South Coast 101 HOV Lanes Project

Santa Barbara County, California
05-SB-101-PM 1.4 to 12.3
05-0N7000
Project ID# 0500000225
SCH# 2009051018

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

Prepared by the
State of California Department of Transportation

Volume I of IV

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 California Department of Transportation under its assumption of responsibility pursuant to 23 U.S. Code 327.

August 2014

Caltrans

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 with Finding of No Significant Impact, which examines the potential environmental impacts of alternatives being considered for this project in Santa Barbara County, California. The document describes the project proposal, 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 March 23, 2012 to July 9, 2012. Comments were received from the public during this circulation period. The comments and Caltrans' responses to those comments are provided in Appendix M of this document, located in Volume IV.

Elsewhere throughout this document, a vertical line in the right margin of the page indicates a content change made since the draft document circulation. Minor editorial changes and clarifications have not been so indicated. This information supersedes and/or clarifies information contained in the Draft Environmental Impact Report/Environmental Assessment.

Project website:

http://www.dot.ca.gov/dist05/projects/sb_101hov/index.html

Hardcopies of the four volumes of this Final Environmental Impact Report/Environmental Assessment along with the associated technical studies can be found at:

- Caltrans district office at 50 Higuera Street, San Luis Obispo, CA 93401

Hardcopies of the four volumes of this Final Environmental Impact Report/Environmental Assessment along with a CD containing the associated technical studies can be found at these libraries:

- Santa Barbara City Central Library (40 E. Anapamu Street)
- Santa Barbara Eastside Library (1102 E. Montecito Street in Santa Barbara)
- East Montecito Branch Library (1469 E. Valley Road in Montecito)
- Carpinteria City Library (5141 Carpinteria Avenue in Carpinteria)

There are four volumes that total more than 1,600 pages. Maps contained in Volume III measure 11 inches by 17 inches. The document can be viewed electronically on the project website or by requesting a CD. As noted above, hardcopies of the final environmental document can be found at the specified libraries and offices. Lastly, a copy can be requested by contacting: Jason Wilkinson at (805) 542-4663.

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: Jason Wilkinson, Environmental Analysis, 50 Higuera Street, San Luis Obispo, CA 93401; (805) 542-4663 Voice, or use California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2922 (Voice) or 711.

SCH# 2009051018
05-SB-101-1.4/12.3
EA 0N7000
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Widen U.S. 101 to three lanes in each direction from 0.22 mile south of the Bailard Avenue overcrossing in the City of Carpinteria to Sycamore Creek in the City of Santa Barbara (post miles 1.4 to 12.3)

FINAL ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL ASSESSMENT WITH FINDING OF NO SIGNFICANT IMPACT

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

8/26/14
Date of Approval

Timothy M. Gubbins
District Director
California Department of Transportation
NEPA and CEQA Lead Agency

The following Caltrans employee may be contacted for additional information on this document:

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California Department of Transportation

Finding of No Significant Impact

for

South Coast 101 HOV Lanes Project

The California Department of Transportation (Caltrans) has determined that Alternative 1 with the F Modified configuration for the Cabrillo Boulevard/Hot Springs Road Interchange 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.

Notwithstanding any other provision of law, a claim arising under federal law seeking judicial review of the permit, license or approval issued by a federal agency for a highway or public transportation project shall be barred unless it is filed within 180 days after publication of a notice in the Federal Register announcing that the permit, license, or approval is final pursuant to the law under which agency action is taken, unless a shorter time is specified in the federal law pursuant to which judicial review is allowed.

8/26/14

Date

Timothy M. Gubbins
District Director

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Summary

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

Overview of Project Area

U.S. 101 is a regional freeway that extends from the Los Angeles basin through Northern California and plays a large role in the state economy by serving as a secondary route to Interstate 5. The proposed project covers more than 10 miles of U.S. 101 from the City of Carpinteria (post mile 1.4) to the southern portion of the City of Santa Barbara (post mile 12.3). In addition to these two cities, the project runs through the unincorporated area of Toro Canyon and the communities of Summerland and Montecito in Santa Barbara County.

In the project limits, U.S. 101 is two lanes of traffic in each direction with an intermittently landscaped median. Each travel lane is predominantly 12 feet wide; the outside shoulder is generally 8 feet wide, and the inside shoulder is generally 5 feet wide. The existing median varies in width from 26 feet in Montecito to 150 feet in the City of Santa Barbara at the Cabrillo Boulevard interchange. The existing side slopes vary from 1.5:1 to 4:1. Right-of-way width varies from 96 feet to 380 feet.

Just north of the project limits, U.S. 101 has three lanes of traffic in each direction. Three lanes exist in the northbound direction beginning at the Cabrillo Boulevard on-ramp in the City of Santa Barbara, and three lanes exist in the southbound direction ending just south of the Cabrillo Boulevard undercrossing. Upon completion of the Ventura/Santa Barbara 101 High Occupancy Vehicle Project (expected by late 2015), three lanes in each direction will exist from the City of Ventura to the Carpinteria Creek Bridge.

Purpose

The purpose of the project is the following:

- Reduce congestion and delay.
- Provide capacity for future travel demand.
- Improve travel time on U.S. 101 within the project limits.
- Provide for high occupancy vehicle (HOV) lane continuity on U.S. 101 in southern Santa Barbara County, as planned for in the 2040 Regional Transportation Plan and Sustainable Communities Strategy updated in 2013.

- Encourage a modal shift to transit and carpooling.

To achieve the project goals in 2040, on typical weekdays[1] this project should do the following:

- Reduce corridor delay by at least 7,000 person-hours daily.[2]
- Reduce peak hour peak direction travel time on U.S. 101 in the project area for carpoolers and express bus riders by 25 percent or more on average.

Need

U.S. 101 is the main route for commuters, interregional traffic, and cargo throughout the South Coast area. U.S. 101 serves as the primary connection for vehicle travel between the communities of Goleta, Santa Barbara, Montecito, Summerland, and Carpinteria. It is a major interregional road as part of the national highway system, connecting Northern California and Southern California. U.S. 101 also plays a large role in the state economy by serving as a secondary route to Interstate 5. Local highway travelers rely on U.S. 101 for commuting purposes as well as for travel related to school, personal use, business and leisure. Employment is concentrated at the northern end of the corridor in and near the cities of Santa Barbara and Goleta. The University of California Santa Barbara campus, near Goleta, also attracts a large number of vehicles during the peak commute periods.

The project limits consist of a high-demand stretch of U.S. 101 that is a four-lane section bounded by a six-lane section to the north and the Ventura/Santa Barbara 101 HOV project to the south. Currently under construction and expected to be completed late 2015, the Ventura/Santa Barbara 101 HOV project is the second phase of the U.S. 101 widening plan for the South Coast area. This project is adding a high occupancy vehicle lane in each direction from Ventura County to the southern limits of the South Coast 101 HOV Lanes project. The completion of the South Coast 101 HOV Lanes project would provide six lanes from the City of Ventura through the City of Goleta.

Motorists on U.S. 101 through the project limits experience traffic congestion during the morning and afternoon peak travel periods. Currently, peak travel periods occur for two to four hours daily in each direction. According to the Forecast Operations

[1] Performance measures were derived from *101 In Motion*, sponsored by Santa Barbara County Association of Governments—a consensus package of solutions that address the growing congestion problem along the U.S. 101 corridor in Santa Barbara County (adopted October 2005).
[2] Delay is a measure of time "lost" per person due to travel in congested conditions. Delay occurs on U.S. 101 when vehicles travel at speeds below 55 miles per hour. Total person hours of delay are calculated by multiplying the amount of time lost per person per day during peak hours by the number of vehicles traveling during the congested peak periods.

Report prepared as part of the South Coast 101 HOV Traffic Studies, by 2040, peak travel periods are expected to increase to 11 hours each day. For through-travelers from Ventura to Northern Santa Barbara and beyond, this area would continue to act as a bottleneck without the project.

Proposed Action

Caltrans proposes to modify U.S. 101 to provide a part-time, continuous access HOV lane in each direction on U.S. 101 extending from Carpinteria Creek in the City of Carpinteria to Cabrillo Boulevard in the City of Santa Barbara. The project begins 0.22 mile south of the Bailard Avenue overcrossing (post mile 1.4) in the City of Carpinteria and extends to the southern portion of the City of Santa Barbara (post mile 12.3) near Sycamore Creek.

Four alternatives were under consideration, including the No-Build Alternative. Alternative 1 was selected as the preferred alternative along with the F Modified configuration for the Cabrillo Boulevard/Hot Springs Road interchange. This decision by Caltrans and the Project Development Team was based on engineering and environmental analysis and considered comments from the public, community, government agencies, and elected officials. Project funding, schedule, right-of-way constraints, and project alternative feasibility were also taken into consideration. While all of the build alternatives would satisfy the purpose and need, Alternative 1 was developed to maximize opportunities to retain and enhance high-value resources including scenic views, wetlands and median/outside landscaping. Although Alternative 3 has the smallest construction footprint and slightly fewer impacts to wetlands, it would provide no opportunities for median landscaping. Alternative 2 has the greatest opportunity for median planting, but would have a larger footprint and greater impacts to wetlands and other waters.

The project would be separated into phases for construction based on funding and permit process. It is expected that the total duration for construction would be approximately 10 years.

Five changes were made to Alternative 1 (preferred alternative) since the Draft Environmental Impact Report/Environmental Assessment was released:

1) By using a single median barrier instead of retaining enough room for a planted median from South Padaro Lane to the Carpinteria Marsh (post miles 4.7 to 5.3), the originally proposed retaining wall in this area is no longer needed, making it more compatible with the County of Santa Barbara's proposal for Santa Claus Lane parking and beach access.

2) The construction footprint would be reduced by narrowing the inside shoulder width in the northbound direction in the vicinity of the Via Real Redeposited Midden.

3) A realignment and separation will be accommodated in the northbound and southbound mainlines at the Sheffield Drive interchange (post miles 8.9 to 9.1) to provide a wider median. The new alignment was in response to comments from local agencies that expressed the desire for keeping a wider median, if possible. The change requires two additional retaining walls along the southbound mainline shoulder edge.

4) The proposed structural section for the highway is currently proposed to be continuously reinforced concrete pavement instead of asphalt concrete pavement, which could improve noise attenuation and extends the service life (from the previous estimate of 20 years) to 40 years.

5) The Cabrillo Boulevard Interchange F Modified configuration is to be revised to have a lane added to Cabrillo Boulevard between the northbound and southbound ramp connections to provide for two eastbound lanes. The originally proposed median will be shifted north one lane width to provide for a continuation of two eastbound lanes to the roundabout. There will be only one Cabrillo Boulevard westbound right-turn lane into the northbound on-ramp instead of two.

In addition to the above noted changes, the Project Development Team recommended removal of certain soundwalls due to blockage of prime ocean views and the addition of several soundwall segments that were initially found to not be financially reasonable when evaluated as longer walls. These smaller segments were near areas of dense residential development and were found to be financially reasonable when broken into smaller length segments. Also, Federal Emergency Management Agency (FEMA) floodway mapping was revised after a resident (in the vicinity of Oak and Romero creeks) applied for a Letter of Map Revision, which was approved by FEMA on December 4, 2012. The revised mapping allowed for extending a portion of soundwall S464 to the revised floodway limit provided design features are added to avoid raising base flood elevations. Refer to Section 2.2.7 (Noise) and Figures 2.21 to 2.31 (Recommended Soundwalls) for more information. Soundwall recommendations are identical for all three build alternatives.

Refer to Section 1.3.5 for details on Alternative 1 (preferred alternative), which includes the F Modified configuration for Cabrillo Boulevard/Hot Springs Road.

Each build alternative would also do the following:

- Add pavement width in each direction on U.S. 101 to provide for a six-lane facility within the project limits.
- Add a part-time, continuous-access HOV lane in each direction on U.S. 101 extending from Carpinteria Creek in the City of Carpinteria to Cabrillo Boulevard in the City of Santa Barbara.
- Improve the southbound shoulder ditches near the Bailard Avenue interchange to provide graded, flat-bottom swales to be used for storm water treatment.
- Replace bridge structures at Arroyo Paredon (Parida), Toro Canyon, Romero (Picay), Oak, and San Ysidro creeks.
- Widen bridge structures at Franklin and Santa Monica creeks.
- Widen traffic undercrossing structures at South Padaro Lane and Evans Avenue.
- Build a southbound auxiliary lane (for merging) between the Sheffield Drive on-ramp and the Evans Avenue off-ramp.
- Reconstruct the highway to remove a localized rise in the roadway north of Sheffield Drive near the Romero (Picay) Creek bridge that causes drivers to have somewhat limited visibility of the freeway ahead of them. The freeway profile would be lowered a maximum of 2 feet to flatten the roadway.
- Reconstruct the interchange at Sheffield Drive, including reconfiguring the southbound highway lanes and ramps. Note that a change to the interchange was made for Alternative 1 (preferred alternative).
- Provide median landscaping from 0.4 of a mile south of Carpinteria Creek to 0.3 of a mile south of Carpinteria Creek (this is the only spot where median planting is common to all build alternatives).
- Install replacement planting.
- Build new retaining walls (the total number varies by alternative and Cabrillo Boulevard interchange configuration).
- Build soundwalls for noise abatement where appropriate.
- Provide a noise-attenuating pavement surface on all mainline travel lanes on U.S. 101 within the project limits where HOV lanes are added. The current proposal is for continuously reinforced concrete pavement. Because pavement strategies are evolving, the final decision regarding type of treatment would be determined during the design phase.

- Relocate utilities as needed.
- Lengthen cross culverts to accommodate additional pavement width.
- Build maintenance vehicle pullout areas: Alternative 1 (preferred alternative)—11 pullouts; Alternative 2—21 pullouts; Alternative 3—1 pullout).
- Incorporate permanent storm water treatment Best Management Practices, with an emphasis on vegetated bio-filtration type Temporary Best Management Practices.
- Incorporate measures that will preserve the pre-construction runoff rates.

The differences in the alternatives are listed below:

Alternative 1 (preferred alternative) proposes selective inside and outside widening within available right-of-way. This alternative was developed to maximize opportunities to retain and enhance high-value resources including scenic views, wetlands and median/outside landscaping.

Alternative 2 widens to the outside in many areas to maximize available areas for median landscaping.

Alternative 3 widens to the inside throughout, which would have meant building all new paved lanes within the existing available median.

The No-Build Alternative would not see any changes take place to the existing highway configuration.

A number of design configurations for the Cabrillo Boulevard interchange were also evaluated for consideration. The other alternatives and related interchange configurations are addressed in Section 1.3.6, Alternatives Considered but Eliminated from Further Discussion.

Joint California Environmental Quality Act/National Environmental Policy Act Document

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration, so the project is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with 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 completion of the Final Environmental Impact Report/Environmental Assessment, findings were prepared, and a statement of overriding concerns was prepared. 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

In the draft environmental document, one table summarized all of the potential impacts resulting from project alternatives. However, in response to requests made during the public comment period, a second table was created to list potential impacts (under the California Environmental Quality Act) requiring mitigation measures. Please see Tables S.1 and S.2. In addition, see Appendix F in Volume II for the complete listing of minimization and/or mitigation measures.

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Table S.1 Summary of Potential Impacts from Alternatives

Potential Impact		Alternative 1 (Preferred Alternative)	Alternative 2	Alternative 3	No-Build Alternative
Land Use/ Local Coastal Plan (LCP)	**Consistency with City of Carpinteria General Plan/LCP**	The preferred alternative and other two build alternatives are potentially inconsistent with the Local Coastal Plans for both jurisdictions because the applicable plans contain no exception language for a required setback/buffer for wetlands. The setback requirement is 50 feet in urban areas and 100 feet in rural areas.			No conflict with buffer/setbacks, but may be in conflict with Circulation Elements in City of Carpinteria and County of Santa Barbara
	Consistency with County of Santa Barbara LCP				
Coastal Zone		Project limits are located entirely in the Coastal Zone. The project crosses three separate coastal jurisdictions. All alternatives require acquiring coastal development permits from three jurisdictions: Cities of Carpinteria and Santa Barbara, and County of Santa Barbara. In addition, County of Santa Barbara requires a Final Development Plan and the City of Carpinteria requires a Conditional Use Permit.			No Coastal Development Permits would be required.
Parks and Recreation		The project does not use any park or recreation areas, and it does not block access to these areas. As a result of decreased congestion, the project could improve access to recreation areas and facilities.			Access to park and recreation facilities would not be improved.
Growth		None of the alternatives would substantially induce population or commercial development beyond planned levels.			No impacts to growth inducement.
Community Character and Cohesion		None of the build alternatives would impact existing housing or community character.			Further degradation of local street operations due to diversion of through trips onto local street system.
Environmental Justice		Project would not displace any residents and would not have a disproportionate impact on minority or low-income populations.			No impacts
Utility/Emergency Services		Coordination between Caltrans and service providers would strive to ensure utility services are not disrupted. Preconstruction utility location would be required, in conjunction with service providers, to avoid disruption of any utility service. Before and during construction, all utilities in conflict with the proposed project would be relocated, avoided, or protected in place. A Traffic Management Plan would be developed prior to construction to avoid impacts to emergency service providers. All five Cabrillo Boulevard interchange configurations require work within the railroad right-of-way, but two configurations (F and F Modified) require a minimal amount compared to the three			The increased traffic congestion on U.S. 101 would result in longer response times for emergency services.

Potential Impact	Alternative 1 (Preferred Alternative)	Alternative 2	Alternative 3	No-Build Alternative
Utilities/Emergency Services continued	configurations (J, M, and M Modified) that require a full reconstruction of the interchange. Full interchange reconstruction would have required raising the rail line profile (approximately 4 feet) for half a mile and replacement of existing structures to provide hook ramps under the tracks with standard vertical clearances. The full interchange reconstruction would have required 36 months of lead time from Union Pacific Railroad and would cost approximately $50 million. With the F Modified configuration, approvals and permanent railroad easements require 12 months lead time.			
Traffic and Transportation/ Pedestrian and Bicycle Facilities	The project would reduce congestion through the corridor and encourage carpooling and public transportation with the introduction of HOV lanes. Certain intersections within the City of Santa Barbara may see increased traffic due to changes to traffic patterns that would occur as a result of the reconstructed Cabrillo Boulevard/Hot Springs interchange. Bicycle and pedestrian facilities would be maintained in areas where construction occurs.			Further degradation of local street operations due to diversion of through-trips onto the local street system could affect pedestrian and bicycle facilities. Freeway congestion would continue to worsen.
Geology/Soils/Seismic/ Topography	Liquefaction potential may be high in the project limits since this area contains groundwater at shallow depths, is underlain by unconsolidated or poorly consolidated alluvial soils, and there is a likelihood for strong ground-shaking due to nearby potentially active earthquakes in the area. The project design would incorporate Caltrans standards and construction methods to minimize risks associated with potential liquefaction hazards and strong ground shaking. Although new cut and fill slopes and embankments could Increase potential for erosion due to erodible materials that may underlie certain areas of the project, all new slopes would be excavated with slopes of 2:1 or flatter whenever feasible. If steeper slopes are considered, embankments would be built of select material that meet the geotechnical unit specifications.			No impacts
Hydrology and Floodplain	The project includes widening two bridges (Franklin and Santa Monica creeks) and replacing five bridges (Arroyo Paredon, Romero, San Ysidro, Oak, and Toro creeks). All bridges would be designed to improve flood flows over existing conditions. However, full capacity of the bridges at Arroyo Paredon, Romero, San Ysidro, and Oak creeks would not be used until flow capacity improvements are made by others up and downstream along the creeks. Four of the five bridges would be designed to handle a 100-year storm; Arroyo Paredon would be designed to meet a 25-year storm. The project avoids encroaching into two floodways by eliminating segments of two considered soundwalls. Soundwalls encroaching on other floodways would be designed to pass flood flows and not raise base flood elevations. The proposed improvements do not constitute a longitudinal encroachment on any of the identified floodplains.			Existing hydraulic structures that impede flood flow would remain.

