in this biological opinion relies on four components: (1) the *Status of the Species*, which evaluates the range-wide conditions of the Santa Cruz long-toed salamander, California red-legged frog, and California tiger salamander, the factors responsible for those conditions, and their survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the conditions of the Santa Cruz long-toed salamander, California red-legged frog, and California tiger salamander in the action area, the factors responsible for those conditions, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the Santa Cruz long-toed salamander, California red-legged frog, and California tiger salamander; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the Santa Cruz long-toed salamander, California red-legged frog, and California tiger salamander. In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the current status of the Santa Cruz long-

Larry Bonner (8-8-12-F-24)

8

toed salamander, California red-legged frog, and California tiger salamander, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the Santa Cruz long-toed salamander, California red-legged frog, and California tiger salamander in the wild.

The jeopardy analysis in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the Santa Cruz long-toed salamander, California red-legged frog, and California tiger salamander, and the role of the action area in the survival and recovery of these species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

STATUS OF THE SPECIES

Santa Cruz long-toed salamander

The Santa Cruz long-toed salamander was federally listed as endangered on March 11, 1967, under the Endangered Species Preservation Act of 1966 (Service 1967). The Draft Revised Recovery Plan for the Santa Cruz Long-Toed Salamander was published by the Service in April of 1999 (Service 1999) and designation of critical habitat was proposed on June 22, 1978 (Service 1978). Information in the following species account was obtained primarily from Santa Cruz Long-Toed Salamander (*Ambystoma macrodactylum croceum*) 5-Year Review: Summary and Evaluation (Service 2009a).

The Santa Cruz long-toed salamander is a small dark-colored salamander of the family Ambystomatidae. The adults have an average snout-to-vent length of 1.7 to 2.8 inches, with an average total length of 4.2 to 6.0 inches and weigh approximately 0.1 to 0.4 ounce. This subspecies differs from subspecies *Ambystoma macrodactylum macrodactylum* by its dull orange or metallic yellow dorsal markings (a series of discrete, irregular patches), and by greatly reduced dorsal head markings of small scattered dots, which are often absent, anterior to the eyes (Ferguson 1961; Stebbins 1966, 1985). The ventral surface is sooty black. The vomerine teeth (located on the roof of the mouth) form a continuous or broken row. Differences in biochemistry (Sage 1978), physiology, and life history traits (Anderson 1960, 1967, 1968a, 1968b, 1972a, 1972b, 1972c) support the separation of the Santa Cruz long-toed salamander as a distinct species; however, until a more thorough investigation of the genetics of the species is conducted and a revision of the taxonomy published in a peer-reviewed journal, Santa Cruz long-toed salamanders will continue to be considered a subspecies of long-toed salamander (*A. macrodactylum*).

The Santa Cruz long-toed salamander utilizes terrestrial and aquatic habitats during the course of its life cycle. Terrestrial habitats include upland mesic coastal scrub and woodland areas of coast live oak (*Quercus agrifolia*) or Monterey pine (*Pinus radiata*) and riparian vegetation, such as arroyo willows (*Salix lasiolepis*). The Santa Cruz long-toed salamander spends most of its life underground in burrows of small mammals, under leaf litter, rotten logs, fallen branches, and

Larry Bonner (8-8-12-F-24)

9

ephemeral, freshwater ponds. Some breeding sites are ephemeral, while others contain water throughout the year. (Boone et al. 2002). During the onset of winter rains, post-metamorphic juveniles (metamorphs) disperse farther away from the breeding pond, and do not return until they reach sexual maturity at 2 to 3 years of age (Ruth 1988; Laabs 2000, 2001, 2002, 2003). Based on data from pitfall trap studies at a known breeding pond and adjacent uplands, Biosearch (2002) estimated that between 26 to 36 percent of the adult population of Santa Cruz long-toed salamanders at the pond traveled at least 1,100 feet to reach suitable upland habitat. Biosearch recaptured 49 percent of the adult Santa Cruz long-toed salamanders that were originally captured along the same drift fence and marked while migrating toward the breeding pond. This high recapture rate suggests that adult Santa Cruz long-toed salamanders return to the uplands areas from which they migrated previously in the breeding season (Service 2009a). To date, 24 breeding sites for Santa Cruz long-toed salamanders have been identified; 17 in southern Santa Cruz County, and 7 in northern Monterey County. At the time of listing, the subspecies was known from three sites in Santa Cruz County. Fifteen of the known 24 locations have been protected from development through various methods such as habitat conservation plans, conservation easements, or ownership under various conservation agencies or organizations. Nine of the known breeding locations are not ensured protection from development and are not being managed for Santa Cruz long-toed salamanders. Although 15 sites are protected from development, one of these is presumed extirpated due to increasing salinity, and threats are present at all remaining sites. Due to the discovery of additional breeding sites since the draft recovery plan was published, the Service currently recognizes 6 metapopulations that require protection and management. These metapopulations include: Valencia-Seascape, Ellicott-Buena Vista, Freedom, Larkin Valley, McClusky, and Elkhorn, which account for all known occurrences of the subspecies (Service 2009a).

While recent genetic research is thus far preliminary, it provides strong evidence that each metapopulation is isolated, and therefore unable to exchange migrants, resulting in population genetic isolation and reductions in gene flow. Animal populations can be severely affected by reduced genetic variability, particularly when gene flow is reduced and census population sizes are low. These conditions place any one breeding deme at an increased risk of local extirpation resulting from the inability to adapt to new threats such as climate change, disease, or various stochastic events. The likelihood of recolonization from other sites if a local extinction occurs is low because of habitat fragmentation. Additionally, population studies have been completed only sporadically since the time of listing, and only at 10 of the known breeding locations. The lack of population and genetic studies at the majority of these locations leaves little knowledge on breeding and recruitment success at each site, as well as whether genetic exchange between subpopulations is occurring. There is concern regarding the success of genetic exchange and recruitment and the prospect of extirpations throughout portions of the subspecies range (Service 2009a).

Prior to large-scale urbanization and conversion of lands for agricultural uses, it is probable that suitable upland sheltering and dispersal habitats were more widespread and contiguous in Santa Cruz and Monterey Counties. Similarly, freshwater marshes and vernal pools likely occurred in greater abundance, in comparison to the present. Terrestrial and aquatic habitats suitable for

Larry Bonner (8-8-12-F-24)

10

Santa Cruz long-toed salamanders have been removed and altered due to urbanization and agricultural activities, and barriers to dispersal have been created, resulting in subpopulations which are isolated from each other. New breeding sites for the Santa Cruz long-toed salamander are likely to be discovered, due to the amount of unsurveyed, privately-owned habitat in the region (Service 2009a).

The primary threats, which include habitat degradation and fragmentation due to urbanization and agriculture, continue to constrain the subspecies with limited upland habitat for dispersal and little connectivity between breeding locations. Amphibian populations naturally undergo large fluctuations in population size as a result of random natural events such as drought and fire. Their ability to recover from these events is dependent upon year-to-year survival of larvae and adults, the presence of refugia to endure natural events and escape predators, and successful reproduction during years of adequate rainfall. The loss of upland habitats and the loss of individuals through agricultural and development activities can leave small populations that are unable to withstand decreases in size as a result of such events (Service 2009a).

Other factors affecting the Santa Cruz long-toed salamander include the effects of drought, mortality on roads, and contaminants. As urban areas continue to expand, roads continue to fragment remaining habitat and increase the threat of pollution from run-off into known or potential breeding sites. Mortality on roads is a threat faced by nearly all Santa Cruz long-toed salamander subpopulations, and has been widely documented as contributing to the increasing decline of amphibians worldwide, particularly in populated areas. Disease and predation continue to threaten the Santa Cruz long-toed salamander; although the direct effect of disease on Santa Cruz long-toed salamanders is unknown, several pathogenic agents have been associated with die-offs of closely related salamander species. Native and nonnative predators are present at several of the known breeding ponds. In healthy salamander populations, predation by native species is not known to be a significant threat; however, when combined with other impacts, such as predation by nonnative species, contaminants, or habitat alteration, the cumulative result may be a substantive decrease in population abundance and viability (Service 2009a).

California tiger salamander

The Service recognizes three distinct populations of the California tiger salamander; in Sonoma County, in Central California, and in northern Santa Barbara County. On September 21, 2000, we listed the Santa Barbara County distinct population segment of the California tiger salamander as endangered (Service 2000). On March 19, 2003, we listed the Sonoma County distinct population segment of the California tiger salamander as endangered (Service 2003). On August 4, 2004, we published a final rule listing the California tiger salamander as threatened range-wide, including the previously identified Sonoma and Santa Barbara distinct population segments (Service 2004). On August 19, 2005, U.S. District Judge William Alsup vacated the Service's downlisting of the Sonoma and Santa Barbara populations from endangered to threatened. Thus, the Sonoma and Santa Barbara populations are listed as endangered, and the Central California population is listed as threatened.

Larry Bonner (8-8-12-F-24)

11

The California tiger salamander is endemic to the grassland community found in California's Central Valley, the surrounding foothills, and coastal valleys (Fisher and Shaffer 1996). Three distinct populations are recognized by the Service: in the coastal ranges of Sonoma County; in Central California including the San Francisco Bay area, the Central Valley, southern San Joaquin Valley, and the Central Coast Ranges; and in northern Santa Barbara County. The distribution of breeding locations of this amphibian does not naturally overlap with that of any other species of tiger salamander (Loredo et al. 1996, Petranka 1998, Stebbins 2003).

The California tiger salamander was first described as *Ambystoma californiense* by Gray in 1853, based on specimens that had been collected in Monterey, California (Grinnell and Camp 1917). Dunn (1940), Gehlbach (1967), and Frost (1985) believed the California tiger salamander was a subspecies of the more widespread tiger salamander (*Ambystoma tigrinum*). However, based on recent studies of the genetics, geographic distribution, and ecological differences among the members of the *A. tigrinum* complex, the California tiger salamander has been determined to represent a distinct species (Shaffer and Stanley 1991, Jones 1993, Shaffer et al. 1993, Shaffer and McKnight 1996).