Potential Impact	Alternative 1 (Preferred Alternative)	Alternative 2	Alternative 3	No-Build Alternative
Hazardous Waste/Materials	The Preliminary Site Investigation concluded that 11 of the 12 sites investigated are a low risk to the project. The only high risk site (an underground storage tank) was physically removed in May 2012. The Santa Barbara County Fire Department monitored the site and gave it a clearance.			No impacts
Air Quality	No long-term air quality impacts are anticipated from the proposed project.			Air quality may deteriorate as traffic congestion worsens.
Noise	Noise levels with the project are projected to increase between 0 and 3 decibels, which is not considered a significant impact under CEQA (a noise increase up to 3 decibels is not perceptible to the human ear). Per Caltrans and FHWA noise abatement protocol, 27 soundwalls were considered at locations throughout the project area. Since release of the draft environmental document several wall locations along the project length were reevaluated to determine whether any additional segments could meet the reasonable and feasibility criteria. A total of 14 soundwalls are currently recommended (note: soundwalls could be eliminated during soundwall voting and the coastal development process, both of which occur in the design phase). A noise-attenuating pavement surface would be applied in the project limits. Where severe receptors exist without a recommended soundwall, two abatement options are available—provide acoustical treatment for residences or coordinate with the affected property owner and others (County of Santa Barbara) to provide a soundwall off the state right-of-way, on county property.			No sound-attenuating measures would be constructed.
Invasive Species	Removal of arundo (giant reed grass) and other invasive plant species would occur when possible with the project.			Opportunity to remove arundo (giant reed grass) as part of this project would not occur.

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Table S.2 Summary of Major Potential Impacts from Alternatives with Mitigation/Minimization Measures*

Potential Impact	Alternative 1 (Preferred Alternative)	Alternative 2	Alternative 3	No-Build Alternative	Mitigation Measures for Potentially Significant Impacts*
Visual/Aesthetics	Implementation of the project would result in substantial visual changes throughout much of the highway corridor due to loss of vegetation, increased paving and potential soundwalls. Mitigation measures, combined with proposed project features such as replacement landscaping and aesthetic treatments to walls, would lessen the adverse visual change to the corridor. However, because of the inherent alteration of scale, increase of hard surface, and loss of vegetative character, substantial adverse visual impacts would remain.			No impacts	All soundwalls would receive aesthetic treatment such as texture and/or color along with vine plantings. Decisions for location and types of soundwalls would consider ocean views. Soundwalls determined to block prime ocean views were eliminated from the project. Visible features such as bridges, drainages, radar equipment would be treated to blend into the setting. Existing and new planting would offset some of the impacts to the visual quality of the corridor.
Cultural Resources	There is one prehistoric archaeological site, the Via Real Redeposited Midden (P-42-0039430), that has been determined eligible for listing in the National Register of Historic Places. Comprehensive studies conducted by Caltrans suggest that the National Register-eligible portion of the site is not only located below the level of proposed U.S. 101 construction, but is also located outside the State right- of-way—and therefore outside the Area of Direct Impact. Nevertheless, Caltrans deems it prudent to consider that there may be a potential for adverse effects if unidentified archaeological resources are present under the highway.			No impacts	The known site limits of the Via Real Redeposited Midden will be protected during construction by the establishment and enforcement of a physical barrier (an Environmentally Sensitive Area) and will be monitored by an archaeologist and Chumash representative during construction. In the unlikely event that previously unidentified archaeological resources are encountered during construction—either in the vicinity of the Via Real Redeposited Midden or at another project location—the Treatment and Data Recovery Plan appended to the June 2013 Programmatic Agreement will be implemented (see Section 2.1.7, Cultural Resources, and Appendix D, *State Historic Preservation Officer Correspondence*).
Paleontology	Because the project study area includes three geologic formations of concern, the project could have the potential to adversely affect paleontological resources that cannot be avoided.			No Impacts	If resources are found, mitigation would include proper paleontological monitoring, salvage, and data recovery. A Paleontological Mitigation Plan would be prepared.
Water Quality and Storm Water Runoff	Alternative 1 (preferred alternative) adds 42 acres of impervious surfaces to the project limits; less than 50% impervious surfaces totals. The maximum footprint evaluated (Alternative 2) would have added 52 acres of impervious surfaces, more than 50% impervious surfaces totals. There is potential for discharging pollutants into surface waters during construction. The project would include permanent storm water treatment facilities within the project limits with the overall goal of matching pre-project runoff rates. This goal would be accomplished by using a combination of best management practices and good landscaping practices. Minimization measures would also be incorporated into the project to avoid temporary and long-term impacts.			Existing storm water runoff would remain untreated.	Measures to avoid temporary and permanent impacts to water quality include selecting stormwater treatment best management practices that will minimize pollutant discharges to surface waters, minimize stormwater discharge rates and volumes, and recharge groundwater. Techniques include biofiltration swales and biofiltration strips to intercept overland flow. Storm water best management practices would be further developed during the design phase.
Natural Communities	Approximately 22 native hardwood trees and 19 arroyo willows would be removed from riparian areas. Up to 253 coastal live-oak trees would be removed from along the right-of-way. Impacts to these native oak trees would be offset by replacement planting within the project limits. Temporary and permanent Impacts to riparian vegetation would occur at four locations where creek bridges would be replaced with wider structures and two locations where bridges would be widened.			Riparian vegetation would continue to be routinely cleared for flood control maintenance. No oaks would be removed.	All remaining oaks and other native trees greater than 6 inches in diameter at breast height (DBH) would be delineated on plans. Prior to any ground-disturbing activities, Environmentally Sensitive Area fencing would be installed around the drip line of the trees to be protected. Where feasible, fencing would be established at least 5 feet from the drip line of these trees. Permanent impacts to riparian vegetation would be offset by replacement planting and enhancement using the following ratios: 3:1 for willows; 3:1 for coast live oaks and sycamores greater than 6 inches DBH; 1:1 for Monterey cypress and Monterey pines. At Greenwell Creek, permanent impacts to riparian vegetation would be offset by the enhancement of 0.145 acre of the creek, south of U.S. 101. Non-native plants would be removed from the streambanks in the work area. Bio-engineering techniques would be applied in and above the rock slope protection along the banks to reduce erosion and enhance riparian habitat available for wildlife. Where non-native invasive plants are removed from the work area and creek banks, these areas would be replanted with native riparian species (i.e., willow and sycamore).
Wetlands – Federal Jurisdiction (Army Corps of Engineers) **Wetlands - Coastal (one parameter)**	Temporary impacts : 0.082 acre Permanent impacts: 0.001 acre Temporary impacts : 0.369 acre	Temporary impacts: 0.077 acre Permanent impacts: 0.012 acre Temporary impacts: 0.383 acre	Temporary impacts: 0.082 acre Permanent impacts: 0.001 acre Temporary impacts: 0.369 acre	No impacts	Permanent impacts to wetlands would be compensated at a 3:1 ratio. Offsite mitigation is proposed in the Carpinteria Salt Marsh if total mitigation cannot occur onsite. Temporary impacts to wetlands, other waters, and riparian areas would be minimized by the use of Environmentally Sensitive Area fencing installed 12 feet from the work limits around wetlands and other waters. Any temporary impacts to plants/trees in the riparian areas would be mitigated by replanting and restoration efforts using a minimum of a 1:1 ratio to a maximum of a 3:1 ratio, depending on the plant species. Temporary impacts to

Potential Impact	Alternative 1 (Preferred Alternative)	Alternative 2	Alternative 3	No-Build Alternative	Mitigation Measures for Potentially Significant Impacts*
Wetlands - Coastal continued	Permanent impacts: 0.229 acre	Permanent impacts: 0.403 acre	Permanent impacts: 0.229 acre	No impacts	creeks would be re-graded, as needed, to reflect their pre-existing state.
Other Waters of the United States	Temporary impacts: 0.449 acre Permanent impacts: 0.249 acre	Temporary impacts: 0.470 acre Permanent impacts: 0.345 acre	Temporary impacts: 0.449 acre Permanent impacts: 0.249 acre	No impacts	All constructed roadside drainage features delineated as "other waters" removed during construction would be replaced in-kind. Temporary impacts to other waters would be restored to their pre-existing condition.
Threatened and Endangered Species	The project could affect the tidewater goby and critical habitat for the tidewater goby during bridge replacement at Arroyo Paredon Creek (identified as critical habitat for tidewater goby). Incidental take of the tidewater goby could occur during bridge construction. The project could affect steelhead trout and critical habitat for steelhead trout. Bridge replacement would occur at three creeks (Arroyo Paredon, Romero, and San Ysidro) that are designated critical habitat for steelhead trout. Incidental take of steelhead trout could occur during construction of the three bridges.			No impacts	<u>Tidewater goby</u>: All measures included in the U.S. Fish and Wildlife Service-issued Biological Opinion must be incorporated into the project. The construction work window for working within or next to Arroyo Paredon creek is June 1 to October 31 (low-flow period). Riparian vegetation removed during construction would be replanted at a 3:1 ratio. An existing stand of invasive arundo (giant reed grass) would be removed at Arroyo Paredon creek. <u>Steelhead trout:</u> All measures listed in the NOAA Fisheries-issued Biological Opinion (see Appendix H and Appendix F) must be incorporated into the project. The construction work window for working in steelhead critical habitat creeks is between June 1 and October 31 (low flow period).The project includes two permanent, beneficial effects at Arroyo Paredon Creek: 1) net gain of about 0.012 acre of creek bed and 2) widening the creek channel by 3 feet under the highway would decrease velocities at peak flows, improving conditions for migrating steelhead.
Construction Impacts	Construction impacts to water quality would be minimized by incorporating temporary best management practices (Section 2.4). There would be temporary increases in fugitive particulate matter as a result of soil disturbance and demolition activity. Construction equipment would be responsible for emitting ozone precursors. There is potential for noise and vibration impacts to occur during construction. With the addition of avoidance, minimization and mitigation measures, there would be no adverse impacts. It should be noted that although Caltrans standards minimize noise levels to the greatest extent possible, there are times where construction noise levels may exceed local noise thresholds due to the high probability for night work. Temporary impacts to wetlands, other waters and riparian areas would be minimized by the use of Environmentally Sensitive Area fencing installed 12 feet from the work limits around wetlands and other waters			No impacts	The required Storm Water Pollution Prevention Plan would address all the best management practices necessary to prevent water quality impacts during construction of the project. In addition, buffers (using Environmentally Sensitive Area fencing) from sensitive resources such as wetlands and riparian corridors would be established throughout the project area. Measures based on policies adopted in the1979 *Air Quality Action Plan for Santa Barbara County* to reduce dust would be implemented. Some of these measures are watering disturbed areas, using gravel pads, and covering stock piles. Measures would also be implemented to reduce exhaust, per the California Code of Regulations and regulatory agencies. These include limiting the number of vehicles in operation at one time, installing filters, and using electric equipment when feasible. Measures to reduce potential impacts for construction noise would be implemented. These include: not exceeding the Caltrans maximum threshold of 86 dBA for trucks/equipment passing at 50 feet, the use of mufflers, and development of a public outreach plan that keeps the public notified of the construction schedule and provides contacts for complaints. A Vibration Reduction Plan would be prepared to address potential effects of construction vibration. In all cases where properties fall within the established buffer zones, impacts from vibration would be avoided by using alternative construction methods near susceptible structures. Elsewhere, minimization measures to reduce the effects would be developed and included in the plan. Temporary impacts to wetlands, other waters and riparian areas would be minimized by the use of Environmentally Sensitive Area fencing installed 12 feet from the work limits around wetlands and other waters. Any temporary impacts to plants/trees in riparian areas would be mitigated by replanting and restoration efforts from a minimum 1:1 ratio, up to a 3:1 ratio.

Potential Impact	Alternative 1 (Preferred Alternative)	Alternative 2	Alternative 3	No-Build Alternative	Mitigation Measures for Potentially Significant Impacts*
Cumulative Impacts	The project would contribute substantial direct and/or indirect cumulative impacts to the visual resources/aesthetics in the U.S.101 corridor and surrounding areas. Direct and indirect Impacts to traffic circulation, water quality, and biological resources will also contribute to cumulative impacts, but will be mitigated below the level of significance.			No impacts	Refer to measures specified for impacts to Traffic and Transportation/Pedestrian and Bicycle Facilities, Visual/Aesthetics, Water Quality and Storm Water Runoff, and Biological Resources - Wetlands, Tidewater Goby, and Steelhead.

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Coordination with Other Agencies

The following permits are required for this project to move forward:

- Coastal Development Permits are needed from the cities of Carpinteria and Santa Barbara and the County of Santa Barbara. All three permits are under authority of the California Coastal Commission. In addition, a Local Coastal Plan Amendment will be required for the City of Carpinteria and the County of Santa Barbara.
- The Santa Barbara County Comprehensive Plan states that all proposed development for areas where there are views from U.S. 101 to the ocean shall require Board of Architectural Review.
- A Biological Opinion and Conference Opinion from the U.S. Fish and Wildlife Service for the tidewater goby and proposed critical habitat was issued on August 6, 2012 (see Appendix H). A conference opinion is a mechanism used by the U.S. Fish and Wildlife Service to address potential impacts to proposed critical habitat under Section 7 consultation (Arroyo Paredon Creek was proposed critical habitat). Once the critical habitat unit is formally designated, the Service can issue confirmation of a conference opinion and biological opinion. Following the formal designation of revised critical habitat for Arroyo Paredon Creek on February 6, 2013, the U.S. Fish and Wildlife Service issued Caltrans confirmation of the Conference Opinion and Biological Opinion on August 26, 2013.
- A Biological Opinion from the National Oceanic and Atmospheric Administration National Marine Fisheries Service for endangered steelhead trout and designated critical habitat was issued on September 30, 2013 (see Appendix H).
- A Section 404 permit is needed from the U.S. Army Corps of Engineers.
- A 1602 Streambed Alteration permit is needed from the California Department of Fish and Wildlife for work in Franklin, Santa Monica, Arroyo Paredon, Toro Canyon, Greenwell, Romero, San Ysidro and Oak creeks.
- A Section 401 Certification is needed from the Regional Water Quality Control Board.
- A Railroad Agreement is required for any encroachments that occur during work associated with constructing the Cabrillo Boulevard/Hot Springs interchange. With identification of the F Modified configuration for the Cabrillo interchange, minimal roadway modifications are needed within the railroad right-of-way; a temporary permit is required for retaining walls for the ramps near the right-of-way line for both the Cabrillo Boulevard/Hot Springs Road and Sheffield interchanges.

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List of Abbreviated Terms

Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
dBA	A-weighted decibels, the measurement of noise that best represents human perception
EA	Environmental Assessment (federal environmental document/NEPA compliance) and also used as Expenditure Authorization a Caltrans billing/project tracking code
FHWA	Federal Highway Administration
HOV lane	high occupancy vehicle lane
LOSSAN	Los Angeles-San Diego-San Luis Obispo Rail Corridor Agency North Strategic Plan
ml	milliliters
MPN	most probable number
NEPA	National Environmental Policy Act
PM	post mile
PM10	particulate matter less than 10 microns in diameter (one micron is equal to one millionth of a meter)
PM2.5	particulate matter less than 2.5 microns in diameter, considered to be fine particulate matter (one micron is equal to one-millionth of meter)
SBCAG	Santa Barbara County Association of Governments

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) proposes to build high occupancy vehicle (HOV) lanes, also called carpool lanes, on U.S. 101 from 0.2 mile south of Bailard Avenue (post mile 1.4) in the City of Carpinteria to Sycamore Creek (post mile 12.3) in the City of Santa Barbara. Caltrans is the lead agency for the project under the National Environmental Policy Act and the California Environmental Quality Act.

Three build alternatives and a No-Build Alternative have been considered for this project. Each build alternative would add a single HOV lane in both the northbound and southbound directions and rebuild interchanges at Sheffield Drive and Cabrillo Boulevard. The HOV lanes would be reserved for qualifying vehicles during morning and afternoon peak hours of operation each weekday. Qualifying vehicles include those containing two or more people, motorcycles and certain zero-emission vehicles. Outside of the specified peak hours, the HOV lanes would be open to any vehicles.

The proposed project is a joint project by Caltrans and the Federal Highway Administration, along with local partners Santa Barbara County Association of Governments (SBCAG), the Cities of Santa Barbara and Carpinteria, and the County of Santa Barbara. This project is included in the Santa Barbara County Association of Governments 2040 Regional Transportation Plan and Sustainable Communities Strategy, adopted August 15, 2013. The Regional Transportation Plan is a comprehensive, long-range transportation planning document that identifies a 20-year plan of regional transportation needs, goals, and projects that guide public policy decisions on transportation expenditures and financing. The South Coast 101 HOV Lanes project is listed within the financially constrained list of projects in Appendix E-E.1 (under Measure “A” Projects) of the 2040 Regional Transportation Plan and Sustainable Communities Strategy. The project is also included in the 2013 Federal Transportation Improvement Program (FTIP). The Federal Transportation Improvement Program, which is prepared and approved by the SBCAG, identifies all short-term and regionally significant projects that would include federal transportation funding in the coming years. The program of projects identified in the 2013 SBCAG Federal Transportation Improvement Program was incorporated into the Federal Statewide Transportation Improvement Program and subsequently approved by the Federal Highway Administration.

Measure “A” is an additional funding source that was approved by 79 percent of the voters in November 2008. The Measure “A” program will fund over $1 billion in transportation improvement projects in Santa Barbara County. This includes $140 million toward construction of the South Coast 101 HOV Lanes project.

Background

The plan for widening U.S. 101 from four lanes to six lanes from the Ventura County line to Goleta was initiated in 1965. Since then, several segments of the highway have been upgraded in both the city and county of Santa Barbara. In 1988, the six-lane section between Mission Creek and Goleta was completed. In 1992, within the City of Santa Barbara, the Cross Town Freeway project in the vicinity of Chapala Street to Milpas Street removed the last intersections on the route that had traffic signals. In March 1993, Caltrans released a draft environmental document that analyzed the addition of one lane in each direction between the Ventura County line and Milpas Street in the City of Santa Barbara. The widening plan was met with substantial community opposition. A common criticism of the plan was that there were other transportation alternatives, including rail, that were overlooked in the process of moving the expanded highway option forward. Another criticism was that the Caltrans process lacked adequate community outreach. The environmental document was shelved, and the “six-lane” project was suspended.

A series of studies sponsored by the SBCAG, including the U.S. 101 Alternatives Study (1995) and the South Coast U.S. 101 Deficiency Plan (2002), assessed options for relieving congestion in the corridor without the need for freeway widening. The South Coast U.S. 101 Deficiency Plan identified the problems on the highway and proposed short-term strategies aimed at improving transit, managing travel demand, and providing transportation system enhancements.

As a result of the U.S. 101 Deficiency Plan (2002), the SBCAG and the local cities adopted 34 short-term projects aimed at correcting operational deficiencies on both U.S. 101 and adjacent roads. The plan acknowledged that these improvements would not address long-term freeway congestion and that further action on a communitywide basis would be required to address the projected increases in traffic volumes along the corridor. One of the actions required from the U.S. 101 Deficiency Plan was to develop an implementation plan for the adopted projects. The 101 Implementation Plan began in 2004 and evolved into what is now known as *101 In Motion*.

Completed by the SBCAG in July 2006, the two-year corridor study took a multi-modal approach and involved extensive community outreach to develop a vision for long-term mobility along the U.S. 101 corridor. Recommendations by the Steering Committee, Stakeholders Advisory Committee, and Technical Advisory Group for implementation arising out of the *101 In Motion* process included a number of strategies, but the main recommendation to address commuter and goods movement needs was "add a lane and a train" strategy between the Ventura County line and the City of Santa Barbara. The lane portion of the strategy was for the addition of a new lane in each direction, to be defined as an HOV lane. The train portion of the strategy included the development of "commuter friendly" passenger rail service on the Union Pacific Railroad tracks between Oxnard and Goleta. Other elements to improve operations and facilities as needs shift to transit and carpooling were also included. The *101 In Motion* consensus recommendations were approved unanimously by the SBCAG board in October 2005. The consensus recommendations were also approved by the local jurisdictions.