The California tiger salamander is a large and stocky terrestrial salamander with small eyes and a broad, rounded snout. Adults may reach a total length of 8.2 inches, with males generally averaging about 8 inches in total length, and females averaging about 6.8 inches in total length. For both sexes, the average snout-to-vent length is approximately 3.6 inches (Service 2000). The small eyes have black irises and protrude from the head. Coloration consists of white or pale yellow spots or bars on a black background on the back and sides. The belly varies from almost uniform white or pale yellow to a variegated pattern of white or pale yellow and black. Males can be distinguished from females, especially during the breeding season, by their swollen cloacae (a common chamber into which the intestinal, urinary, and reproductive canals discharge), larger tails, and larger overall size (Loredo and Van Vuren 1996).

Historically, natural ephemeral vernal pools were the primary breeding habitats for California tiger salamanders (Fisher and Shaffer 1996, Petranka 1998). However, with the conversion and loss of many vernal pools through farmland conversion and urban and suburban development, ephemeral and permanent ponds that have been created for livestock watering are now frequently used by the species (Fisher and Shaffer 1996, Robins and Vollmar 2002).

California tiger salamanders spend the majority of their lives in upland habitats and cannot persist without them (Trenham and Shaffer 2005). The upland component of California tiger salamander habitat typically consists of grassland savannah, but includes grasslands with scattered oak trees, and scrub or chaparral habitats (Shaffer et al. 1993, (Service 2000). Juvenile and adult California tiger salamanders spend the dry summer and fall months of the year in the burrows of small mammals, such as California ground squirrels and Botta's pocket gophers (*Thomomys bottae*) (Storer 1925, Loredo and Van Vuren 1996, Trenham 1998, Pittman 2005). The creation of burrow habitat by ground squirrels and utilized by California tiger salamanders suggests a commensal relationship between the two species (Loredo et al. 1996).

Larry Bonner (8-8-12-F-24)

12

Movement of California tiger salamanders within and among burrow systems continues for at least several months after juveniles and adults leave the ponds (Trenham 2001). California tiger salamanders cannot dig their own burrows, and as a result their presence is associated with burrowing mammals (Seymour and Westphal 1994). Active ground-burrowing rodent populations likely are required to sustain California tiger salamanders because inactive burrow systems become progressively unsuitable over time (Service 2004). Loredó et al. (1996) found that California ground squirrel burrow systems collapsed within 18 months following abandonment by, or loss of, the mammals.

California tiger salamanders have been found in upland habitats various distances from aquatic breeding habitats. In a trapping study in Contra Costa County, California tiger salamanders were trapped approximately 2,625 feet to 3,940 feet away from potential breeding habitat (Service 2004). During a mark and recapture study in the Upper Carmel River Valley, Monterey County, Trenham et al. (2001) observed California tiger salamanders dispersing up to 2,200 feet between breeding ponds between years. In research at Olcott Lake, Solano County, Trenham and Shaffer (2005) captured California tiger salamanders in traps installed 1,312 feet from the breeding pond.

Adults enter breeding ponds during fall and winter rains, typically from October through February (Storer 1925, Loredó and Van Vuren 1996, Trenham et al. 2000). Males migrate to the breeding ponds before females (Shaffer et al. 1993, Loredó and Van Vuren 1996, Trenham 1998). Males usually remain in the ponds for an average of about 6 to 8 weeks, while females stay for approximately 1 to 2 weeks. In dry years, both sexes may stay for shorter periods (Loredó and Van Vuren 1996, Trenham 1998).

Females attach their eggs singly or, in rare circumstances, in groups of two to four, to twigs, grass stems, vegetation, or debris in the water (Storer 1925). In ponds with little or no vegetation, females may attach eggs to objects, such as rocks and boards on the bottom (Jennings and Hayes 1994). In drought years, the seasonal pools may not form and the adults may not breed (Barry and Shaffer 1994). The eggs hatch in 10 to 14 days with newly hatched salamanders (larvae) ranging in size from 0.5 to 0.6 inch in total length (Petranka 1998). The larvae are aquatic. Each is yellowish gray in color and has a broad flat head, large, feathery external gills, and broad dorsal fins that extend well onto its back. The larvae feed on zooplankton, small crustaceans, and aquatic insects for about 6 weeks after hatching, after which they switch to larger prey (Anderson 1968). Larger larvae have been known to consume smaller tadpoles of Pacific treefrogs and California red-legged frogs (Anderson 1968). The larvae are among the top aquatic predators in the seasonal pool ecosystems.

The larval stage of the California tiger salamander usually lasts 3 to 6 months, because most seasonal ponds and pools dry up during the summer (Petranka 1998). Amphibian larvae must grow to a critical minimum body size before they can metamorphose (change into a different physical form) to the terrestrial stage (Wilbur and Collins 1973). Larvae collected near Stockton in the Central Valley during April varied from 1.9 to 2.3 inches in length (Storer 1925). Feaver (1971) found that larvae metamorphosed and left the breeding pools 60 to 94 days after the eggs had been laid, with larvae developing faster in smaller, more rapidly drying pools. The longer

Larry Bonner (8-8-12-F-24)

13

the inundation period, the larger the larvae and metamorphosed juveniles are able to grow, and the more likely they are to survive and reproduce (Pechmann et al. 2001). The larvae perish if a site dries before they complete metamorphosis (Feaver 1971). Pechmann et al. (2001) found a strong positive correlation between inundation period and total number of metamorphosing juvenile amphibians, including tiger salamanders.

Metamorphosed juveniles leave the breeding sites in the late spring or early summer. Like the adults, juveniles may emerge from these retreats to feed during nights of high relative humidity (Storer 1925, Shaffer et al. 1993) before settling in their selected upland sites for the dry, hot summer months. While most California tiger salamanders rely on rodent burrows for shelter, some individuals may utilize soil crevices as temporary shelter during upland migrations (Loredo et al. 1996). Mortality of juveniles during their first summer exceeds 50 percent (Trenham 1998). Emergence from upland habitat in hot, dry weather occasionally results in mass mortality of juveniles (Holland et al. 1990).

Lifetime reproductive success for California and other tiger salamanders is low. Trenham et al. (2000) found the average female bred 1.4 times over a lifetime, and produced 8.5 young that survived to metamorphosis, per reproductive effort. This resulted in approximately 12 metamorphic offspring over the lifetime of a female. Trenham et al. (2000) also reported that most California tiger salamanders in their study did not reach sexual maturity until 4 or 5 years old, and that less than 5 percent of juveniles survived to reach sexual maturity.

The California tiger salamander is threatened primarily by the destruction, degradation, and fragmentation of upland and aquatic habitats, primarily resulting from the conversion of these habitats by urban, commercial, and intensive agricultural activities (Service 2000, Service 2003, Service 2004). Additional threats to the species include hybridization with introduced non-native barred tiger salamanders (Service 2000, Service 2004), destructive rodent and mosquito control techniques (e.g., deep-ripping of burrow areas, use of fumigants/pesticides) (Service 2003), reduced survival due to the presence of mosquitofish (*Gambusia* spp.) and other nonnative aquatic species, and mortality on roads due to vehicles (Service 2000).

California red-legged frog

The California red-legged frog was federally listed as threatened on May 23, 1996 (Service 1996). A recovery plan was published by the Service in 2002 and critical habitat designated on April 13, 2006. On September 16, 2008, revised designation of critical habitat was proposed to modify critical habitat boundaries to better reflect lands containing essential features for the California red-legged frog (Service 2008). On April 28, 2009, an amended version of the proposed rule was reopened for comments to interested parties (Service 2009b). The final designation of critical habitat for the California red-legged frog was published on March 17, 2010 (Service 2010).

Until recently, the California red-legged frog was recognized as two conspecific subspecies, *Rana aurora aurora* and *Rana aurora draytonii*. Recent genetic analysis of the *Rana*

Larry Bonner (8-8-12-F-24)

14

auroraldraytonii complex has concluded that the two *Rana aurora* subspecies are in fact separate species (Shaffer et al. 2004, Frost et al. 2006, as cited in Service 2009b); this change in nomenclature was acknowledged in the final rule for revised designation of critical habitat for the California red-legged frog (Service 2010).

The California red-legged frog is the largest native frog in the western United States, ranging from 1.5 to 5.1 inches in length. The abdomen and hind legs of adults are largely red; the back is characterized by small black flecks and larger, irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers, and dorsolateral folds are prominent on the back. Tadpoles range from 0.6 to 3.1 inches in length and are dark brown and yellow with dark spots.

California red-legged frogs spend most of their lives in and near sheltered backwaters of ponds, marshes, springs, streams, and reservoirs. Deep pools with dense stands of overhanging willows and an intermixed fringe of cattails are considered optimal habitat. Eggs, larvae, transformed juveniles, and adults also have been found in ephemeral creeks and drainages and in ponds that do not have riparian vegetation. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting population numbers and distribution. Some California red-legged frogs have moved long distances overland between water sources during winter rains. Adult California red-legged frogs have been documented to move more than 2 miles in northern Santa Cruz County “without apparent regard to topography, vegetation type, or riparian corridors” (Bulger et al. 2003). Most of these overland movements occur at night. In another study conducted at the Point Reyes National Seashore and Golden Gate National Recreation Area in Marin County, radio tagged frogs often moved in a straight line between breeding and upland habitats up to 1.7 miles, again with no apparent regard to topography. Some of these frogs remained at breeding ponds all year, while others moved to non-breeding areas, even when the breeding sites retained water (Fellers and Kleeman 2007).