The overall *101 In Motion* consensus package consists of five elements that, together, would implement a multi-modal strategy to accommodate future travel demand while facilitating a modal shift to carpooling, transit, and passenger rail. Without implementation of these elements, *101 In Motion* projected that Level of Service F conditions would exceed 10 hours a day in each direction by 2030. Recommended elements in *101 In Motion* include the following:

- Add a lane and a train (a carpool/HOV lane and commuter rail service)
- Facilitate transit and carpool use
- Use demand management strategies
- Improve operations and communication
- Select operational improvements north of Milpas Street

Each of the five elements includes one or more individual improvements. Since the adoption of *101 In Motion* in 2006, efforts have been made to implement these elements. These efforts include progress in exploring options for commuter rail service, including the Los Angeles-Ventura-Santa Barbara-San Luis Obispo Rail Corridor Agency (LOSSAN) North Strategic Plan expansion of commuter express transit service, implementation of Intelligent Transportation Systems (ITS) solutions, and future U.S. 101 operational improvements.

The South Coast 101 HOV Lanes project is critical to the objective of the first element in the *101 In Motion* list to "add a lane." The South Coast 101 HOV Lanes project is one of four planned project segments that would "add a carpool/HOV lane in both directions south of Milpas Street to Ventura County Line" as stated in *101 In Motion*.

A four-phased approach to widening U.S. 101 began with the Milpas to Hot Springs Operational Improvement Project, completed in 2012 (refer to Figure 1-1). The project widened U.S. 101 from Milpas Street to the Hot Springs/Cabrillo interchange by adding a new northbound lane from the Cabrillo Boulevard on-ramp to the Milpas Street off-ramp and added a third southbound lane from Milpas Street to the Butterfly Lane Pedestrian undercrossing.

Another opportunity to fund a segment of the "add a lane" portion of the *101 In Motion* recommendation came as a result of Proposition 1B being passed by the California voters in 2006. Funding for key transportation corridors was approved, and Caltrans Districts 5 and 7, along with the SBCAG and the Ventura County Transportation Commission, joined efforts to seek funding for an HOV lane addition/facility widening project extending from Mussel Shoals (Ventura County) to Carpinteria Creek. This second phase of the U.S. 101 widening is currently under construction.

The third phase of U.S. 101 widening will occur in Carpinteria with the Linden Avenue and Casitas Pass Interchanges project, slated for construction in 2016. This project would improve operations on U.S. 101 by reconstructing two interchanges—Casitas Pass Road and Linden Avenue, replacing the Carpinteria Creek bridge, and widening to accommodate a third lane on U.S. 101 from Carpinteria Creek Bridge through the Casitas Pass interchange.

Proposition 1B also provided a one-time augmentation in state gas tax dollars, from which the SBCAG programmed environmental phase funding for the South Coast 101 HOV Lanes project. As discussed in this document and planned for in the 2040 Regional Transportation Plan and Sustainable Communities Strategy, the South Coast 101 HOV Lanes project will complete the fourth and final phase for widening U.S. 101 and provide HOV lane continuity in southern Santa Barbara County.

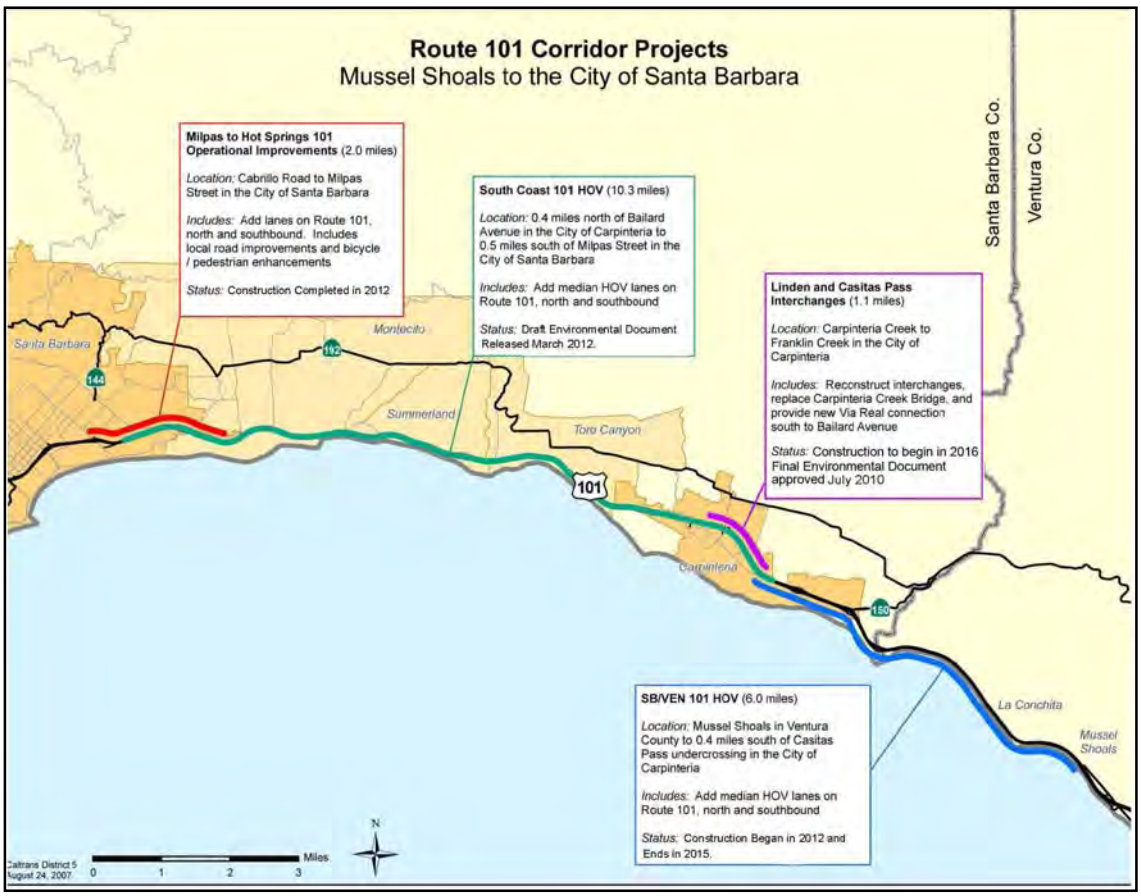


Figure 1-1 U.S. 101 Corridor Projects—Mussel Shoals to the City of Santa Barbara

Measure "A" was approved by 79 percent of the voters in November 2008. Literature promoting the local ballot measure featured the HOV lanes project as the one "off the top" project. The remaining funds were allocated based on a north county/south county split of projects. In total, the Measure "A" program will fund over $1 billion in transportation improvement projects in Santa Barbara County. This includes $140 million toward construction of the South Coast 101 HOV Lanes project in addition to funding for interregional transit, specialized transit for seniors/disabled, carpool and vanpool programs, commuter/passenger rail, and regional bicycle and pedestrian programs among others to meet the objectives established in *101 In Motion*.

The Measure "A" program contains separate priorities for projects and programs in the North County and South Coast that were established by the advisory committees in each of these regions. Within these programs, Measure "A" funds must be spent on projects included in an Investment Plan, which is consistent with the SBCAG Regional

Transportation Plan and developed through extensive public and stakeholder input. The SBCAG, led by a 13-member board, is responsible for administering these funds. Revenues for this program started being collected in April 2010 and will continue until 2040. Some $25 million from the South Coast Measure "A" Commuter and Passenger Rail Program will help fund the "add a train" objective of the "lane and a train" recommendation of *101 In Motion*. Additional funding will be sought from federal grant sources.

In 2008, the LOSSAN Rail Corridor Agency initiated a strategic assessment to develop options to better integrate rail service between San Diego and San Luis Obispo. The corridor was split for planning purposes, and the area between Los Angeles and San Luis Obispo was identified as LOSSAN North. Improving peak hour service between Ventura and Santa Barbara counties was identified as an early action item, which included a proposal to adjust the Pacific Surfliner schedule for two trains (#799 and #798). In February 2011, Metrolink determined that revising the Surfliner schedule was not operationally feasible due to the conflicts it would create with existing southbound Metrolink commuter trains between Ventura and Los Angeles. Other alternatives are currently being explored by representatives of the Santa Barbara County Association of Governments, Caltrans, Metrolink and Union Pacific.

At the same time, Caltrans and the Federal Railroad Administration are preparing a program-level environmental impact report/environmental impact statement for passenger rail improvements in the LOSSAN corridor between Los Angeles Union Station and San Luis Obispo. These environmental documents are required by the Federal Railroad Administration to be eligible for future federal construction funding for identified improvements. The draft environmental impact report and environmental impact statement for LOSSAN is scheduled for release in fall 2014.

The LOSSAN North passenger/commuter improvements include rail siding improvements at Ortega and Seacliff. In January 2010, Caltrans received $950,000 for the Ortega Siding project through a grant from the Federal Railroad Administration's High Speed and Intercity Passenger Rail Program/American Recovery and Reinvestment Act. This funding was matched with $250,000 in local Measure "A" Rail Program funds and will be used to fund preliminary engineering and environmental work to reestablish the Ortega siding, which was destroyed by storm damage in the 1990s. In October 2010, the Seacliff project was awarded $1.2 million in Passenger Rail Investment and Improvement Act funding for environmental clearance and preliminary engineering, which includes $250,000 in Santa Barbara County Measure "A" funds.

Over $18 million in State Transportation Improvement Program funding has become programmed for siding projects in Santa Barbara and Ventura counties, and the Ortega project and a siding extension and realignment project at Seacliff in Ventura County are primary candidates for the money. It should be noted that the proposed project would not conflict with the above siding projects. Although there is a section of railroad that would have needed to be elevated as part of three of the Cabrillo interchange configurations (Configurations J, M and M Modified), this work would have occurred in Santa Barbara between post miles 11.43 and 12.0. The Ortega Siding project, located in Summerland, would occur at approximately post mile 8.2, which is over 3 miles to the south.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of this project is the following:

- Reduce congestion and delay
- Provide capacity for future travel demand
- Improve travel time on U.S. 101 within the project limits
- Provide for high occupancy vehicle lane continuity on U.S. 101 in southern Santa Barbara County, as planned for in the 2040 Regional Transportation Plan and Sustainable Communities Strategy, adopted August 15, 2013
- Encourage a modal shift to transit and carpooling

To achieve the project goals in 2040, on typical weekdays[3] this project should meet the following performance measures:

- Reduce corridor delay by at least 7,000 person-hours daily[4]
- Reduce peak hour peak direction travel time on U.S. 101 in the project area for carpoolers and express bus riders by 25 percent or more on average

[3] Performance measures were derived from *101 In Motion.*

[4] Delay is a measure of time "lost" per person due to travel in congested conditions. Delay occurs on U.S. 101 when vehicles travel at speeds below 55 miles per hour. Total person hours of delay are calculated by multiplying the amount of time lost per person per day during peak hours by the number of vehicles traveling during the congested peak periods in the traffic study area.

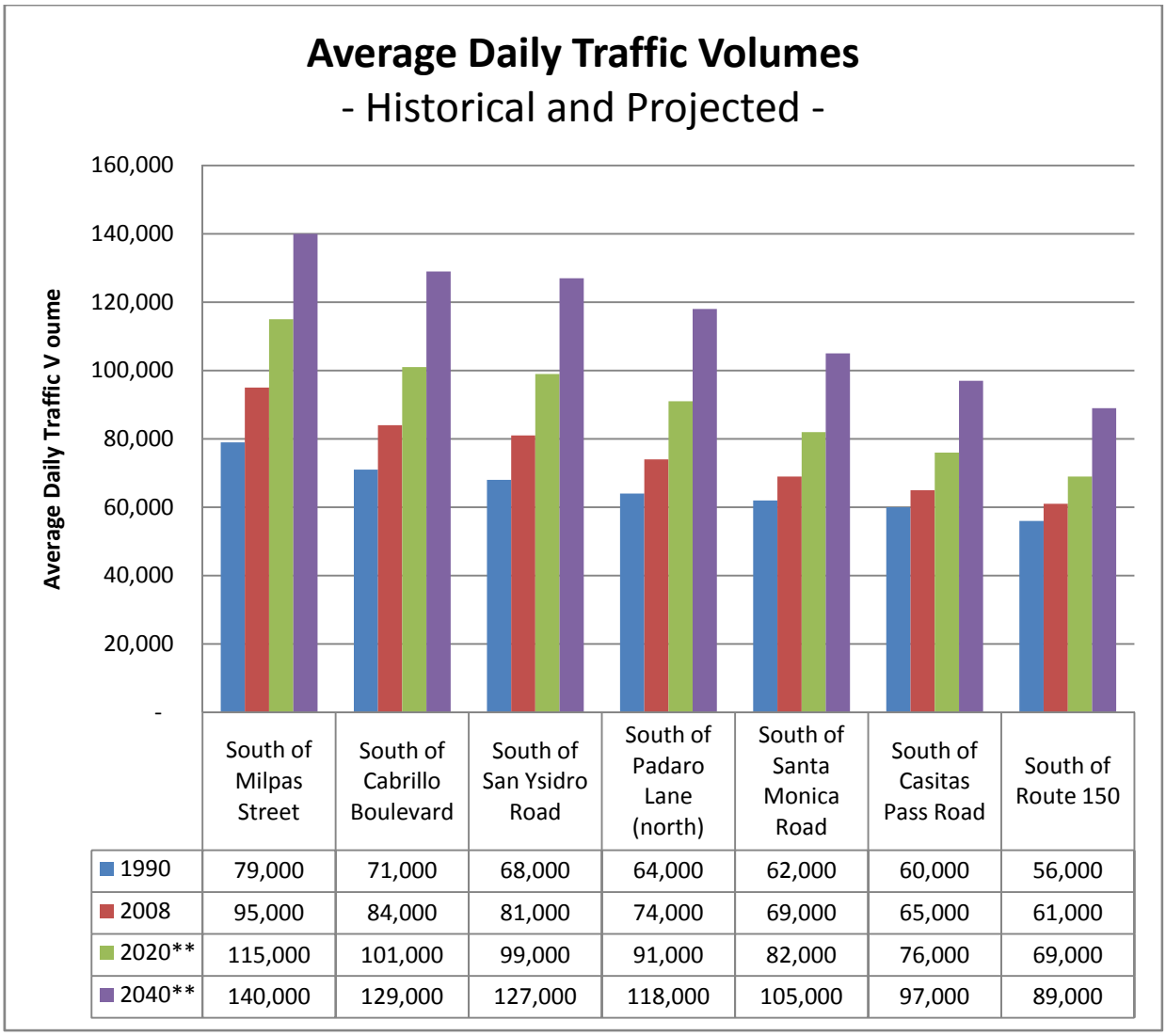
1.2.2 Need

U.S. 101 is the main route for commuters, interregional traffic, and cargo throughout the South Coast area. U.S. 101 serves as the primary connection for vehicle travel between the communities of Goleta, Santa Barbara, Montecito, Summerland, and Carpinteria. It is a major interregional road as part of the national highway system, connecting Northern California and Southern California. U.S. 101 also plays a large role in the state economy by serving as a secondary route to Interstate 5. Local highway travelers rely on U.S. 101 for commuting purposes as well as for travel related to school, personal use, business and leisure. Employment is concentrated at the northern end of the corridor in and near the cities of Santa Barbara and Goleta. The University of California Santa Barbara campus, near Goleta, also attracts a large number of vehicles during the peak commute periods.

The project limits consist of a high-demand stretch of U.S. 101 that is a four-lane section bounded by a six-lane section to the north and the Ventura/Santa Barbara 101 HOV project to the south. Currently under construction and expected to be completed in late 2015, the Ventura/Santa Barbara 101 HOV project is the second phase of the U.S. 101 widening plan for the South Coast area. The Ventura/Santa Barbara 101 HOV project is adding a high occupancy vehicle lane in each direction from Ventura County to the southern limits of the South Coast 101 HOV Lanes project. The completion of the South Coast 101 HOV Lanes project would provide six lanes from the City of Ventura through the City of Goleta (refer to Figure 1-1 for further clarification).

Current demand is exceeding the capacity of U.S. 101 during weekday and weekend peak travel periods. In 2008, average daily traffic counts within the project limits ranged from 65,000 to 95,000 vehicles. By 2020, average daily traffic counts on U.S. 101 are projected to increase by 17 to 21 percent over 2008 volumes. By 2040, the average daily traffic counts on U.S. 101 within the project limits are forecast to increase by 50 percent over 2008 levels. Figure 1-2 shows the growth in average daily traffic volumes within the project limits.

Currently on U.S. 101, traffic congestion occurs during morning and afternoon peak periods within the project limits. Traffic congestion lasts for 2 hours in the morning peak period and 2.5 hours in the afternoon peak period for a total of 4.5 hours of congestion each day. Without roadway improvements in the project limits, congested flow conditions during the peak travel periods are expected to increase to a total of 7.5 hours a day in 2020 and over 11 hours a day in 2040.



	South of Milpas Street	South of Cabrillo Boulevard	South of San Ysidro Road	South of Padaro Lane (north)	South of Santa Monica Road	South of Casitas Pass Road	South of Route 150
1990	79,000	71,000	68,000	64,000	62,000	60,000	56,000
2008	95,000	84,000	81,000	74,000	69,000	65,000	61,000
2020**	115,000	101,000	99,000	91,000	82,000	76,000	69,000
2040**	140,000	129,000	127,000	118,000	105,000	97,000	89,000

* *2008 year volumes are based on counts obtained as part of the project.*
** *2020 and 2040 volumes reflect forecasted corridor travel demand.*

Figure 1-2 U.S. 101 Corridor Traffic Volume Summary

Table 1.1 shows forecasted travel conditions in 2020 and 2040 without the proposed South Coast 101 HOV lanes project. This forecast assumes that other approved highway projects such as the Milpas to Hot Springs improvement project and the Ventura/Santa Barbara 101 HOV project, as well as Measure "A" funded improvements, have been built.

Table 1.1 Forecast Travel Conditions on U.S. 101 (No-Build Alternative)

Category	2008	2020	2040
Duration of Congested Conditions*	4.5 hours	7.5 hours	11 hours
Delay—Vehicle Hours (per day)**	2,280	6,000	18,400
Delay—Person Hours (per day)**	3,050	8,400	25,700

Notes:
** At one or more locations associated with conditions within the project limits*
*** For trips traveling between the Ventura County line and Northern Goleta (post miles 0.0 to 27.5)*
Person delay is based on observed average vehicle occupancy of 1.27 people northbound in the morning and and 1.29 southbound in the afternoon multiplied by the number of vehicle hours of delay.

The expected rise in traffic volumes, congestion, and delay results from several factors, including increased long-distance commuting from Ventura County; internal population growth, which is forecast to rise 10 percent by 2020 in Santa Barbara County (Santa Barbara County Association of Governments Regional Growth Forecast, 2007); and interregional traffic growth, including goods movement. Without improvements on U.S. 101 in the project limits, vehicle-hour delay on U.S. 101 in the corridor is expected to exceed 6,000 vehicle hours total per day in 2020. By 2040, the delay would exceed 18,000 vehicle hours per day (see Table 1.1). Vehicle delay is calculated based on the length of time it takes for a vehicle to complete a travel trip.

In addition to population growth, long-distance commuting has escalated. The SBCAG "2007 Commute Profile" indicates that, although 92 percent of Santa Barbara County commuters both live and work in Santa Barbara County, 10 percent of respondents reported moving a farther distance from work in the past four years in order to obtain more affordable housing. This trend has contributed to an increased number of people commuting from Ventura County to Santa Barbara County. Although recent gas prices have contributed to a decrease in single-occupied vehicles as more people begin to carpool, use mass transit, or walk and bike, the reduction in traffic congestion is not noticeable during the peak travel periods. The coastal location, natural amenities, and temperate weather have also made this area a popular tourist destination, resulting in temporary traffic increases on weekends and during the summer months.