California red-legged frogs breed from November through March with earlier breeding records occurring in southern localities. California red-legged frogs are often prolific breeders, typically laying their eggs during or shortly after large rainfall events in late winter and early spring. Female California red-legged frogs deposit egg masses on emergent vegetation so that the masses float on the surface of the water. Egg masses contain about 2,000 to 5,000 moderate-sized (0.08 to 0.11 inch in diameter), dark reddish-brown eggs. Embryos hatch 6 to 14 days after fertilization. Larvae generally undergo metamorphosis 3.5 to 7 months after hatching, but some larvae overwinter and metamorphose after up to 13 months (Fellers et al. 2001). Tadpoles probably experience the highest mortality rates of all life stages, with less than 1 percent of eggs laid reaching metamorphosis. Sexual maturity normally is reached at 3 to 4 years of age. California red-legged frogs may live 8 to 12 years. Juveniles can be active diurnally and nocturnally, whereas adults are mainly nocturnal.

The diet of California red-legged frogs is highly variable. Invertebrates are the most common food items for adults, although vertebrates such as Pacific treefrogs (*Hyla regilla*) and California mice (*Peromyscus californicus*) can constitute over half of the prey mass eaten by larger frogs (Hayes and Tennant 1985). Larvae eat algae and detritus.

Larry Bonner (8-8-12-F-24)

15

The historical range of the California red-legged frog extended coastally from southern Mendocino County and inland from the vicinity of Redding, California, southward to northwestern Baja California, Mexico (Jennings and Hayes 1985, Storer 1925). The California red-legged frog has been extirpated or nearly extirpated from 70 percent of its former range. Historically, this subspecies was found throughout the Central Valley and Sierra Nevada foothills. California red-legged frogs have been documented in 46 counties in California, but now remain in only 238 streams or drainages in 31 counties in California and one region in Baja California, Mexico (Grismer 2002, Fidenci 2004, Smith and Krofta 2005, Service 2009b).

Over-harvesting, habitat loss, non-native species introduction, and urban encroachment are the primary factors that have negatively affected the California red-legged frog throughout its range (Jennings and Hayes 1985, Hayes and Jennings 1988). Ongoing causes of decline include direct habitat loss due to stream alteration and disturbance to wetland areas, indirect effects of expanding urbanization, and competition or predation from non-native species. Other causes of declines in amphibian species have been studied by Davidson et al. (2001). Results indicate that ozone depletion resulting in an increase in ultraviolet radiation is a potential factor of amphibian decline. In addition, upwind pesticides and/or other chemicals used for agricultural purposes have been identified as factors in a number of declining California amphibians.

An additional threat affecting amphibians worldwide is the chytrid fungus *Batrachochytrium dendrobatidis*. *Batrachochytrium dendrobatidis* causes chytridiomycosis, a skin disease that has been found to disrupt osmoregulatory function in the skin of amphibians, resulting in an imbalance of electrolytes and death (Voyles et al. 2009). Chytridiomycosis in amphibians may be marked by deformed mouthparts in tadpoles, wherein most infected tadpoles will die at metamorphosis (Service 2002). Infected boreal toads (*Bufo boreas boreas*) showed few clinical signs of the disease but many appeared weak or lethargic, exhibited excessive shedding of skin and were reluctant to flee at the approach of humans (U.S. Geological Service 2000, as cited in Service 2002). Chytrid fungi are widespread in the environment where they act as decomposers of keratin, chitin, cellulose, and other plant material, and are known parasites of fungi, algae, higher plants, protozoa, invertebrates, and most recently in vertebrates. Chytrid fungi reproduce asexually by means of minute, fragile, motile spores, and are probably spread directly from amphibian to amphibian in water. These fungi most likely move from one water source to another on migrating amphibians, water birds, or flying insects (Daszak et al. 1999 as cited in Service 2002).

Since its discovery in 1998, chytrid fungus has likely been responsible for die-offs of a number of amphibian species, including remaining populations of the endangered boreal toad in the southern Rocky Mountains, and Chiricahua leopard frogs (*Rana chiricahuensis*) in Arizona (Colorado Herpetological Society 2000, as cited in Service 2002). Occurrences of infection have been observed in two amphibian species in the Sierra Nevada, the mountain yellow-legged frog (*Rana muscosa*) and the Yosemite toad (*Bufo canorus*). An infected California red-legged frog tadpole was collected in Calabasas Pond on the Ellicott Slough National Wildlife Refuge in Santa Cruz County (Service 2002).

Larry Bonner (8-8-12-F-24)

16

The chytrid fungus *Batrachochytrium dendrobatidis* is now recognized for its ability to spread quickly through amphibian populations and infect numerous species, causing high rates of mortality, and persisting at low host densities (Voyles et al. 2009). These recent findings validate the importance of taking precautions to prevent the spread of chytrid fungus or any disease agent into and/or between amphibian populations.

ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) of the Act define the “action area” as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 *Code of Federal Regulations* 402.02). For the purposes of this biological opinion, and based on the information provided by Caltrans, we consider the action area to include SR 156 from 0.18 mile east of SR 156/183 separation to the Route 101/SR 156 separation and on Route 101 from 0.1 mile north of Pesante Road to 0.2 mile north of Messick Road. The action area also includes all areas where people and equipment would be working, aquatic habitats adjacent to the project area that may receive sediments or contaminants as a result of the project, and any areas where Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs may be translocated. The delineated project area boundary consists of approximately 2,368.87 acres (see Appendix A for a map of the project area).

Santa Cruz long-toed salamander

The action area is occupied by the Santa Cruz long-toed salamander. Protocol surveys were conducted in 2010-2011 by biologist Bryan Mori; these surveys identified the presence of Santa Cruz long-toed salamanders in the south arm of Moro Cojo Slough at the western portion of the project south of SR 156. Bryan Mori (pers. comm. 2011) stated that during installation of the drift fencing for surveys in 2010-2011, the landowner planted intensive agriculture in what previously constituted a ruderal field surrounding aquatic habitat of the slough. The intensive agriculture planting effectively eliminated suitable upland habitat for the Santa Cruz long-toed salamander surrounding the aquatic habitat of the southern arm of Moro Cojo Slough. It is expected that the species is primarily relegated to the remaining riparian and aquatic habitat on this parcel; although, the species likely also occurs in adjacent agriculture/farmlands.

California tiger salamander

The action area is occupied by the California tiger salamander. Potential breeding aquatic habitat occurs north and south of the project at several locations. Surveys conducted by Bryan Mori in 2006, 2007, 2010, and 2011 confirmed the presence of the species north and south of the western portion of the project and at two locations south of and at the eastern portion of the project. In addition, several aquatic features (sediment basins, irrigation ponds, seasonal pools, etc.) exist within dispersal distance of the project that were not surveyed due to access restrictions. In general, the study area provides marginal upland habitat for California tiger salamanders largely due to the highly fragmented nature of the landscape as a result of

Larry Bonner (8-8-12-F-24)

17

agriculture, residential development, and SR 156. However, California tiger salamanders could occur in remnant patches of grassland and oak woodlands, ruderal fields, and fallow agricultural fields. Therefore, it is presumed that the species could occur in suitable aquatic and upland habitat throughout the action area.

California red-legged frog

The action area is occupied by the California red-legged frog. California red-legged frogs are known to occur both south and north of existing SR 156 (CDFG 2012) and the entire action area is within dispersal distance of known occurrences. The action area contains suitable habitat throughout the project length in areas dominated by wetlands, drainages, riparian, and oak woodlands. Therefore, it is presumed that the species could occur in suitable aquatic and upland habitat throughout the action area.

EFFECTS OF THE ACTION

All Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs that occur in the action area could be adversely affected by project activities. Movement of construction equipment, grading, clearing, vegetation removal, construction, stockpiling activities, and use of other work areas, could result in harm or harassment to federally listed amphibians caused by disturbance from work activities and mortality or injury from crushing by equipment or vehicles and worker foot traffic. Noise and vibration may cause Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs to leave the work areas; this disturbance and displacement may increase the potential for predation, desiccation, competition for food and shelter, or strike by vehicles. These effects would be avoided or minimized by (1) presence of a Service-approved biological monitor during construction who will oversee implementation of appropriate avoidance and minimization measures, including capture and relocation of individuals as necessary; (2) placement of Environmentally Sensitive Area fencing around the subject species habitat; (3) minimizing potential impacts from crushing and trampling by foot and vehicle traffic by clearly marking access routes and boundaries of work areas; and (4) restricting work activities in potential habitat to the dry season; however, there is a possibility that work activities may adversely affect these species if they are present in work areas and not detected before construction commences, and/or if an unseasonable rain event occurs and frogs and salamanders migrate through the project area.

Activities within potential aquatic habitat for federally listed amphibians (including construction, dredging, filling, draining, installation of water control structures, etc.) could result in disturbance, death, or injury to Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs. These activities are likely to have effects similar to those described above for grading, construction, and vegetation management. Draining is likely to displace adults and juveniles (with resultant exposure to predation and desiccation) and could kill eggs and larvae if done when those life stages are present. Caltrans' proposal to conduct preconstruction surveys for listed amphibians and to screen any pumps used in aquatic habitat draining should reduce the adverse effects of these activities.

Larry Bonner (8-8-12-F-24)

18

Use of Environmentally Sensitive Area fencing could inadvertently harass, harm, or kill Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs if they are attempting to disperse and their movements are restricted by the fencing, if they attempt to climb the fencing and are injured, or if they attempt to move through the fence and become entangled in the material or are able to enter the work area. The use of fencing to exclude frogs and salamanders may also increase the potential for predation and/or desiccation if they are trapped by the barrier and cannot disperse to find cover. These effects would be minimized by having a Service-approved biologist or biological monitor survey the project area prior to construction activities each day.

Uninformed workers could disturb, injure, or kill Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs. The potential for this to occur would be minimized by providing an informational training session for all construction personnel prior to beginning work at the project site.