Ongoing congestion on U.S. 101 creates a spillover effect on the adjacent local street system as some drivers try to avoid the congestion by using the local street system for through trips. This in turn affects local street travel conditions for local transit, bicycle, pedestrian, and vehicle users. As travel demands grow in this corridor over time,

without improvements to address through traffic needs on U.S. 101, this effect on the local street system travel will continue to increase.

Traffic count data were collected to measure vehicle counts on a typical weekday to determine when the northbound and southbound peak traffic periods occur. Traffic counts were taken on a Thursday in March 2008. (Note: It was important to complete traffic counts prior to start of construction of the Milpas to Hot Springs Operational Improvement project on U.S. 101.) The results are shown in Figure 1-3 below. The study concluded the northbound peak morning period is 6:00 a.m. to 8:00 a.m., and the southbound peak afternoon period is 3:00 p.m. to 5:00 p.m., as shown in Figure 1-3.

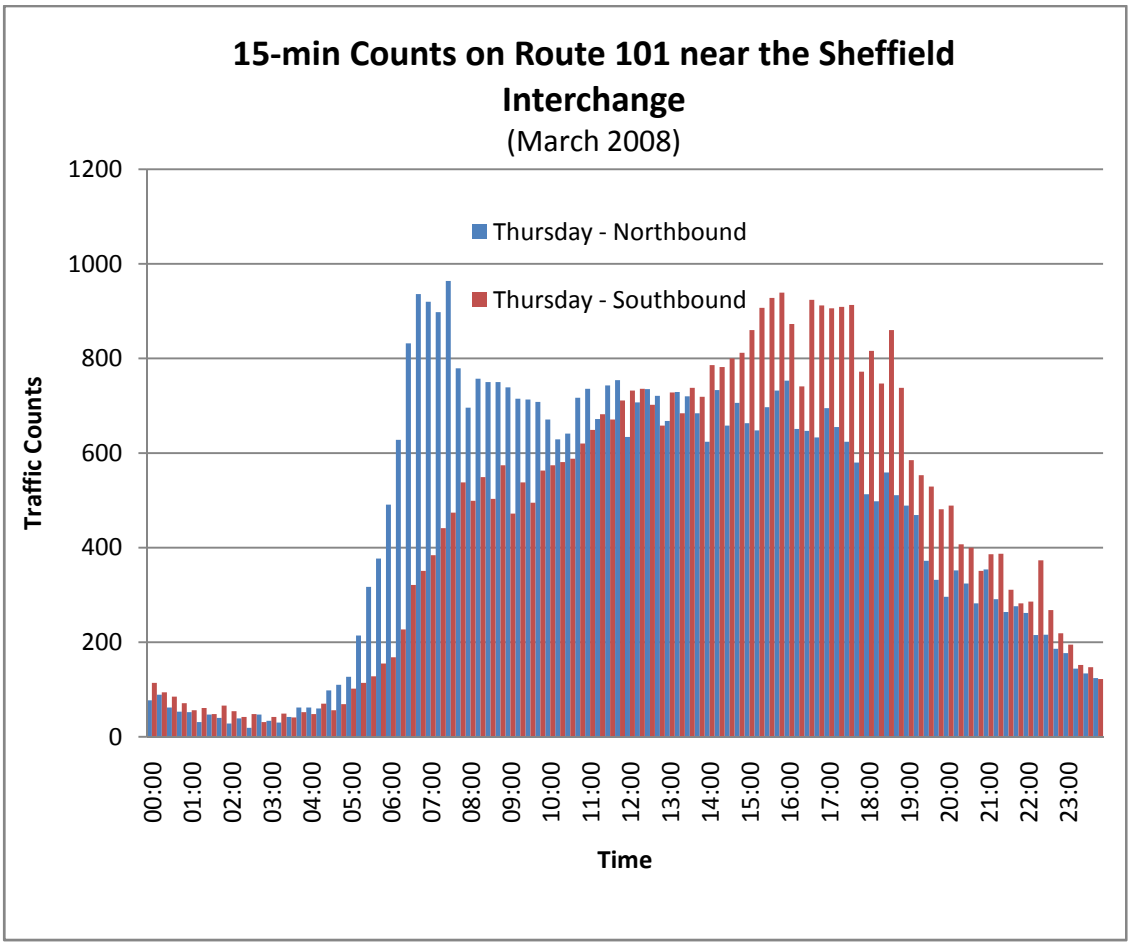


Figure 1-3 Distribution of Daily Traffic on U.S. 101 in the Project Limits

1.3 Alternatives

The Project Development Team (Caltrans staff, together with representatives from the Santa Barbara County Association of Governments, City of Santa Barbara, Santa Barbara County, and City of Carpinteria) considered many alternatives in determining how best to accommodate an HOV lane in both the northbound and southbound directions on U.S.101. The team met over the course of two years to analyze the opportunities as well as the physical barriers (including the railroad, ocean, and existing development) of such a project. The project was designed to conform with standards that apply to lane and shoulder width, ramp slopes, and other safety-related features. A number of design exceptions were approved to minimize impacts as part of the project, where adequate justification existed for approval.

The project proposes widening U.S. 101 (where necessary) from four lanes to six lanes (three lanes in each direction) from 0.22 mile south of Bailard Avenue (post mile 1.4) in the City of Carpinteria to Sycamore Creek (post mile 12.3) in the City of Santa Barbara (see Figures 1-4 and 1-5). Each build alternative would add a part-time HOV lane in both the northbound and southbound direction from Carpinteria Creek in the City of Carpinteria to Cabrillo Boulevard in the City of Santa Barbara. To accommodate the new lanes, two interchanges—Sheffield Drive and Cabrillo Boulevard/Hot Springs Road—would need to be reconstructed. Three build alternatives and a No-Build Alternative were considered (see Figures 1-4 and 1-5).

1.3.1 Build Alternatives

Three build alternatives—Alternatives 1, 2, and 3—and a No-Build Alternative were considered for this project. Alternative 1 (the preferred alternative) would widen to the median in some locations and widen to the outside in other locations to balance impacts to resources such as wetlands and mature vegetation located both in the median and on the shoulder. Alternative 2 would widen to the outside to maximize available areas for median landscaping. Alternative 3 would widen to the inside, which means building all new paved lanes within the existing available median. All build alternatives would be built mainly within the existing public right-of-way with only slight variations between the three. All build alternatives would satisfy the project goals, be cost effective, and have minimal encroachments beyond the state right-of-way. The minimal encroachments are necessary for temporary construction easements and permanent subsurface footing easements for walls. The three build alternatives would result in a part-time HOV lane in each direction within the project limits. A number of design configurations for the Cabrillo Boulevard interchange were also evaluated.

Projected costs for each build alternative vary and depend on which configuration is selected for the Cabrillo Boulevard interchange. Anticipated costs for the alternatives with the various Cabrillo Boulevard interchange configurations range from $285 million to $325 million. The preferred alternative (Alternative 1) with the F Modified configuration for the Cabrillo Boulevard interchange is currently estimated to cost $302 million.

The Project Development Team recommended removal of some soundwalls due to blockage of prime ocean views and the addition of several soundwall segments that were initially found to not be financially reasonable when evaluated as longer walls. These shorter segments were located near areas of dense residential development and were found to be financially reasonable for shorter-length segments. Also, Federal Emergency Management Agency (FEMA) floodway mapping was revised after a resident (in the vicinity of Oak and Romero creeks) applied for a Letter of Map Revision, which was approved by FEMA on December 4, 2012. The revised mapping allowed for extending a portion of soundwall S464 to the revised floodway limit, provided design features are added to avoid raising base flood elevations. Refer to Section 2.2.7 (Noise) and Figures 2.21 to 2.31 (recommended soundwalls). Soundwall recommendations are the same for all three build alternatives.

Given the magnitude and length of the proposed project, it is anticipated that construction would be divided and carried out in separate contracts along separate road segments over a period of approximately 10 years. The timing and sequence of the phased construction are still unknown; these decisions will depend on factors such as available funding, other nearby highway construction projects, railroad involvement, utility relocation needs, and the Coastal Development Permit process.

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Figure 1-4 Project Vicinity Map

Figure 1-5 Project Location Map

Common Design Features of the Build Alternatives

Alternatives 1, 2, and 3 would include the following (see Appendix H):

- Add pavement width in each direction on U.S. 101 to provide for a six-lane facility within the project limits.
- Add a part-time, continuous access HOV lane in each direction on U.S. 101 extending from Carpinteria Creek in the City of Carpinteria to Cabrillo Boulevard in the City of Santa Barbara.
- Improve the southbound shoulder ditches near the Bailard Avenue interchange to provide graded, flat-bottom swales to be used for storm water treatment.
- Replace bridge structures at Arroyo Paredon (Parida), Toro Canyon, Romero (Picay), Oak, and San Ysidro creeks.
- Widen bridge structures at Franklin and Santa Monica creeks.
- Widen traffic undercrossing structures at South Padaro Lane and Evans Avenue.
- Build a southbound auxiliary lane between the Sheffield Drive on-ramp and the Evans Avenue off-ramp.
- Reconstruct the highway to remove a localized rise in the roadway north of Sheffield Drive near the Romero (Picay) Creek bridge that causes drivers to have somewhat limited visibility of the freeway ahead of them. The freeway profile would be lowered a maximum of 2 feet to flatten the roadway.
- Reconstruct the interchange at Sheffield Drive, including reconfiguring the southbound highway lanes and ramps. Note that a change to the interchange was made for Alternative 1 (preferred alternative).
- Rebuild the interchange at Cabrillo Boulevard/Hot Springs. Five configurations, as described later in this section, were considered for this interchange.
- Install traffic signals where warranted.
- Provide median landscaping from 0.4 mile south of Carpinteria Creek to 0.3 mile north of Carpinteria Creek (this is the only location where median planting is the same for all alternatives).
- Install replacement planting where appropriate.

- Build soundwalls for noise abatement where appropriate.
- Build retaining walls where necessary. Each alternative and interchange configuration differs on the number of walls proposed.
- Provide noise-attenuating pavement surfacing on all mainline travel lanes through the limits of the HOV improvements. The current proposal is to use continuously reinforced concrete instead of asphalt concrete pavement. Because pavement strategies are evolving, the final decision for type of treatment would be determined during the design phase.
- Relocate underground and aboveground utilities as needed.
- Lengthen cross culverts to accommodate additional pavement width.
- Build maintenance vehicle pullout areas.
- Incorporate permanent storm water treatment best management practices, with an emphasis on vegetated bio-filtration type best management practices
- Incorporate measures that preserve the pre-construction runoff rates.

Unique Design Features

Alternative 1 (Preferred Alternative)—Widen inside and outside (goal: balance impacts to inside and outside resources such as wetlands and mature vegetation)

- Selectively widen inside and outside within available right-of-way. This alternative was developed to maximize opportunities to retain and enhance high value resources including scenic views, wetlands and median/outside landscaping.
- Add median landscaping, where appropriate: from Carpinteria Creek to Linden Avenue; near the South Padaro Lane interchange; Nidever Road to Garapato Creek; and near the North Padaro Lane interchange.

Alternative 2—Widen to the outside (goal: maximize median planting)

- Add a lane to the outside to maximize median landscaping in the median where right-of-way is available.

- Provide median landscaping, where appropriate: from Carpinteria Creek to Reynolds Avenue; and from Santa Monica Road to the Evans Avenue interchange.
- Build three additional retaining walls to maximize median planting: one on the southbound shoulder at the right-of-way line ending at the Santa Claus Lane southbound on-ramp (500 feet in length); one on the northbound shoulder near Greenwell Creek (700 feet in length); and one on the northbound shoulder near the northbound off-ramp to Summerland (300 feet in length).

Alternative 3—Widen to the inside (goal: maximize retention of outside planting)

- Build all new paved lanes within the existing available median.
- Provide a single barrier in the median, separating the two inside paved shoulders, between Carpinteria Creek and Olive Mill Road. This largely retains the existing outside edge of pavement within these areas.

Cabrillo Boulevard Interchange

The Cabrillo Boulevard interchange would be rebuilt under all three build alternatives. Five mutually exclusive interchange configurations—F, F Modified, J, M, and M Modified—were considered under each of the three build alternatives. Two of the five configurations (F Modified and M Modified) would provide northbound access largely in the same way that it exists now with two northbound exits. One of the configurations would remove the off-ramp at Hermosillo Road (configuration M), and two configurations would consolidate the northbound off-ramp traffic at the Hermosillo Road off-ramp (configurations F and J). Each configuration is described below and shown in more detail with mapping in Figure 1-6 and Appendix H.

The estimated costs of the five Cabrillo Boulevard interchange configurations include all work from 0.1 mile south of the Hermosillo Road Exit (PM 10.9) to the northern project limit. The configuration costs are as follows: configuration F is about $40 million; configuration F Modified is about $45 million; configuration J is about $85 million; and configurations M and M Modified are each about $90 million. Interchange concepts that include railroad involvement (configurations J, M, and M Modified) are estimated to cost from $40 million to $50 million more than those that do not (configurations F and F Modified).

Configuration F—Existing Northbound Right-Side Ramps/Southbound Half Diamond

This configuration would do the following:

- Close both median off-ramps at Cabrillo Boulevard and the Los Patos Way off-ramp.
- Improve the northbound Hermosillo Drive off-ramp and the northbound Cabrillo Boulevard on-ramp.
- Acquire access control for 50 feet beyond the end of the southeast return of the reconstructed Hermosillo Road northbound off-ramp. Install access control fencing along the frontage of the existing gas station up to the first gas station driveway.
- Build new southbound on- and off- ramps to intersect at Cabrillo Boulevard immediately adjacent and to the right of the southbound freeway lanes.
- Install traffic signals when warranted at Hermosillo Road at Coast Village Road and at the Cabrillo Boulevard southbound ramps.
- Build a total of three retaining walls—two in the southbound direction at the outside shoulders of the southbound ramps and one at the outside shoulder of the northbound on-ramp.

Configuration F Modified—Northbound Half Diamond with Hermosillo Drive Off-Ramp and Southbound Half Diamond

This configuration would do the following:

- Close both median off-ramps at Cabrillo Boulevard and the Los Patos Way off-ramp.
- Add a northbound right-side off-ramp at Cabrillo Boulevard.
- Improve the northbound Cabrillo Boulevard on-ramp.
- Retain the northbound Hermosillo Drive off-ramp. No additional access control is necessary.
- Construct new southbound on- and off-ramps to intersect at Cabrillo Boulevard immediately adjacent and to the right of the southbound freeway lanes.
- Build a total of six retaining walls—two at the outside shoulders of the southbound ramps, two in the southbound direction between the mainline and

southbound ramps, one at the outside shoulder of the northbound on-ramp, and one in the northbound direction between the mainline and northbound off-ramp.

Configuration J—Existing Northbound Right-Side Ramps and Southbound Los Patos Ramps

This configuration would do the following:

- Close both median off-ramps at Cabrillo Boulevard.
- Improve the northbound Hermosillo Drive off-ramp and the northbound Cabrillo Boulevard on-ramp.
- Improve the southbound Los Patos Way off-ramp and add a new southbound Los Patos Way on-ramp.
- Install a traffic signal when warranted at the intersection of Hermosillo Road and Coast Village Road.
- Raise the existing railroad profile by about 4 feet for 0.67 mile to allow southbound ramps at Los Patos Way to have standard vertical clearance.
- The Hermosillo Drive off-ramp would require the placement of access control fencing up to the first gas station driveway. The Los Patos Way ramp would also require the placement of access control fencing for a distance of 170 feet (just before the maintenance gate at the Andrée Clark Bird Refuge).
- Build a total of six retaining walls—two at the outside shoulders of the southbound ramps, one in the southbound direction at the outside edge of shoulder south of Cabrillo Boulevard and one at the outside shoulder of the northbound on-ramp. Two additional retaining walls are required on the ocean side of the railroad right-of-way for the new railroad bridge location.

Configuration M—Northbound Half Diamond/Southbound Los Patos Ramps

This configuration would do the following:

- Close both median off-ramps at Cabrillo Boulevard and the northbound Hermosillo Drive off-ramp.
- Add a northbound Cabrillo Boulevard off-ramp and improve the northbound Cabrillo Boulevard on-ramp.
- Improve the southbound Los Patos Way off-ramp and add a new southbound Los Patos Way on-ramp. The Los Patos Way ramp would require the

placement of access control fencing for a distance of 170 feet (just before the maintenance gate at the Andrée Clark Bird Refuge).

- Raise the existing railroad profile by about 4 feet for 0.67 of a mile to allow southbound ramps at Los Patos Way to have standard vertical clearance.
- Install a traffic signal when warranted at the Cabrillo Boulevard northbound ramps.
- Build a total of seven retaining walls—two at the outside shoulders of the southbound ramps, one in the southbound direction at the outside edge of shoulder south of Cabrillo Boulevard, one at the outside shoulder of the northbound on-ramp, and one in the northbound direction between the main line and northbound off-ramp. Two additional retaining walls are required on the ocean side of the railroad right-of-way for the new railroad bridge location.
- No additional access control is necessary because the existing Hermosillo Road off-ramp would remain with no improvements.

Configuration M Modified—Northbound Half Diamond with Hermosillo Drive Off-Ramp and Southbound Los Patos Ramps

This configuration would do the following:

- Close both median off-ramps at Cabrillo Boulevard.
- Add a northbound right-side off-ramp at Cabrillo Boulevard and improve the northbound Cabrillo Boulevard on-ramp.
- Retain the northbound Hermosillo Drive off-ramp. No additional access control is necessary.
- Improve the southbound Los Patos Way off-ramp and add a new southbound Los Patos Way on-ramp.
- Raise the existing railroad profile by about 4 feet for 0.67 mile to allow southbound ramps at Los Patos Way to have standard vertical clearance.
- Build a total of seven retaining walls—two at the outside shoulders of the southbound ramps, one in the southbound direction at the outside edge of shoulder south of Cabrillo Boulevard, one at the outside shoulder of the northbound on-ramp, and one in the northbound direction between the main line and northbound off-ramp. Two additional retaining walls are required on the ocean side of the railroad right-of-way for the new railroad bridge location.

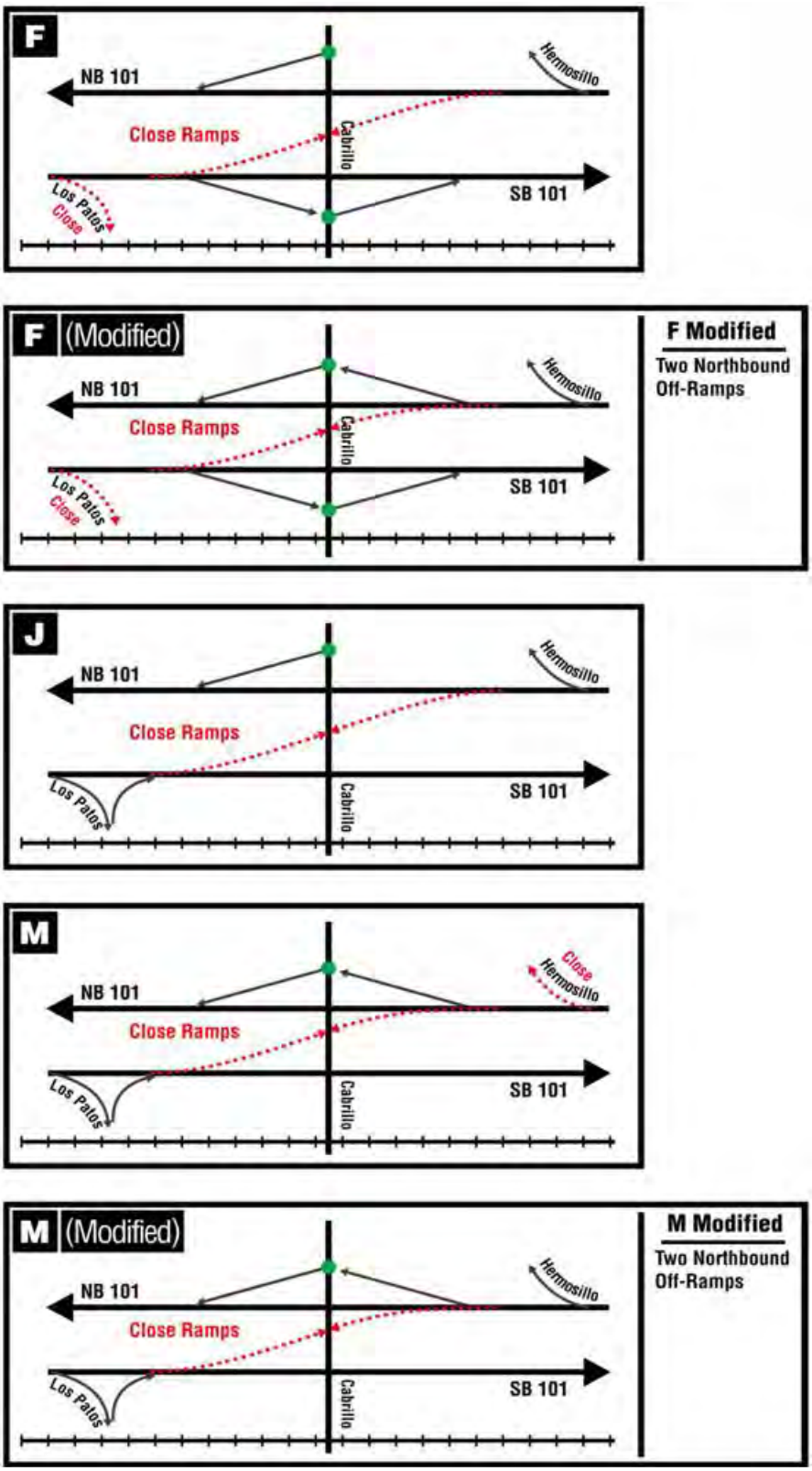

Figure 1-6 Schematic of 5 Configurations for the Proposed Cabrillo Boulevard Interchange

1.3.2 No-Build Alternative

The No-Build Alternative would not add HOV lanes to this stretch of highway and would not reduce congestion or encourage carpooling and transit. The interchanges and structures that are part of the proposed project would not be changed. No planting from the shoulders or median would be removed, and there would be no noise-attenuating pavement installed or noise barriers added. The No-Build Alternative would not provide continuity with the proposed Ventura/Santa Barbara HOV project to the south and the existing six-lane section of highway to the north.

1.3.3 Transportation System Management and Transportation Demand Management Alternative

All three build alternatives propose to use part-time continuous access, HOV lanes that would provide connectivity with the Ventura/Santa Barbara 101 HOV project, currently under construction. The Ventura/Santa Barbara 101 HOV project is adding 6 miles of part-time HOV lanes; the South Coast 101 HOV Lanes project would add another 9.5 miles. Both projects combined would add over 15 continuous miles of HOV lanes in each direction on U.S. 101 from northern Ventura County to southern Santa Barbara County.

North of the project limits, the highway consists of six lanes that extend through Goleta. No HOV lanes exist, however, and none are currently proposed. The project promotes increased multi-modal travel between Ventura County and southern Santa Barbara County. The project is consistent with the results of the *101 In Motion* study that concluded the HOV lane proposal would meet the established performance measures over other alternatives, such as rail options. No stand-alone rail components are included in the project as they are being addressed as part of the Los Angeles-San Diego-San Luis Obispo Rail Corridor Agency North proposal (also known as LOSSAN).

1.3.4 Comparison of Alternatives

Caltrans, with input from the City of Carpinteria, the City of Santa Barbara, the County of Santa Barbara, and the Santa Barbara County Association of Governments, developed a range of alternatives based on the project purpose and need, cost, and environmental considerations. Along with these factors, the team used the following list of guiding principles when developing the range of alternatives to be studied:

- Project design is to be compatible with existing community character while addressing user and maintenance worker safety.
- Visual and coastal resources are to be preserved and/or mitigated to the greatest extent feasible.
- Adverse impacts to historical and cultural resources are to be avoided or mitigated to the greatest extent feasible.
- Acquisition of private property is to be minimized.
- Financial viability is a key constraint; alternatives under consideration should be feasible within the anticipated long-term funding stream for the project.
- Input from stakeholders and the public will be provided throughout the project development process.
- Corridor delay is to be reduced daily by at least 7,000 person-hours.[5]
- Peak hour peak direction travel time is to be reduced on U.S. 101 in the project area for carpoolers and express bus riders by 25 percent or more on average.

After an initial assessment of six build approaches early in the environmental phase (refer to Section 1.3.5), three alternatives were selected by the Project Development Team for evaluation in the environmental document. Alternatives 1, 2, and 3 vary only by the locations of specific widening to handle the HOV lanes. Widening would occur either to the outside of existing pavement or to the inside within the existing median. Locations for widening on Alternative 1 were selected based on whether mature landscaping would be retained, as well as other competing resources.

Figure 1-7 is a map showing where the three build alternatives are similar. Soundwalls and retaining walls are part of all build alternatives. Congestion relief would be the same for all three build alternatives because they all add a lane.

For sections of the highway where Alternatives 1 and/or 2 are the same as Alternative 3, widening to the inside is proposed. Where Alternatives 1 and 2 are the same, widening is proposed to the outside.

[5] Delay is a measure of time "lost" per person due to travel in congested conditions. Delay occurs on U.S. 101 when vehicles travel at speeds below 55 miles per hour. Total person hours of delay are calculated by multiplying the amount of time lost per person per day during peak hours by the number of vehicles traveling during the congested peak periods.

Environmentally Preferred Alternative: Alternative 1 was determined to be the environmentally preferred alternative when comparing the three build alternatives. Alternative 1 is a combination of inside and outside widening that was designed to maximize opportunities for retaining and refining high-value resources including scenic views, wetlands, and landscaping.

Figure 1-7 Comparison of Alternatives in Similar Locations

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1.3.5 Identification of the Preferred Alternative

Caltrans has identified Alternative 1 as the preferred alternative (widening to the median in some locations and widening to the outside in other locations) with the F Modified configuration for the Cabrillo Boulevard/Hot Springs Road interchange (see Section 1.3 for description of the F Modified configuration). Identification of the preferred alternative came after consideration of public input received on the draft environmental document. Input was received from individuals, community groups, state and local agencies, and elected officials. The team also considered project funding, schedule, right-of-way constraints, and feasibility of project alternatives.

While all three viable build alternatives studied in the draft environmental document would satisfy the purpose and need, Alternative 1 would maximize opportunities to retain and enhance high-value resources including scenic views, wetlands and median/outside landscaping. Although Alternative 3 has the smallest construction footprint and minimizes impacts to wetlands, it provides no opportunities for median landscaping. Alternative 2 provides the greatest opportunity for median landscaping, but would also have the largest construction footprint.

Five changes were made to Alternative 1 (preferred alternative) since the Draft Environmental Impact Report/Environmental Assessment was released:

1) By using a single median barrier instead of retaining enough room for a planted median from South Padaro Lane to the Carpinteria Marsh (post miles 4.7 to 5.3), the originally proposed retaining wall in this area is no longer needed, making it more compatible with the County of Santa Barbara's proposal for Santa Claus Lane parking and beach access.
2) The construction footprint would be reduced by narrowing the inside shoulder width in the northbound direction in the vicinity of the Via Real Redeposited Midden.
3) A realignment and separation will be accommodated in the northbound and southbound mainlines at the Sheffield Drive interchange (post miles 8.9 to 9.1) to provide a wider median. The new alignment was in response to comments from local agencies that expressed the desire for keeping a wider median, if possible. The change requires two additional retaining walls along the southbound mainline shoulder edge.
4) The proposed structural section for the highway is currently proposed to be continuously reinforced concrete pavement instead of asphalt concrete pavement, which could improve

noise attenuation and extends the service life (from the previous estimate of 20 years) to 40 years.

5) Cabrillo Boulevard Interchange Concept F Modified is to be revised to have a lane added to Cabrillo Boulevard between the northbound and southbound ramp connections to provide for two eastbound lanes. The originally proposed median will be shifted north one lane width to provide for a continuation of two eastbound lanes to the roundabout. There will be only one Cabrillo Boulevard westbound right-turn lane into the northbound on-ramp instead of two.

1.3.6 Alternatives Considered but Eliminated from Further Discussion Prior to Draft Environmental Impact Report/Environmental Assessment

Mixed-Use Lanes

Based on the project traffic studies, freeway operations would improve under both the HOV-Build and mixed-use scenarios as compared to the no-build scenario. However, the HOV option promotes higher vehicle occupancies, resulting in the potential for more people travelling through the project area relative to a mixed-use condition.

The HOV lane strategy focuses on increasing the number of people instead of the number of vehicles. With proper HOV operating hours and vehicle occupancy restrictions, freeway operation can be significantly improved within the project limits. Based on the recommended operating hours, substantial gains in peak hour and peak person mobility would be achieved. Therefore, the HOV lane proposal best meets the performance measures established in the project development team's guiding principles as well as the purpose and need.

In addition, local and state agencies have requested that an emphasis be placed on multi-modal strategies if a third lane is added to U.S. 101. Local support for higher occupancy travel within this corridor includes Transportation Demand Management (TDM) incentives and Express Bus Services supported through *101 In Motion* and funded through Measure "A." The South Coast 101 part-time HOV lanes project is listed as a high priority in the 2040 Regional Transportation Plan. The project is also consistent with the Ventura/Santa Barbara 101 HOV project that is currently under construction south of the proposed project limits.

Minimum Build Alternative and the Full Standard Build Alternative

In 2007, the Project Study Report prepared for this project described two designs: Full Standard and Minimum Build. The Full Standard Build Alternative added the HOV lanes by widening to the outside of the existing roadway and preserved the landscaped median. It corrected all non-standard highway features. The Full Standard Build Alternative included

standard lane and shoulder widths, replaced overpass structures where vertical clearance was too low, lengthened merge distances, and standardized spacing between interchanges. Acquisition of a substantial number of private properties would have been needed to relocate interchanges and intersections, and to widen the highway corridor to provide area for a landscaped median.

The Minimum Build Alternative was designed to stay within the existing state right-of-way and add the new HOV lanes within the existing median. The Project Study Report documented the conceptual approval needed for existing nonstandard features.

Based on these two build scenarios, Caltrans looked at six build alternatives—Alternatives A through F—early in the environmental phase.

Alternatives A and B

Alternatives A and B would build lanes within the existing median and existing right-of-way. Alternative A represented the Project Study Report Minimum Build Alternative. Alternative B was the Minimum Build Alternative with auxiliary lanes in key locations. Both options would allow for the new lanes to be accommodated under the existing overcrossings. Both alternatives proposed to change the Cabrillo and Sheffield interchanges to remove the median ramps. Costs for the two alternatives were estimated to range between $329 and $531 million. These two alternatives were eliminated because they were combined to become Alternative 3.

Alternatives C and D

Both Alternatives C and D would build all improvements within the existing right-of-way. Both would build lanes to the outside of the existing lanes while providing a landscaped median where existing right-of-way widths would allow. Where existing right-of-way is not wide enough for outside pavement widening, widening would occur within the existing median and the median landscaping would be removed. Alternative D was the same as Alternative C, but with auxiliary lanes added in key locations. Both options allowed for the new lanes to be accommodated under the existing overcrossings. Both alternatives would change the Cabrillo and Sheffield interchanges to remove the median ramps. Costs for the two alternatives were estimated to range between $329 and $531 million. These two alternatives were eliminated because they were combined to become Alternative 2.

Alternatives E and F

Both Alternatives E and F would retain a landscaped median for the entire length of the project. The overpasses would be rebuilt to accommodate the proposed standard roadway width. Alternative E would replace overpasses and bridges to accommodate a landscaped median and standard width lanes and shoulders, but would not correct the distances between interchanges. Alternative F, the Full Standard Build Alternative, would widen to the outside and retain the median, plus relocate and rebuild interchanges and intersections to provide standard spacing along the highway corridor. Costs for Alternative E were estimated to be between $730 and $857 million. Costs for Alternative F were estimated to be between $1.2 and $1.3 billion.

Evaluation of the Six Alternatives

Alternatives A through F were subjected to a preliminary evaluation to determine the feasibility of each. Rebuilding the overpasses either in place or in a new location, as proposed in Alternatives E and F, would each require a substantially larger project budget than Alternatives A through D whose costs ranged from $329 million to $531 million. In contrast, the costs for Alternatives E and F were estimated at $730 to $857 million and $1.2 to $1.3 billion, respectively.

Aside from cost, other substantial differences were found in construction time, right-of-way acquisition, and the number of local roads that would require modification and relocation. Community impacts were assessed by determining the amount of private property needed for each alternative. Estimates of private property needs were calculated for Alternatives E and F, and were estimated to be 57 and 106 parcels, respectively. Preliminary studies also revealed potential conflicts with cultural and biological resources (including wetlands), plus water quality impacts, which would increase as the project footprint became larger. The estimated number of historic properties that would be affected by Alternatives E and F would be 14 and 15, respectively. Visual impacts, one of the most sensitive issues in the corridor, were also assessed as part of the early screening process.

The Project Development Team rejected Alternatives E and F from further study for these reasons: excessive costs that were not in line with the available funding stream, lengthier construction time, the number of privately owned properties to be acquired, and the expected conflicts with sensitive species, sensitive habitat, mature landscaping, and cultural resources.

Sheffield Interchange Variations

Additional details have been added for this interchange to explain what had previously been considered at this location. With limited flexibility for reconstruction due to an extremely restrictive right-of-way and topography, the project design team considered several configurations for the Sheffield interchange. Options considered but rejected included retention of existing left-side ramps, removal of one or more southbound ramp(s), or full closure of all interchange ramps. Once options were considered, only a tight diamond interchange was determined viable.

The option involving retention of improved left-side ramps would have required acquiring property from Union Pacific Railroad; removal of southbound ramps would have resulted in a nonstandard partial interchange. After thorough consideration it was also determined that retaining the left-side ramps is infeasible taking into account factors including: current state and federal highway design standards, driver expectations, cost, historical accident rates and collision reports at the specific interchanges, future safety issues with the 6-lane configuration, and congestion relief benefits and traffic operational issues (see Appendix K).

Caltrans also assessed the impacts of constructing partial or full ramp closures at the Sheffield interchange. These assessments concluded that existing access for adjacent landowners could be altered and traffic volumes would be diverted onto nearby local streets such as North Jameson. Substantial changes would be required at the San Ysidro interchange to accommodate the added traffic. The changes would have required acquiring right-of-way from two properties listed on the National Register of Historic Places at the North Jameson/San Ysidro intersection. As these impacts could be avoided through reconstruction of the Sheffield interchange, full or partial ramp closure options were dismissed.

Eliminated Cabrillo Boulevard Interchange Variations

Two design configurations for this interchange were in the Project Study Report prepared in 2007.

One configuration included construction of hook ramps in the northbound direction, connecting to Old Coast Highway about one-quarter-mile north of the existing roundabout at Hot Springs Road. The southbound ramps were proposed in a half-diamond configuration connecting to Cabrillo Boulevard between the southbound freeway lanes and the existing railroad.

A second configuration would retain the existing northbound ramps to build new southbound ramps (considered a half-diamond configuration) that would connect to Cabrillo Boulevard between the southbound freeway lanes and the existing railroad (later identified as Configuration F). The interchange configuration with hook ramps in the northbound direction was subsequently eliminated due to the need for substantial right-of-way acquisition from a private golf course.

A thorough study was done by the project engineers for potential interchange configurations for Cabrillo Boulevard to ensure that no possibilities were overlooked that could be built without the purchase of additional privately-owned right-of-way. These interchange concepts were assessed for geometrics, traffic operations, accident history and consistency with the Local Coastal Plans. A matrix was developed to inventory all possible combinations of ramp types. The information was presented to the Project Development Team.

Table 1.2 lists the configurations that were evaluated and eliminated by the engineers and Project Development Team. Five configurations—F, F Modified, J, M, and M Modified—moved forward as mutually exclusive options that could be associated with each build alternative.

Table 1.2 Eliminated Cabrillo Boulevard Interchange Configurations

Configuration	Description	Reason for Removal
A	Retain all existing ramp connections at Los Patos Way, Hermosillo Drive and Cabrillo Boulevard, maintaining the existing geometry of median lanes.	This configuration was not viable for geometric reasons because the median off-ramps do not provide vertical stopping sight distance necessary for ramps serving a 65 mph freeway facility. Furthermore, the addition of a third northbound mainline lane physically moves into the space of the existing ramps.
B	Retain the existing ramp connection at Los Patos Way and Cabrillo Boulevard, but close the Hermosillo ramp connection.	This configuration could not accommodate ramp geometry for the standard departure angles from the freeway, the connection angles to Cabrillo Boulevard, and appropriate stopping sight distance along the median ramp profiles.
C	Retain and improve existing ramp connections at Los Patos Way, Hermosillo Drive and Cabrillo Boulevard. The one exception would be the closure of the northbound median off-ramp at Cabrillo Boulevard.	The existing right-of-way width could not accommodate ramp geometry for the standard departure angle from the freeway, the connection angle to Cabrillo Boulevard, and appropriate stopping sight distance along the median off-ramp profile. It would also be problematic because it would create a newly isolated southbound off-ramp.