Trash left during or after vegetation clearance activities may attract predators to work sites, which could, in turn, prey on federally listed amphibians. For example, raccoons (*Procyon lotor*), coyotes (*Canis latrans*), and feral cats (*Felis catus*) are attracted to trash and also prey opportunistically on Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs.

Accidental spills of hazardous materials or careless fueling or oiling of vehicles or equipment and/or runoff from construction activities could degrade water quality or upland habitat to a degree where federally listed amphibians are harmed or killed. These impacts would be minimized by: (1) ensuring that construction equipment and vehicles operated in the action area are checked and maintained daily to prevent leaks of fuel, lubricants, or other fluids, and (2) development of an approved Hazardous Materials Spill Prevention Plan before starting any construction activities.

During erosion control activities, application of certain netting materials, such as plastic monofilament netting, could harm, injure, or kill Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs as they can become entrapped in the material. Having the Service-approved biologist and/or biological monitor survey these areas each day will help prevent these effects.

Although survivorship for translocated Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs has not been estimated, survivorship of translocated wildlife, in general, is reduced due to intraspecific competition, lack of familiarity with the location of potential breeding, feeding, and sheltering habitats, and increased risk of predation. Observations of diseased and parasite-infected amphibians are now frequently reported. Releasing amphibians following a period of captivity, during which time they can be exposed to infections of disease agents, may cause an increased risk of mortality in wild populations. Amphibian pathogens and parasites can also be carried between habitats on the hands, footwear, or equipment of fieldworkers, which can spread them to localities containing

Larry Bonner (8-8-12-F-24)

19

species which have had little or no prior contact with such pathogens or parasites. Chytrid fungus can be spread through direct contact between aquatic animals and by a spore that can move short distances through the water. Infected animals may spread the fungal spores to other ponds and streams before they die. Once a pond has become infected with chytrid fungus, the fungus stays in the water for an undetermined amount of time. Relocation of individuals captured from the project area could contribute to the spread of chytrid fungus or other disease. In addition, infected equipment or footwear could introduce chytrid fungus into areas where it did not previously occur. ~~These effects will be reduced by having Service-approved biologists follow the Declining Amphibian Population Task Force's Code of Practice.~~

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. We are unaware of any non-Federal actions that are reasonably certain to occur in the action area that would adversely affect the Santa Cruz long-toed salamander, California tiger salamander, and California red-legged frog.

CONCLUSION

After reviewing the current status of the Santa Cruz long-toed salamander, California tiger salamander, and California red-legged frog; the environmental baseline for the action area; the effects of the proposed project; and the cumulative effects, it is the Service's biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of the Santa Cruz long-toed salamander, California tiger salamander, or California red-legged frog. Our determination is based on the following:

1. Caltrans has proposed extensive protective measures as part of the project. These measures will avoid or reduce adverse effects of the project on the subject species and their habitat;
2. Caltrans has proposed to enhance the existing SR 156 by constructing amphibian barriers at Moro Cojo Slough to reduce the chance of Santa Cruz long-toed salamanders and California tiger salamanders being struck by vehicles;
3. Little effect on the number of California red-legged frogs and California tiger salamanders is expected because few individuals are likely to be killed or injured during project implementation and natural breeding and mortality are expected to mask any project effects;

Larry Bonner (8-8-12-F-24)

20

4. Little effect on the number of Santa Cruz long-toed salamanders is expected because only a small area of aquatic and upland habitat would be permanently degraded and any effects would likely be countered by future recolonization of the project site; and,
5. Little to no effect on the distribution of Santa Cruz long-toed salamanders, California tiger salamanders, and California red-legged frogs are expected because only small proportion of the subject species home ranges would be permanently affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary and Caltrans must include them as binding conditions of any contracts associated with the proposed action, for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans fails to require its contractors to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to its authorization, or contracts, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

The Service anticipates all California red-legged frogs, California tiger salamanders, and Santa Cruz long-toed salamanders in the action area would be subject to take as a result of project activities. Take would occur in the form of capture during relocation activities and in the form of harassment, harm, injury, or death as a result of construction activities, if they are accidentally injured during capture and relocation, are unable to be collected for relocation and remain in active construction areas.

Incidental take of California red-legged frogs, California tiger salamanders, and Santa Cruz long-toed salamanders will be difficult to detect because of their small body size and use of aquatic habitat and dense cover; therefore, finding a dead or injured specimen may be unlikely.

Larry Bonner (8-8-12-F-24)

21

California red-legged frogs, California tiger salamanders, or Santa Cruz long-toed salamanders injured or killed during translocation efforts are likely to be observed; however, mortality from other sources, including the indirect effects of translocation, would be difficult to observe. The observed number of California red-legged frogs, California tiger salamanders, and Santa Cruz long-toed salamanders taken may be lower than the actual number taken.

~~This biological opinion does not exempt any activity from the prohibitions against take contained in section 9 of the Act that is not incidental to the action as described in this biological opinion.~~
Take that occurs outside of the action area or from any activity not described in this biological opinion is not exempted from the prohibitions against take described in section 9 of the Act.