Configuration	Description	Reason for Removal
D	Retain by improving the southbound median off-ramp, the southbound off-ramp at Los Patos Way, and the northbound on-ramp at Cabrillo Boulevard. Close the northbound median off-ramp and the northbound off-ramp at Hermosillo Drive. Build a new northbound off-ramp at Cabrillo Boulevard.	The existing right-of-way width could not accommodate ramp geometry for the standard departure angle from the freeway, the connection angle to Cabrillo Boulevard, and appropriate stopping sight distance along the median off-ramp profile. The proposed northbound off-ramp would not accommodate right-turning traffic for most commercial vehicles due to the constrained geometry of the ramp end at Cabrillo Boulevard. It would also be problematic because it would create a newly isolated southbound off-ramp.
E	Close both median off-ramps at Cabrillo Boulevard; improve the northbound Hermosillo Drive off-ramp and northbound Cabrillo Boulevard on-ramp. Construct a new southbound off-ramp to intersect at Cabrillo Boulevard, immediately adjacent and to the right of the mainline lanes.	This option was found extremely expensive and also inadequate due to the lack of a southbound on-ramp. Therefore, it would be a partial interchange due to the loss of a southbound on-ramp. The team formally rejected this configuration on May 17, 2010.
G	Close all existing off-ramps, including the Los Patos Way and Hermosillo Drive ramps. Build new northbound on- and off-ramps, and a new southbound off-ramp, to intersect at Cabrillo Boulevard immediately adjacent and to the right of the freeway lanes.	The team rejected this configuration because it was not viable without a southbound on-ramp since it would be left as a partial interchange. The team also recognized the configuration was not viable because the proposed northbound off-ramp would be unable to accommodate right-turning truck traffic due to the constrained geometry of the ramp end at Cabrillo Boulevard.
H	Identical to configuration "G" except for the addition of a southbound Cabrillo Boulevard on-ramp. Close all existing off-ramps, including the Los Patos Way and Hermosillo Drive ramps. Improve the northbound on-ramp. Build a new northbound off-ramp and new southbound on- and off-ramps, to intersect at Cabrillo Boulevard immediately adjacent and to the right of freeway lanes. Add southbound on-ramp at Cabrillo Blvd.	Although this option was geometrically a full access interchange, it was rejected by the team on October 18, 2010 based on the recognition that the configuration was not viable because the proposed northbound off-ramp would be unable to accommodate right-turning truck traffic due to the constrained geometry of the ramp end at Cabrillo Boulevard. In addition, the team recognized that the narrow landscaped median would not be consistent with local policies, which could be problematic during the permit process.
I	Close both median off-ramps at Cabrillo Boulevard; improve the northbound Hermosillo Drive off-ramp, the southbound Los Patos Way off-ramp, and the northbound Cabrillo Boulevard on-ramp.	Although this option was geometrically feasible, it was rejected by the team on October 18, 2010 due to the lack of a southbound on-ramp, which creates a partial interchange.
J Modified	Retain the northbound Hermosillo Drive off-ramp and the northbound Cabrillo Boulevard on-ramp. Close the southbound Los Patos Way off-ramp and construct a new southbound Los Patos Way on-ramp. Retain both median left-side off-ramps.	Both left-side median off-ramps would remain and a southbound on-ramp at Los Patos Way would be added. This scenario was determined to be geometrically infeasible—left-side ramps cannot be retained due to their accident history, short stopping sight distance and driver expectation problems. Caltrans cannot justify retention of left-side ramps required for the design exception process (refer to Appendix J *Left-side Ramps Fact Sheet* and discussion below).
K	Retain by improving all existing ramp connections at Los Patos Way and Hermosillo Drive. Retain the northbound on-	This option was geometrically feasible, but rejected by the team on May 17, 2010 on the basis that the narrow landscaped median would have visual/

Configuration	Description	Reason for Removal
	ramp at Cabrillo Boulevard, but close all median left off-ramps. Build a new southbound on-ramp at Cabrillo Boulevard.	aesthetic impacts and not be consistent with local design policies. Therefore, this option would not be desirable from a permitting perspective.
L	Close northbound and southbound median off-ramps at Cabrillo Boulevard and close the northbound Hermosillo Drive off-ramp. Add a southbound Cabrillo Boulevard off-ramp. Improve the southbound Los Patos Way off-ramp and the northbound Cabrillo Boulevard on-ramps.	This option was geometrically feasible but was rejected by the team on October 18, 2010 due to the lack of a southbound on-ramp, which would be problematic since it would create an isolated southbound off-ramp.
N	Retain by improving the existing ramp connection at Los Patos Way. Retain the northbound on-ramp at Cabrillo Boulevard, but close all median left off-ramps. Close the ramp at Hermosillo Drive, and build a new northbound off-ramp and a new southbound on-ramp at Cabrillo Boulevard.	This option was geometrically feasible, but rejected by the team on May 17, 2010 on the basis that the narrow landscaped median would create visual impacts and not be consistent with local design policies. Therefore, this option would not be desirable from a permitting perspective.
O	Retain by improving the existing ramp connections at Cabrillo Boulevard, but close the ramp connections at Hermosillo Drive and Los Patos Way.	This option was geometrically infeasible. The existing right-of-way width would not accommodate ramp geometry for the standard departure angles from the freeway, the connection angles to Cabrillo Boulevard, and appropriate stopping sight distance along the median ramp profiles. This configuration would also not include a southbound on-ramp.
P	Retain by improving the existing ramp connections at Hermosillo Drive and Cabrillo Boulevard, but close the ramp connection at Los Patos Way.	This option was geometrically infeasible. The existing right-of-way width was unable to accommodate ramp geometry for the standard departure angles from the freeway, the connection angles to Cabrillo Boulevard, and appropriate stopping sight distance along the median ramp profiles. In addition, this configuration would not include a southbound on-ramp.
Q	Close the Los Patos southbound off-ramp, the northbound and southbound median off-ramps at Cabrillo Boulevard, and the northbound on-ramp at Cabrillo Boulevard. Build a new Cabrillo Boulevard southbound right-side off-ramp that would undercross three southbound freeway lanes and a new northbound right-side on-ramp that would undercross three northbound freeway lanes. Both would join at the existing median ramp intersections at Cabrillo Boulevard. Also improve the northbound Hermosillo Drive off-ramp.	This option was geometrically feasible, but rejected by the team on October 18, 2010. The team determined that this configuration was inadequate due to the lack of space within the existing right-of-way for a future southbound on-ramp. Also the extensive ramp tunnels underneath the freeway mainline would not be consistent with the character of the area or the local design policies. Therefore, this option would not be desirable from a permitting perspective.
R	Identical to configuration "S" with the addition of a southbound Los Patos Way on-ramp. Close both median off-ramps at Cabrillo Boulevard. Improve the southbound Los Patos Way off-ramp and the northbound Cabrillo Boulevard on-ramp. Close the northbound Hermosillo Drive off-ramp, and build a new northbound off-ramp ending within the existing roundabout. Build a new southbound on-ramp at Los Patos Way.	This option is geometrically infeasible without relocating the roundabout. The distance and position of the existing roundabout with regard to the freeway was inadequate to accommodate ramp geometry for the new northbound off-ramp. In addition to the roundabout not being geometrically laid out to accept a fifth leg. Reconstructing the roundabout farther from the freeway could not occur without causing substantial right-of-way impacts.

Configuration	Description	Reason for Removal
S	Similar to configuration "R" except that there was no provision for a southbound on-ramp.	This option is geometrically infeasible without relocating the roundabout. The distance and position of the existing roundabout with regard to the freeway were inadequate to accommodate ramp geometry for the new northbound off-ramp. In addition to the roundabout not being geometrically laid out to accept a fifth leg. Reconstructing the roundabout farther from the freeway could not occur without causing substantial right-of-way impacts.

During public review of the draft environmental document, a comment received from the Montecito Association requested consideration of the association's proposal for the Cabrillo Boulevard/Hot Springs Road interchange and ideas for variations to the Sheffield interchange (see previous discussion under Sheffield Interchange). Two Montecito Association variations are similar to configuration J Modified and configuration P. Both variations would retain left-side ramps. To clarify the situation involving left-side ramps, a fact sheet was prepared by Caltrans. The fact sheet is titled *Left-Side Ramp Fact Sheet* and was made part of the final environmental document as Appendix J. The compiled information was designed to provide data about common safety and operational problems with exiting from or merging onto the highway using left-side ramps. This sheet was prepared after the draft environmental document was released, in response to public comment raised by the Montecito Association and others.

In addition, Appendix I provides a summary of two presentations Caltrans made to the SBCAG board in January 2014 and May 2013. The May 2013 presentation addressed two proposals made by the Montecito Association for the Cabrillo Boulevard interchange. The *Left-Side Ramp Fact Sheet* (Appendix J) was also included as part of the presentation. The January 2014 presentation summarized the conclusions from circulation and safety studies related to left-hand ramps. Chapter 4 provides a summary of coordination efforts between various agencies and organizations. Lastly, Appendix M contains specific responses to comments from Montecito Association and others.

1.4 Permits and Approvals Needed

Table 1.3 shows the permits, reviews, and approvals that would be required for project construction.

Table 1.3 Permits and Approval Required for Proposed Project

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service National Oceanic Atmospheric Administration Agency (NOAA) Marine Fisheries	Formal Section 7 Consultation with the U.S. Fish and Wildlife is required for the tidewater goby and associated proposed critical habitat Formal Section 7 Consultation with National Oceanic Atmospheric Administration National Marine Fisheries Service is required for the steelhead trout and its critical habitat	Biological Opinion was received from USFWS on August 6, 2012 Biological Opinion was received from NOAA- National Marine Fisheries on August 26, 2013 The formal Section 7 consultation process is satisfied
U.S. Army Corps of Engineers	Section 404 Permit for filling or dredging waters of the U.S. in the following creeks: Franklin, Santa Monica, Arroyo Paredon, Toro Canyon, Greenwell, Romero (Picay), San Ysidro and Oak creeks	Permit application will be submitted during final design phase
California Department of Fish and Wildlife	Section 1602 Streambed Alteration Agreement	Permit application will be submitted during final design phase
Regional Water Quality Control Board	Section 401 Certification	Permit application will be submitted during final design phase
Santa Barbara County	Local Coastal Program (LCP) Amendment Coastal Development Permit	Coordination for the LCP amendment and CDP would be initiated after releasing the final environmental document
City of Carpinteria	Local Coastal Program Amendment Coastal Development Permit and Conditional Use Permit	Early consultation has occurred for LCP amendment. Requests for the CDP and Conditional Use Permit would be submitted during the design phase
City of Santa Barbara	Coastal Development Permit Design review approvals from the Historic Landmarks Commission and Architectural Board of Review	The CDP application and any other reviews and permit applications will be submitted during final design phase
Union Pacific Railroad	A Railroad Agreement is required for project features affecting the railroad right-of-way	With selection of the F Modified configuration, pavement widening on Cabrillo Boulevard requires an encroachment permit. The Sheffield interchange requires a permanent subsurface footing easement for retaining walls.

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 of these issues in this document.

- Farmlands/Timberlands—Although farmland exists in Santa Barbara County and adjacent to the project, the project itself will not affect farmland. The proposed project would be built mostly within the existing right-of-way and would not acquire private property except for construction and subsurface easements. There would be no easements required on farmland. No timberlands exist in or near the project.

- Energy—Caltrans incorporates energy efficiency, conservation, and climate change measures into transportation planning, project development, design, operations, and maintenance of transportation facilities, fleets, buildings, and equipment to minimize use of fuel supplies and energy sources and reduce greenhouse gas emissions (see Chapter 3). When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.

- Wild and Scenic Rivers—There are no federally designated rivers in the project limits.

- Relocations—No businesses or residences would be acquired as part of this project. The proposed project would be built within the existing public right-of-way with the exception of temporary construction easements and several subsurface easements required for footings related to soundwalls and retaining walls.

- Plant Species—According to the Natural Environment Study (January 2012), no special-status plant species were found in the biological study area for the project. No critical habitat for federally or state listed plant species occurs within the project limits.

Since the draft environmental document was prepared and circulated, design plans have been developed at a higher level of detail, partly because information has continued to accumulate on the engineering constraints of the site. This deeper level of detail has enabled environmental technical specialists to update reports (Addendums were prepared for the Community Impact Assessment, Visual Impact Assessment, Location Hydraulic Study, Water Quality, Noise, and Natural Environment Study), so Caltrans can provide that additional information to the public. As a result, many of these changes have been made to the document, with explanations added in response to public comments and questions about the circulated draft environmental document. In this chapter and throughout the final environmental document, a vertical line in the right margin indicates where changes have been made as a result of these updates.

The higher level of design detail did not result in the identification of any new significant impacts nor did it result in the determination that previously identified mitigation measures were infeasible. The new information presented merely clarifies, amplifies, or makes minor changes to the technical study documentation. These clarifications address soundwalls; water quality (expanded discussion) and storm water treatment; cumulative impacts (expanded discussion); floodplain considerations; additional tidewater goby measures contained in the Biological Opinion received from U.S. Fish and Wildlife Service; and additional steelhead trout measures clarified in the Biological Opinion received from NOAA Fisheries.

2.1 Human Environment

2.1.1 Land Use

2.1.1.1 Existing and Future Land Use

Affected Environment

The project area includes more than 10 miles of existing U.S. 101 beginning in Carpinteria and ending in the southern portion of the City of Santa Barbara. The project also goes through the unincorporated area of Toro Canyon and the communities of Summerland and Montecito in Santa Barbara County.

Land use in the project area includes residential, agricultural, commercial, industrial, and open space. These land uses in the various communities are discussed below and shown in Figure 2-1.

City of Carpinteria

Carpinteria encompasses 4,672 acres, of which 3,008 acres are tidelands. Within the city, residential development encompasses most of the land, accounting for 682 acres of land. Many high technology firms, business parks, and industrial uses, including the Venoco Oil and Gas Facility–Carpinteria Plant, are south of U.S. 101. Open space and recreation are also south of U.S. 101, including Carpinteria Beach State Park, Carpinteria Bluffs Nature Preserve, and the Carpinteria Salt Marsh Reserve. Residential uses are south and north of U.S. 101. Some agricultural uses, including Norman's Nursery, are east of the mobile home parks on the north side of U.S. 101. A mix of retail, wholesale, service, and office uses sits along Carpinteria Avenue within the city's business district.

The city and surrounding area include an abundance of natural resources—beaches, coastal bluffs, a salt marsh, several creeks, and a coastal mountain range.

The city has a small downtown area; a variety of community developments; businesses and industries that provide a range of jobs and economic opportunities; and a mixed housing base of single-family residences, multi-family residences, and mobile homes.

Montecito (Unincorporated)

Montecito is unincorporated and is classified as a semi-rural residential area consisting of about 14,258 acres. Some small commercial lots have been developed south of U.S. 101 along the beach front, and a major commercial strip sits along Coast Village Road.

The Montecito Community Plan Area is divided into three subareas: Central Urban, Coastal, and Mountain. The Central Urban Subarea encompasses about 3,984 acres and is characterized as semi-rural, consisting mainly of single-family homes on 1-acre or larger lots containing a variety of residences, as well as a golf course and a private college. The Coastal Subarea encompasses about 290 acres between U.S. 101 and the Pacific Ocean, including a coastal residential community, two major hotel complexes, and several condominium or clustered developments. The Mountain Subarea encompasses 9,984 acres and is bordered by the Los Padres National Forest to the north, west, and east. The existing land use in the subarea is characterized by mountainous terrain and open space.

City of Santa Barbara

About 25 miles long, the City of Santa Barbara is a coastal community with a curving 3-mile-long beach and rolling hills. The highway right-of-way passes through the southeastern portion of the city and goes through commercial, residential, and recreational land uses. Commercial land uses account for 475 acres (4.4 percent) of land in the entire City of Santa Barbara. The Coast Village Circle, which is an area of commercial land uses, lies just north of U.S. 101 in the eastern part of the city. Residential uses, mostly north of U.S. 101, account for 4,118 acres (38.2 percent) of land in the City of Santa Barbara, more than any other land use in the city. Recreational or open space land uses are mostly south of U.S. 101, including the Andrée Clark Bird Refuge, Dwight Murphy Field, Santa Barbara Zoology Garden, East Beach, Cabrillo Pavilion and Arts Center, and Cabrillo Ball Park.

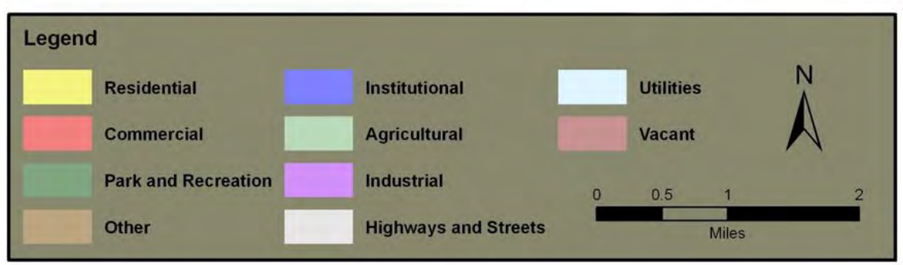

Figure 2-1 Existing Land Uses

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Future Land Uses

Table 2.1 lists the currently proposed projects and recently completed projects in the vicinity of the project area in the cities of Carpinteria and Santa Barbara and in the unincorporated areas of Santa Barbara County. Transportation (including railroad improvements), residential, and commercial development projects in the vicinity of the study area are included.

According to the City of Carpinteria General Plan (2003), Land Use Element, few remaining areas exist in the city where residential development can occur without conflicting with policies aimed at protecting coastal resources. Most new development will occur in commercial and industrial areas where most of the currently undeveloped areas sit. Some additional residential build-out is expected to occur within areas designated for multi-family or mixed uses. The City of Carpinteria General Plan, Community Design Element, notes that the northeast subarea has more opportunities for new development than other areas.

In Santa Barbara County, much of the proposed future development in Toro Canyon is for lot splits or single-family dwellings in highly constrained areas. The Toro Canyon Area Plan recognizes these constraints, and development is limited. In Summerland, commercial areas allow for potential additional development with consideration of communitywide resource constraints. The Summerland Community Plan encourages the development of the maximum number of housing units to meet the needs of the community's low to moderate income households. According to the Montecito Community Plan Update, the community is nearing its ideal maximum build-out potential, with commercial development being limited to the amount needed to serve the greater Montecito community. The County of Santa Barbara Comprehensive Plan encourages infill, prevention of scattered urban development, and a balance between housing and jobs.

The information compiled for the following table was obtained from the City of Carpinteria Community Development Department website and data provided by the City of Santa Barbara Planning Department and Santa Barbara County Planning Department.

Table 2.1 Proposed Development

Project	Jurisdiction	Proposed Use	Address	Project Status*
Bailard Overcrossing	Caltrans/City of Carpinteria	Provide standard clearance at this overcrossing on U.S. 101.	U.S. 101 (PM 1.6)	P
Operational Improvements--Milpas Street to Hot Springs Rd	Caltrans/City of Santa Barbara	Completed in Fall 2012, this project included 2.0 miles of improvements in the City of Santa Barbara. The project included additional northbound and southbound lanes, local road improvements, and bicycle and pedestrian enhancement.	U.S. 101 (PM 10.8 to 12.8)	B
Linden Avenue to Casitas Pass Road Interchanges Project	Caltrans/ City of Carpinteria	This 1.1-mile-long project on U.S. 101 includes reconstruction of interchanges, replacement of Carpinteria Creek Bridge, and new Via Real connection south to Bailard Avenue.	Various roadways between Linden and Bailard avenues	D
U.S. 101 Rehabilitation Project	Caltrans/ Carpinteria and City of Santa Barbara	This recently scoped project proposes to rehabilitate the paved structural section, widen the shoulders, and improve ramps. The project would likely be constructed at the same time as the South Coast 101 HOV Lanes project.	U.S. 101 (PM 2.6 to 11.9)	P
Santa Barbara Curb Ramp Project	Caltrans	Construct and/or improve 43 curb ramps (some with minor sidewalk extensions) at 20 locations along Routes 1, 101, 154, 192 and 246 in Santa Barbara County.	U.S. 101 (PM 2.6 to 11.9)	P
Ventura/Santa Barbara 101 HOV Project	Caltrans/Ventura County and City of Carpinteria	This project consists of adding a high occupancy vehicle (HOV) lane in each direction between the Mobile Pier undercrossing in Ventura and Casitas Pass Road in Santa Barbara COunty. The project began construction in spring 2012 and will finish in 2015.	U.S. 101 (PM 39.8 Ven. Co. to PM 2.2 SB Co)	C
Butterfly Pedestrian Overcrossing ADA	Caltrans/County of Santa Barbara	This project would bring the existing pedestrian overcrossing into compliance with ADA by constructing ramps at each entrance. Some landscaping will be removed, including skyline trees. There is room for some replacement landscaping and perhaps small trees, but unlikely any large varieties would go back at that location.	U.S. 101 (PM 11.0)	P
Santa Claus Lane Streetscape, Beach Access and Parking	Santa Barbara County	Santa Barbara County is proposing to construct parking along Santa Claus Lane and improve access for vehicles and pedestrians.	Santa Claus Lane	P

Project	Jurisdiction	Proposed Use	Address	Project Status*
Santa Claus Lane Bike Path	City of Carpinteria/Santa Barbara County	The Santa Claus Lane Class I bike path project would connect Santa Claus Lane to Carpinteria Avenue on the southbound side of U.S. 101. This project would close the coastal trail gap between Santa Claus Lane and the Carpinteria Marsh.	Between Santa Claus Lane and Carpinteria Marsh (southbound side)	P
Carpinteria Rincon Trail	City of Carpinteria	A paved bicycle/pedestrian trail intended to close the coastal trail gap between Carpinteria Avenue and the new Class I trail along U.S. 101 at Rincon.	Between Carpinteria Avenue and new trail at Rincon	P
LOSSAN North project	California Division of Rail/Federal Railroad Division	The overall project consists of 39 individual rail improvements for a total length of 222 miles.	Between San Luis Obispo train station and the Los Angeles Union Station	P
Rail project - Ortega Siding	California Division of Rail	The south end of Ortega siding has been removed, and the remaining portion is now used as a stub track for maintenance equipment. This project would reconstruct and lengthen this siding to 9,240 feet.	In the vicinity of Padaro Lane	P
San Luis Obispo - Santa Barbara Track Upgrades	California Division of Rail	The railroad project would upgrade 107.36 miles of track from Class 3 to Class 4 track standards (per Federal Railroad Administration).	Various locations	P
Carpinteria Siding	California Division of Rail	The railroad project would construct a new 2,640 foot-long siding at the Carpinteria station. It would include Number 24 power-operated turnouts, as well as a new passenger platform to facilitate use of both tracks.	Mile post 377.25 to Mile post 378.1	P
Dahlia Court Apartments	City of Carpinteria	Construction is underway to add 33 affordable housing units to the existing 54 units.	1305 Dahlia Court	C
Mission Terrace Estates	City of Carpinteria	Construction completed on a 27-unit housing project that includes 24 single-family market rate units and 3 affordable single-family units.	1497 Linden Avenue	B
Miramar Hotel	Santa Barbara County	Renovation of an abandoned resort. The project was reduced over former approval. There would be 186 rooms and no tennis court. The project was delayed as part of the economic downturn.	1555 S. Jameson Way	P
Green Heron Springs	City of Carpinteria	This approved project proposed demolition of the existing building onsite and construction of 30 new condominiums.	1300 and 1326 Cravens Lane	P
Casas de las Flores	City of Carpinteria	Forty-three affordable housing units will be constructed on the former Camper Park site (70-space mobile home park).	4096 Via Real	C

Project	Jurisdiction	Proposed Use	Address	Project Status*
Lagunitas Mixed Use	City of Carpinteria	The proposed mixed-use project consists of 85,000 square feet of office space, as well as 73 residential units.	6380 Via Real	C
Mixed-Use Development	City of Santa Barbara	This project proposes to merge 2 lots and build a 3-story mixed-use building with below-grade parking. The project includes 6 separate commercial spaces and 3 studio apartments.	630 Anacapa Street	P
617 Bradbury Avenue	City of Santa Barbara	This revised project proposes to demolish a single-family residence and build a new 5,978-square-foot mixed-use development that includes 918 square feet of commercial area and about 3,400 square feet of residential area.	617 Bradbury Avenue	P
Mixed- Use Development	City of Santa Barbara	Proposal to subdivide existing 13,500-square-foot lot into 3 lots and build a three-story mixed-use building on each new parcel.	412 Anacapa	D
Mixed-Use Development	City of Santa Barbara	Proposal for a mixed-use project that includes 1,606 square feet of commercial space, a 14,750-square-foot parking lot, and 7 residential condominiums averaging approximately 1,200 square feet each.	825 De La Vina Street	P
McReynolds – City Ventures	City of Santa Barbara	This project proposes to build 48 residential units on 10,285 square feet of land.	535 E. Montecito Street	P
528 Anacapa Street	City of Santa Barbara	This project proposes to demolish an existing 3,300-square-foot commercial building and build a mixed-use building in approximately 20,000 square feet (5,000 commercial/15,000 residential) on a 65,000-square-foot parcel.	528 Anacapa Street	D
1298 Coast Village Road	City of Santa Barbara	Proposal to demolish an existing gas station and build a 16,992-square-foot mixed-use building, including 4,000 square feet of commercial space and 12,192 square feet of residential space.	1298 Coast Village Road	D
718 E. Mason Street	City of Santa Barbara	Proposal to build a new 2,414-square-foot commercial building with office and warehouse space.	718 E. Mason Street	B
1032 E. Mason Street	City of Santa Barbara	This project proposes to build six two-story residential complexes on an existing 24,979-square-foot lot.	1032 E. Mason Street	D
Mixed-Use Development	City of Santa Barbara	This project would build six residential condominiums totaling 10,147 square feet and 2 commercial condominium spaces totaling 2,729 square feet.	517 Chapala	D
Youth Hostel	City of Santa Barbara	Proposal to build an 11,091-square-foot commercial youth hostel.	12 E. Montecito Street	D

Project	Jurisdiction	Proposed Use	Address	Project Status*
406 N. Quarantina Street	City of Santa Barbara	This proposed project would demolish a single-family residence and build a 2,653-square-foot commercial building.	406 N. Quarantina Street	D
408 N. Quarantina Street	City of Santa Barbara	A new 2,717-square-foot commercial building is proposed.	408 N. Quarantina Street	D
Mixed Use Development	City of Santa Barbara	This project consists of demolishing a warehouse/office building to be replaced by a 13,203-square-foot mixed-use building—8,588 square feet: residential and 4,615 square feet: commercial.	116 E. Yanonali	B
Paseo de la Playa	City of Santa Barbara	This project consists of 3 sites: a 45,125-square-foot commercial building on one site and 107 residential units on the remaining sites (affordable and market rate).	101 Garden Street	P
Residential	City of Santa Barbara	This project consists of demolishing a commercial building, merging three lots, and building 57 residential units.	416 E. Cota Street	B
Residential	City of Santa Barbara	This project consists of demolishing an existing building and constructing 8 apartments and a daycare facility.	421 E. Cota Street	B
Cottage Hospital Foundation Workforce Housing	City of Santa Barbara	This project consists of demolishing St. Francis Hospital and building workforce housing—115 residential condominiums on 5.94 acres of a 7.38-acre site.	601 Micheltorena Street	B
Hotel	City of Santa Barbara	The proposed project plans to build or remodel a 150-room, three-story luxury hotel on 3 acres.	433 E. Cabrillo Boulevard	D
Mixed Use Development	City of Santa Barbara	Proposal to demolish an existing 20,125-square-foot commercial building on a 1.4-acre site and build 23,125 square feet of commercial/retail space with 37 residential condominiums.	34 W. Victoria Street	D
900–1100 Las Positas Road	City of Santa Barbara	This project would subdivide a 50-acre parcel into 30 lots; 15 acres will contain 25 single-family homes, while 35 acres will remain open space.	900–1100 Las Positas Road	D

* Status Definitions

PP = Pre-Planning phase: The project is proposed; however, environmental review has not begun.
P = Programmed: Environmental review has begun on the project; not yet approved.
D = Design: Environmental review has been completed; construction has not begun.
C = Construction: As of this document, project is under construction.
B = Build-out: The project is fully constructed to build-out conditions.
-- = Status is currently unknown.

The City of Santa Barbara General Plan, Land Use Element, identifies most of the undeveloped land to be in low-density residential areas and recognizes a need for development of vacant properties. Growth limitations and the sustainability of the city's

resources are challenges that the city faces for future development. The plan encourages a more efficient use of space, as well as upgrading the quality and mix of uses within existing structures, including remodeling and rehabilitation, and reconstruction of existing structures. Economic vitality, fiscal health, and balanced land uses are issues facing the city's future development.

Environmental Consequences

Build Alternatives

Implementation and construction of any of the build alternatives would occur within the existing state highway right-of-way, with only minimal right-of-way required for temporary construction easements. Construction of soundwalls under all three build alternatives may require construction easements outside of the right-of-way. Walls would stand between the freeway and the frontage roads on either side of the freeway. Acquisition of residential or non-residential properties would not be required, but sub-surface easements for footings associated with retaining walls or soundwalls would likely be required. No changes to existing land uses and/or density would occur as a result of the project. No areas in the project area identified for future development would be made directly more accessible with implementation of the project.

No-Build Alternative

Under the No-Build Alternative, the existing conditions would remain, and no impacts to existing and future land uses would occur. Congestion along U.S. 101 would not be alleviated. Access to existing business centers, recreation areas, and the coast would not be improved if the No-Build Alternative were implemented.

Avoidance, Minimization, and Mitigation Measures

Implementation and construction of the proposed build alternatives or No-Build Alternative would not have long-term effects on land uses in the project area; therefore, no mitigation is required.

2.1.1.2 Consistency with State, Regional and Local Plans

Affected Environment

A policy consistency analysis was done to review the applicable policies from the various agencies having jurisdiction over the region. All applicable policies are summarized and, per the California Environmental Quality Act standards, potential inconsistencies with local plans are discussed. (See also Section 2.1.1.3, Coastal Zone.)

Santa Barbara County Comprehensive Plan (updates to elements were made between 1975 and 2010)

The unincorporated area of Santa Barbara County is governed by the Santa Barbara County Comprehensive Plan in an effort to guide decision-making for the future. The Santa Barbara County Comprehensive Plan is a statement of local policy and contains goals, objectives, and action plans that guide the county's long-term development. Potential expansion of U.S. 101, including an additional lane in each direction, is identified in the plan. The Highway 101 Corridor Design Guidelines, as adopted by the Board of Supervisors in 1999, is a set of design criteria intended to be used in the Coastal Zone through Section 35-102E (HC-Highway 101 Corridor Overlay District) of the Coastal Zoning Ordinance. Consistent with the Land Use Element, Policy #6 of the South Coast Policies, the County encourages all agencies (including Caltrans) working within the Highway 101 corridor to design projects in compliance with the Highway 101 Corridor Design Guidelines. The intent of the Highway 101 Corridor Design Guidelines is to assist communities and public agencies in preserving U.S. 101 in a manner consistent with its historic and scenic character while allowing necessary transportation improvements.

Santa Barbara County Circulation Element (1980–Republished in May 2010)

The Circulation Element is one of seven elements mandated by state law for inclusion in the County's General Plan. This element identifies key roadway links throughout the unincorporated areas of the county and guides decisions on new development. The objective of the Circulation Element is to provide traffic capacity guidelines intended to maintain acceptable levels of service on roadways and intersections in the county while allowing reasonable growth within the communities in the unincorporated areas of the county. Beginning in January 2011, due to Assembly Bill 1358, the California Complete Streets Act, all cities and counties upon the next update of their Circulation Elements must include policies for the development of multi-modal transportation networks.

Santa Barbara County Bicycle Master Plan (Draft prepared in 2012, not yet finalized)[6]

The purpose of the County's plan is to help guide the construction of new bicycle-related infrastructure. In updating the Bicycle Master Plan, County staff reviewed all of the adopted Bikeways Maps contained in the General Plan and each of the Community Plans adopted by the County Board of Supervisors. This plan contains the infrastructure from—and is consistent with—the City of Santa Barbara's Bicycle Master Plan. To view the map of the

[6] The last finalized County Bicycle Master Plan is dated 2005. There are a number of updates in the draft plan. The South Coast 101 HOV Lanes project is consistent with both plans.

County's plan, refer to Figure 2-2. The plan also lists the priorities for implementation, along with a description of future financial needs for the projects.

City of Santa Barbara General Plan (Updated 2011)

In December 2011, the City Council adopted the updated *Plan Santa Barbara* General Plan. This process resulted in a new General Plan Introductory Framework, comprehensively updated Land Use and Housing Elements, and a new set of goals and policies for the remaining elements (Open Space, Parks and Recreation, Historic Resources, Environmental Resources including Noise and Conservation, Circulation, and Safety). The updated plan reorganized the elements and is now consistent with the Introductory Framework for Sustainability (a state law). It also compiled the six previous volumes into one document. The revised Land Use Element includes the following under mobility "One of the tenets of sustainability is to reduce the necessity to drive. Corresponding with that goal, the community has determined that the remaining increment of growth should occur while minimizing congestion."

City of Santa Barbara Circulation Element (partially updated December 2011)

A required element of the City's General Plan, the Circulation Element addresses the requirements of state law which are to evaluate the transportation needs of the community and present a comprehensive plan to meet those needs. The plan complies with the California Complete Streets Act of 2008. The goals, policies and implementation actions were either developed during the *Plan Santa Barbara* General Plan update process in December 2011 or were carried over from the existing Circulation Element or Scenic Highways Elements in effect in 2011. These goals, policies, and implementation actions are intended to further integrate circulation policies with the sustainability focus of new or revised policies in other elements. This is accomplished by emphasizing alternative modes of transportation, maintaining traffic flow for all, and reassessing parking requirements to complement a people-oriented community. The City's Bikeway Master Plan "encourages the safe use of the bicycle as a healthful, non-polluting form of transportation." The master plan proposes approximately 40 miles of bikeways using existing road shoulder areas, and 20 miles of bikeways that are to be located off-street.

City of Santa Barbara Pedestrian Master Plan (Adopted July 2006)

This plan is designed to take Santa Barbara's pedestrian system to the next level: to develop a comprehensive pedestrian system that enhances and increases the city's walkability to the extent that all people will feel safe walking, to increase connections to destinations throughout the city, to enhance the Paseo network, and to increase the number of children who walk and bike to school. Also, a major goal of the enhanced pedestrian system is to

increase the overall health of Santa Barbara's residents by promoting walking as a viable means of transportation.

The goals, policies, and strategies outlined in this plan are provided to turn this vision into a reality. The plan includes phased recommendations that will entice people to walk more for short trips, enhance the environment for people with disabilities and children walking to school, and lead to an overall increase in the number of pedestrian trips. It focuses on enhancing pedestrian safety in crosswalks and along streets. The plan also represents a blueprint for improving residents' quality of life by creating a more sustainable environment and reducing traffic, noise, and energy consumption. It includes innovative and exciting options for safe and convenient pedestrian passage, and will link local bus routes and an emerging network of bicycle routes.

City of Santa Barbara Highway 101 Coastal Parkway Design Guidelines (1996)

The Coastal Parkway Design Guidelines are intended to preserve the historic character and visual quality of the segment of U.S. 101 corridor within the city's Coastal Zone. The Coastal Parkway Design Guidelines help the City, Caltrans and other interested agencies maintain this segment of highway in a manner consistent with its historic character while allowing for necessary traffic and safety improvements. This segment of U.S. 101 is a Special Design District corridor that requires review of aesthetic, design, compatibility, landscaping and historic resource preservation for any proposed development requiring a Coastal Development Permit.

City of Carpinteria General Plan and Local Coastal Land Use (2003)

The City of Carpinteria General Plan contains objectives, policies, and implementation strategies guiding development to preserve Carpinteria as a small, rural Southern California coastal community. In addition to the community's land use plan, noise, safety, and open space elements, the General Plan contains a Circulation Element. The Circulation Element provides linkages between land uses in the city by identifying an efficient system of streets and highways. The plan recognizes that current roadway systems, including U.S. 101, are at or near capacity at selected peak periods and that access will become increasingly inadequate as the population grows as projected. The General Plan also recognizes that potential widening of U.S. 101 through the city could occur to accommodate traffic needs. The Local Coastal Land Use Element included in the city's General Plan, together with implementation programs, make up the city's local coastal program. The General Plan sets forth the community's commitment to maintain its small beach-town lifestyle while accommodating an appropriate balance of economic vibrancy.

City of Carpinteria Creeks Preservation Program

The City of Carpinteria Creeks Preservation Program provides guidance from the City of Carpinteria General Plan/Local Coastal Plan in preservation and restoration of creeks located within the City of Carpinteria. The program focuses on Carpinteria Creek, Franklin Creek, Santa Monica Creek, and Lagunitas Creek and includes restoration efforts, suggested improvements, and regulation requirements to protect and preserve local creeks.

Toro Canyon Plan (County of Santa Barbara, 2004)

The Toro Canyon Plan serves as an update to the 1981 Santa Barbara County Comprehensive Plan and Local Coastal Program for urban, rural, and semi-rural areas and neighborhoods. The plan provides the general public, landowners, and county decision-makers with an outline for planning future development and addresses opportunities and limitations for development. Included within the plan are relevant policies of the County of Santa Barbara's Comprehensive Plan, in addition to specific goals, objectives, policies, actions, and development standards to protect the unique character of the Toro Canyon region. The Circulation Element of the plan includes goals, policies, and actions to provide an efficient and safe circulation system that will accommodate existing and future development and growth in Toro Canyon.

Summerland Community Plan (County of Santa Barbara, 1992)

The Summerland Community Plan serves as a portion of the Santa Barbara County Comprehensive Plan and includes relevant policies included in the Comprehensive Plan and Local Coastal Plan. The Community Plan provides a framework for county decision-makers, the community, and landowners in the Summerland area to plan future development. Designed to address the concerns and needs of the community while preserving the unique qualities of the area, the plan signifies a commitment on the part of the County to Summerland's future growth and improvement plans. The Circulation Element calls for roadway improvements that will ease conditions on the most severely constrained roadways and intersections in the planning area.

Montecito Community Plan Update (County of Santa Barbara, 1995)

The Montecito Community Plan is a component of the Santa Barbara County Comprehensive Plan and includes relevant policies included in the County's Comprehensive Plan and the Local Coastal Plan. The Montecito Community Plan includes specific goals relating to community development, public facilities and services, and resources and constraints with specific policies and actions. The plan provides a blueprint for future land use decisions, allowing for development in a manner consistent with available resources and in keeping with the semi-rural residential quality of life. The Circulation Element of the Community

Plan calls for maintaining adequate services and infrastructure to support development and future growth.

South Coast U.S. 101 Deficiency Plan (2002)

The South Coast U.S. 101 Deficiency Plan was developed by the Santa Barbara County Association of Governments in cooperation with Caltrans, County of Santa Barbara, and the cities of Santa Barbara and Carpinteria, in response to congestion along the South Coast U.S. 101. The plan analyzes the characteristics of travel demand and cause of deficiencies along U.S. 101, lists short-term solutions to relieve congestion, and includes a 5- to 10-year implementation schedule. In terms of a long-term proposal, it was recommended that a comprehensive process involving extensive community outreach be prepared to identify a congestion relief strategy in the corridor. This led to the initiation of the *101 In Motion* effort.

101 In Motion Final Report (2006)

The Santa Barbara County Association of Governments' *101 In Motion* report provides an action plan of short-term and long-term solutions to reduce congestion along U.S. 101 in southern Santa Barbara County using multiple transportation improvements. The *101 In Motion* study process brought together local agencies, Caltrans, and interest groups to develop an approach to relieving current and future traffic congestion on U.S. 101 that would be supported by the South Coast community in Santa Barbara County. The report identifies the addition of HOV lanes between the Ventura/Santa Barbara County line and Milpas Street in the City of Santa Barbara as one congestion reduction measure among a package of solutions that will be implemented to provide long-term congestion relief in the corridor.

2013 Federal Transportation Improvement Program (FTIP)

In accordance with Title 23 of the U.S. Code, the Federal Transportation Improvement Program is a program for the use of anticipated federal transportation funds to maintain, operate, and improve the region's multi-modal circulation system. The Federal Transportation Improvement Program includes all federally funded highways, transit, and other transportation projects in the area that are scheduled for implementation. Projects in the Federal Transportation Improvement Program are also typically identified in Santa Barbara County Association of Governments' Regional Transportation Plan.

State Transportation Improvement Program (STIP)

In accordance with Government Code 14520 et. seq., the State Transportation Improvement Program is a statewide program of transportation projects that governs the expenditures of state revenues for transportation. Included in the State Transportation Improvement Program are projects from regional agencies that are also included in a Regional Transportation

Improvement Program, in addition to projects nominated by Caltrans. For the purpose of programming state funding, U.S. 101 in Santa Barbara County is termed both a High Emphasis and Focus Route in the State Transportation Improvement Program's Interregional Improvement Program.

2040 Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SBCAG, 2013)

The 2040 Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) plans how the Santa Barbara County region will meet its transportation needs for the 30-year period from 2010 to 2040, considering existing and projected future land use patterns as well as forecast population and job growth. It plans for and programs the approximately $7.4 billion in revenues expected to be available to the region from all transportation funding sources over the course of the planning period. It identifies and prioritizes expenditure of this anticipated funding for transportation projects of all transportation modes: highways, streets and roads, transit, rail, bicycle and pedestrian, as well as transportation demand management measures and intelligent transportation systems.

Projects listed in the Congestion Management Program Capital Improvement Program must also be consistent with those listed in the Regional Transportation Plan and Sustainable Community Strategy. As summarized, there are a number of U.S. 101 congestion relief projects identified in Appendix E of the Regional Transportation Plan and Sustainable Community Strategy that would alleviate congestion on this corridor. These include adding HOV lanes from Mussel Shoals to Carpinteria, currently under construction, along with reconstructing the Linden and Casitas Pass interchanges to accommodate the U.S. 101 widening and improve circulation at ramp intersections, and adding HOV lanes from Sycamore Creek to Carpinteria Creek.