Only forms of take that are incidental to implementation of projects are exempted from the prohibitions described in section 9 of the Act. If the amount or extent of incidental take is exceeded, the exemption issued pursuant to section 7(o)(2) will have lapsed and any further take would be a violation of section 4(d) or 9. Consequently, we recommend that any operations causing such take cease pending reinitiation.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize incidental take of the California tiger salamander, California red-legged frog and Santa Cruz long-toed salamander:

1. Caltrans must ensure that the level of incidental take during project implementation is commensurate with the analysis contained in this biological opinion.
2. Biologists must be authorized by the Service before they survey for, capture, and move California red-legged frogs, California tiger salamanders, or Santa Cruz long-toed salamanders in the action area.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Corps and Caltrans must comply with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:
 - a. The maximum amount of incidental take of Santa Cruz long-toed salamanders in the form of injury or mortality that may occur as a result of the project is as follows: one adult or juvenile, zero larvae, and zero egg masses. The maximum amount of incidental take of California tiger salamanders in the form of injury or mortality that may occur as a result of project activities is as follows: three adults or juveniles, three larvae, and zero egg masses. The maximum amount of

Larry Bonner (8-8-12-F-24)

22

incidental take of California red-legged frogs in the form of injury or mortality that may occur as a result of project activities is estimated as follows: three adults or juveniles, five tadpoles, and zero egg masses. If the incidental take limit for any of the subject species is reached, Caltrans must contact our office immediately so we can review the project activities to determine if additional protective measures are needed. The cause of death or injury must be determined, the maximum extent practicable, by a Service-approved biologist.

- b. A Service-approved biologist/biological monitor must conduct pre-construction surveys daily (within the active project area) prior to any project activities beginning to ensure no federally listed species occur within the work area.

2. The following term and condition implements reasonable and prudent measure 2:

A Service-approved biologist must survey all potential California red-legged frog, California tiger salamander, and Santa Cruz long-toed salamander habitat within the project area prior to the start of construction, to confirm that no protected species are located within the project site. If any individuals are located, they must be moved out of harm's way to the nearest appropriate habitat. The request for biologist approval must be in writing and be received by us at least 15 days prior to any such activities being conducted.

REPORTING REQUIREMENTS

Caltrans must provide a written report to the Service within 90 days following completion of the proposed project. The report must also state the number of California red-legged frogs, California tiger salamanders, and Santa Cruz long-toed salamanders killed or injured, describing the circumstances of the mortalities or injuries if known. The report must contain a brief discussion of any problems encountered in implementing minimization measures, results of biological surveys and sighting records, and any other pertinent information such as the acreage affected and restored or undergoing restoration of each habitat type.

DISPOSITION OF DEAD OR INJURED SPECIMENS

Within 3 days of locating a dead or injured California red-legged frog, California tiger salamander, or Santa Cruz long-toed salamander Caltrans must notify the Ventura Fish and Wildlife Office in writing and by telephone (2493 Portola Road, Suite B, Ventura, California 93003, (805) 644-1766). The report must include the date, time, location of the carcass, a photograph, cause of death, if known, and any other pertinent information.

Care must be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. Should any injured California red-legged frogs, California tiger salamanders, or Santa Cruz long-toed salamanders survive, the Service must be contacted regarding their final disposition. The remains of California red-legged frogs, California tiger

Larry Bonner (8-8-12-F-24)

23

salamanders, and Santa Cruz long-toed salamanders must be placed with the California Academy of Sciences Herpetology Department (Contact: Jens Vindum, Department of Herpetology, California Academy of Sciences, 875 Howard Street, San Francisco, California, 94103, (415) 321-8289). Caltrans must make arrangements regarding proper disposition of potential museum specimens with the California Academy of Sciences prior to implementation of any actions.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service requests notification of any conservation recommendations implemented so we may be kept informed of actions that minimize or avoid adverse effects or benefit federally listed species and/or their habitats.

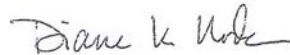
Caltrans should continue to coordinate with the Service early in the design phase of their projects and work with us to design and include wildlife undercrossings and/or amphibian barriers into their projects where these structures could provide a benefit to federally endangered and threatened species.

REINITIATION NOTICE

This concludes formal consultation on the proposed State Route 156 West Corridor Improvement Project as described. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions, please contact Chad Mitcham of my staff at (831) 768-7794.

Sincerely,



Diane K. Noda
Field Supervisor

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Appendix A. Map of proposed project area.



List of Technical Studies that are Bound Separately

Final Relocation Impact Statement |
Growth Inducement Report
Air Quality Report
Noise Study Report
Water Quality Report
Natural Environment Study
Location Hydraulic Study
Hazardous Waste Reports
 • Initial Site Assessment
 • Preliminary Site Investigation
 • Asbestos and Lead-Containing Paint Survey |
Scenic Resource Evaluation/Visual Assessment
Traffic Analysis
Initial Paleontology Study
Community Impact Assessment