Draft Regional Bicycle Plan (SBCAG, 2012, update still in progress)

SBCAG is currently in the process of updating the draft Regional Bicycle Plan. A draft plan was completed in April 2008, but was never adopted by the SBCAG board. The updated Regional Bicycle Plan will serve to update the regional bicycle network, link to policies in SBCAG's 2040 Regional Transportation Plan and Sustainable Community Strategy, and articulate a vision for enhancing bicycle use in Santa Barbara County. The updated plan will incorporate and reflect locally adopted bicycle transportation plans, including new local plans adopted since the draft was completed. It will also reflect other important changes, such as the passage of Measure A and the updated 2040 Regional Transportation Plan and Sustainable Communities Strategy.

Figure 2-2 County Bicycle Routes

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Environmental Consequences

Build Alternatives

The state, regional, and local plans outlined in this section address relevant planning issues, policies, and goals for development in the proposed project area. The transportation plans, including the *101 In Motion* report, the Federal Transportation Improvement Program, the State Transportation Improvement Program, and Regional Transportation Improvement Program, and the Regional Transportation Plan, support and identify the need for improvements on U.S. 101. Widening U.S. 101 to six lanes by adding one HOV lane in each direction in the project area is specified in these transportation plans and is consistent with the three build alternatives for the proposed project.

The Santa Barbara County Comprehensive Plan along with the general plans for the cities of Santa Barbara and Carpinteria do not include specific policies for widening U.S. 101, but they do contain various recommendations for making improvements to U.S. 101. The Montecito Community Plan Policy CIRC-M-3.8 requires community review for all widening and interchange improvements. The Summerland Community Plan contains Action VIS-S-6.1 that requires the development of design criteria for underpass plans with participation by Caltrans, local agencies, and community groups. Required reviews would occur as part of the Coastal Development Permit process. The project would not conflict with any land use policies in those plans. Furthermore, the project would enhance access to coastal resources by improving vehicular circulation within the U.S. 101 corridor. Under the three build alternatives, no changes to land uses, existing or proposed, would occur. The project would not acquire private property except for some temporary construction easements and permanent subsurface easements required for specific soundwalls and retaining walls.

The project would potentially conflict with wetland setbacks identified in several coastal policies. The policy in the Carpinteria plan that would require amending can be found in the Open Space, Recreation & Conservation element. OSC-3c, Implementation Policy 12, states the following: “Maintain a minimum 100-foot setback/buffer strip in a natural condition along the upland limits of all wetlands. No structures other than those required to support light recreational, scientific and educational uses shall be permitted within the setback, where such structures are consistent with all other wetland development policies and where all feasible measures have been taken to prevent adverse impacts . . . .”

The policy in the Santa Barbara County plan that would require an amendment is in the Coastal Plan 9-9: “A buffer strip, a minimum of 100 feet in width, shall be maintained in natural condition along the periphery of all wetlands. No permanent structures shall be permitted within the wetland or buffer area except structures of a minor nature.” In addition,

the policy in the Toro Canyon Plan states: "Development shall be required to include the following buffer areas from the boundaries of Environmentally Sensitive Habitat: Wetlands – minimum 100 feet."

The project would also potentially conflict with buffer limits set for streams or the top-of-bank in riparian areas identified in several coastal plans. The Summerland Community Plan, Montecito Community Plan, and Santa Barbara Coastal Plan all contain buffer limits of 50 feet in urban areas and 100 feet in rural areas of streams and riparian areas. The project would include work on several bridges within these jurisdictional areas. In all areas where bridge widening is required, the longer bridge spans would create wider natural channels within the state right-of-way (Arroyo Paredon, Romero [Picay], San Ysidro, Toro Canyon, and Oak Creek).

Several coastal policies also include protection and preservation of trees and landscaping as scenic resources. The project would be potentially inconsistent with the Summerland Community Plan; Montecito Community Plan; City of Santa Barbara's Conservation Element and Coastal Parkway Design Guidelines; and Santa Barbara County Highway 101 Corridor Design Guidelines. The project would remove landscaping and about 253 coast live oaks within the corridor. The removal of vegetation and trees within the median and shoulder areas would result in a decrease in landscaping within the highway corridor.

The project would also potentially conflict with the City of Santa Barbara Highway 101 Coastal Parkway Design Guidelines that identify minimum median widths for landscaping. For safety, where standard lane widths are not sufficient within the right-of-way, the median width may potentially be less than 10 feet. The City of Santa Barbara Highway 101 Coastal Parkway Design Guidelines identify this segment of Highway 101 as a special design district corridor that requires review of aesthetic, design, compatibility, landscaping and historic resource preservation for any proposed development requiring a coastal development permit.

The project would also potentially conflict with the City of Santa Barbara Highway 101 Coastal Parkway Design Guidelines that list the Hot Springs/Cabrillo Boulevard interchange as historically significant. The project would result in changes to the appearance, context, and function of the interchange. Local planning documents refer to the Cabrillo Boulevard interchange as historically significant. Caltrans, however, formally evaluated the constituent resources as part of the Historic Bridge Inventory (1986 and 2006 Update) and as part of the 1992 Historic Property Survey Report for the Santa Barbara Six-Lane Project. The Historic Property Survey Report for the current HOV lanes project also reviewed these earlier determinations. The interchange bridges—including the Los Patos Underpass (Bridge No.

51-235) and the Route 225 Underpass (Bridge No. 51-46)—were determined not eligible for listing in the National Register of Historic Places and were also determined to not meet the criteria for eligibility to the California Register of Historical Resources. The bridges are, therefore, not historical resources for the purposes of the California Environmental Quality Act. The State Historic Preservation Officer concurred with this determination on January 25, 1993 and January 26, 2011.

The project would only be partially consistent with the City of Santa Barbara Noise Element due to the fact that there are already areas within the project limits that exceed noise thresholds established by the City of Santa Barbara—the 65 dBA (decibel) thresholds. Policy 6.1 in the Noise Element states the following: "Encourage Caltrans and the County Engineer to incorporate noise reduction methods, such as barrier walls, in new road construction and improvements to existing roadways." The project proposes to install noise-attenuating pavement surface on all mainlines within the project limits. In addition, the project proposes to construct sound barriers as a form of noise abatement—provided the sound barriers are reasonable and feasible and follow noise protocol—where noise levels approach or exceed the Federal Highway Administration's noise abatement criteria. Caltrans would also potentially be in conflict with the local noise policy regarding night work since it is highly likely that night work will occur during the project's construction to take advantage of those times when traffic is lightest (see Section 2.4).

A Coastal Development Permit would be required for the proposed project improvements from each of the following jurisdictions: the County of Santa Barbara, City of Santa Barbara, and the City of Carpinteria. In addition, a Conditional Use Permit is also required for the City of Carpinteria. Before issuance of a Coastal Development Permit can occur, an amendment to the Local Coastal Plans for the City of Carpinteria and Santa Barbara County would be required. As currently proposed, the project is not consistent with the wetland setback policies in the County of Santa Barbara's or the City of Carpinteria's Local Coastal Plans. The proposed amendments would need to narrowly define the wetlands affected by the project; only those wetlands would be included in the amendment. Therefore, no impacts other than those already identified in this document would occur unless written into the amendment language.

Table 2.2 lists and describes potential inconsistencies with local policies.

Table 2.2 Potential Policy Inconsistencies

Subject of Policy	Local Policies	Assessment
Scenic and Visual Resources	City of Santa Barbara - Conservation Element - 4.0 City of Santa Barbara - LCP – 9.13 and 9.14 City of Santa Barbara – U.S. 101 Coastal Parkway Design Guidelines Summerland Community Plan – VIS-S-2, S-4 Santa Barbara County Highway 101 Corridor Design Guidelines – L-3, L1, S16 California Coastal Act - Section 30251	The project would preserve and restore the existing landscape character of the U.S. 101 corridor to the greatest extent possible. However, the project would be inconsistent with these policies due to removal of trees and existing landscaping within the median and outside shoulder areas. The loss of vegetation would result in an unavoidable increase of the urban character within the corridor. In addition, where the total highway right-of-way width is not sufficient, the median planting area would be less than 10 feet (U.S. 101 Coastal Parkway Design Guidelines). The project would change the visual character of the U.S. 101 corridor due to vegetation removal and the introduction of soundwalls up and down the 10-mile stretch of highway. Measures to help offset these impacts include aesthetic treatment; eliminate soundwalls that block prime ocean views; design visible features (i.e., retaining walls, bridges, radar facilities, etc.) to blend into setting; and use existing/new plantings to help offset impacts.
Wetland and Creek Protection	Summerland Community Plan – BIO-S-7.1 Montecito Community Plan – BIO-M-1.3.1 and 1.8 Carpinteria - LCP – Open Space OSC-3c and Implementation Policy 12 County of SB - CP – 9-9, 9-35, and 9-37 Toro Canyon Plan – BIO-TC-1.4	The project would not achieve the minimum buffer distance from wetlands, streams, and riparian areas and is potentially inconsistent with policies that relate to wetland and riparian setbacks. The project would remove approximately 253 coast live oak trees and some existing landscaping within the project corridor. Permanent impacts to wetlands would be compensated at a 3:1 ratio. Any temporary impacts to plants/trees in riparian areas would be offset by replanting/restoration efforts using between a 1:1 to 3:1.
Historical Resources	City of Santa Barbara – LCP – 10.3	Local planning documents refer to the Cabrillo Boulevard interchange as historically significant. Caltrans, however, formally evaluated the constituent resources as part of the Historic Bridge Inventory (in 1986 and in the 2006 update), and as part of the 1992 Historic Property Survey Report prepared for the Santa Barbara Six-Lane Project. The Historic Property Survey Report for the current project also reviewed these earlier findings. The interchange is not eligible for the National Register of Historic Places nor is it a historical resource for the purposes of CEQA (State Historic Preservation Officer concurred in January 25, 1993, and January 26, 2011).

Source: Local Coastal Policies within the project area.

No-Build Alternative

Under the No-Build Alternative, the existing conditions would remain. Congestion along South Coast U.S. 101 would not be eased, and growth projected for the study area would not be accommodated. This would not be consistent with the existing transportation plans, which call for improvements to U.S. 101. In addition, the No-Build Alternative would not fulfill goals set in several Circulation Elements, components of *101 In Motion*, and the Regional Transportation Plan that refer to widening U.S. 101 to relieve congestion.

Avoidance, Minimization, and/or Mitigation Measures

For the preferred alternative (Alternative 1) and the two other build alternatives (Alternatives 2 and 3), conflicts with local and coastal policies are expected to occur for visual resources, biological resources, wetland buffers, and landscaping. Avoidance and/or mitigation measures to minimize impacts would be required for visual resources (see Section 2.1.6), wetlands (see Section 2.3.2), and landscaping impacts (see Section 2.1.6) to comply with study area planning documents that call for the retention of vegetative character and wetland setbacks. Because the project cannot meet the wetland buffer limits established by the local coastal plans for the City of Carpinteria and County of Santa Barbara, a local coastal plan amendment would be required for each of these jurisdictions prior to issuing the Coastal Development Permits. Additional measures may be requested as part of the Coastal Development Permit process.

The No-Build Alternative would be inconsistent with local transportation plans that call for widening U.S. 101.

2.1.1.3 Coastal Zone

Regulatory Setting

The Coastal Zone Management Act of 1972 is the main federal law that preserves and protects coastal resources. This act sets up a program under which coastal states are encouraged to develop coastal management programs. States with an approved coastal zone management plan can review federal permits and activities to determine if they are consistent with the state's management plan.

Federal consistency is the Coastal Zone Management Act requirement where federal agency activities that have reasonably foreseeable effects on any land or water use or natural resource of the coastal zone must be consistent to the maximum extent practicable with the enforceable policies of a coastal state's federally approved coastal management program.

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, protection, enhancement and restoration of environmentally sensitive areas, protection of agricultural lands, protection of scenic beauty, and 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 zone 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 jurisdictions consistent with the California Coastal Act goals. A federal consistency determination may be needed as well.

Affected Environment

A policy consistency analysis was done to review the applicable policies from the various agencies having jurisdiction over the region. All applicable policies are summarized and, per the California Environmental Quality Act standards, potential inconsistencies with local plans are discussed (also see Section 2.1.1.2, Consistency with State, Regional and Local Plans).

The South Coast 101 HOV Lanes project falls within three local coastal plans: the Santa Barbara County Local Coastal Plan, the City of Santa Barbara Local Coastal Plan, and the City of Carpinteria Local Coastal Plan. The county adopted a separate coastal land use plan in 1982 (updated and republished in June 2009) and the City of Santa Barbara adopted a separate local coastal plan in 1981 (amended in 1994 and 2004). The City of Carpinteria adopted a local coastal plan in combination with their general plan. All three plans were certified by the California Coastal Commission per the California Coastal Act of 1976 §§ 30108.6, 30500.

Santa Barbara County Coastal Land Use Plan (1982–Republished June 2009)

The Santa Barbara County Coastal Land Use Plan is a separate element of the County's Comprehensive Plan pursuant to Public Resources Code Section 30500 of the California Coastal Act of 1976. The purpose of the Coastal Land Use Plan is to protect coastal resources and provide greater access and recreational opportunity for the public, while allowing orderly and well-planned urban development of coastal-dependent and coastal-related industry. The

plan proposes that urban-rural boundaries be established to redirect growth from an outward expansion to one of infilling. A Coastal Development Permit is required for projects within the coastal zone to ensure compliance with this plan and the California Coastal Act.

City of Santa Barbara Local Coastal Plan (1981, amended 1994 and 2004)

The City of Santa Barbara Local Coastal Plan is pursuant to Public Resources Code Section §§30500 of the California Coastal Act of 1976. The plan addresses the city's significant coastal issues with a combination of land use designations, resource protection, and development objectives and policies. A Coastal Development Permit is required for projects within the coastal zone to ensure compliance with this plan and the California Coastal Act.

City of Carpinteria General Plan and Local Coastal Land Use Plan (2003)

The City's General Plan is designed to be consistent with the Californina Coastal Act and provides the Land Use Plan and related policies for the various implementation programs such as the zoning ordinance. The Land Use Plan establishes the type and intensity of land uses and guides growth and development. The Land Use Element is the heart of the Land Use Plan of the city's Local Coastal Program (California Coastal Act of 1976, 30108.5) and, together with the implementation programs, makes up the City's Local Coastal Program. The General Plan sets forth the community's commitment to maintain its small beach-town lifestyle while accommodating an appropriate balance of economic vibrancy.

This General Plan is designed to be consistent with the California Coastal Act and provides the Land Use Plan and related policies for the various implementation programs such as the zoning ordinance. This Land Use Plan, together with the implementation programs, makes up the City's Local Coastal Program (California Coastal Act of 1976 §§ 30108.6, 30500). All objectives, policies, implementation policies, and map language identified within [the plan] are intended to address Coastal Act issues, unless identified with the"GP" symbol. Policies and language identified with the "GP" symbol are excluded from the Land Use Plan, but are included in the General Plan.

Environmental Consequences

Build Alternatives

The project would potentially conflict with wetland setbacks identified in several coastal policies. The policy in the Carpinteria plan that would require amending can be found in the Open Space, Recreation & Conservation element. OSC-3c, Implementation Policy 12, states the following: "Maintain a minimum 100-foot setback/buffer strip in a natural condition along the upland limits of all wetlands. No structures other than those required to support light recreational, scientific and educational uses shall be permitted within the setback, where

such structures are consistent with all other wetland development policies and where all feasible measures have been taken to prevent adverse impacts . . . ."

Coordination with regard to the Local Coastal Amendment process has already begun with the City of Carpinteria in an effort to facilitate two Caltrans projects proposed within the city limits. The proposed project would encroach into existing wetland buffers (as defined using the Coastal Commission single criterion definition). The project team worked diligently to refine the alignment of proposed elements in order to avoid wetland resources, but total avoidance is not possible. As a result of ongoing discussions with the City of Carpinteria regarding the conditions of the amendment, the Santa Barbara County Association of Governments has agreed to take the lead on two separate coastal trail projects that are identified as priority improvements in the City of Carpinteria. The coastal trail tied to the South Coast 101 HOV Lanes project is identified as the Santa Claus Lane Bike Path that will extend from Santa Claus Lane to Carpinteria Avenue. This Class I path will close the coastal trail gap in this area.

The policy in the Santa Barbara County plan that would require amending is identified in Coastal Plan 9-9: "A buffer strip, a minimum of 100 feet in width, shall be maintained in natural condition along the periphery of all wetlands. No permanent structures shall be permitted within the wetland or buffer area except structures of a minor nature." In addition, the policy in the Toro Canyon Plan states: "Development shall be required to include the following buffer areas from the boundaries of Environmentally Sensitive Habitat: Wetlands – minimum 100 feet."

The project would also potentially conflict with buffer limits set for streams or the top-of-bank in riparian areas identified in several coastal plans. The Summerland Community Plan, Montecito Community Plan, and Santa Barbara Coastal Plan all contain buffer limits of 50 feet in urban areas and 100 feet in rural areas of streams and riparian areas. The project would include work on several bridges within these jurisdictional areas. In all areas where bridge widening is required, the longer bridge spans would create wider natural channels within the state right-of-way (Arroyo Paredon, Romero [Picay], San Ysidro, Toro Canyon, and Oak Creek).

The project is also potentially inconsistent with Coastal Act policy 30251: "The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore

and enhance visual quality in visually degraded areas . . . .” A Coastal Development Permit application to ensure compliance with the relevant coastal plans and the California Coastal Act would be required.

The project would enhance access to coastal resources by improving vehicular circulation within the U.S. 101 corridor. In Santa Barbara County, U.S. 101 is the main route for interregional traffic in the Coastal Zone. The preferred alternative enhances coastal access by reducing congestion and travel time on the highway for drivers attempting to reach coastal resources, a substantial enhancement from a regional perspective. The Forecast Operations Report in the Traffic Study notes that building the project would reduce vehicular delay on a daily basis by 11,435 hours (62 percent) in 2040.

No-Build Alternative

Under the No-Build Alternative, existing conditions would remain and no impacts to the coastal zone would occur. However, existing congestion along U.S. 101 would not be alleviated, and planned growth in the area would not be accommodated. Access to the coast would continue to be impeded.

Avoidance, Minimization, and/or Mitigation Measures

Because the proposed project is located within several coastal jurisdictions, Coastal Development Permits are required from the Cities of Carpinteria and Santa Barbara along with the County of Santa Barbara. Prior to applying for the Coastal Development Permits, amendments to the Local Coastal Plans prepared for the City of Carpinteria and County of Santa Barbara are required due to policy inconsistencies between the proposed project and their local coastal plans. In addition to the Coastal Development Permit, the City of Carpinteria requires a Conditional Use Permit. Additional measures to minimize impacts may be required for visual resources, wetlands, and landscaping as conditions of the Coastal Development Permits.

2.1.1.4 Parks and Recreation

Affected Environment

Parks and recreational facilities within the South Coast 101 HOV Lanes project area include neighborhood and community parks, regional parks, state parks, open spaces, and trails. Parks and recreational areas are listed in Table 2.3 and shown in Figure 2-3.

Recreational facilities in Carpinteria include the Carpinteria Salt Marsh Reserve and Nature Park; Carpinteria Bluffs Nature Preserve and nearby Viola Fields; Carpinteria Beach State Park; Carpinteria Creek Park; Farmer’s Parcel Open Space; and Carpinteria City Beach. The

Carpinteria Salt Marsh Reserve and Nature Park are both on Ash Avenue in Carpinteria. Facilities include an interpretative area with a teaching amphitheater and a nature trail.

Table 2.3 Park and Recreational Facilities

Map ID No. on Figure 2-3	Park	Location
State of California		
1	Carpinteria State Beach	End of Palm Avenue
2	Carpinteria Salt Marsh Reserve (UCSB)	Ash Avenue
Santa Barbara County		
4	Lookout Park	End of Lookout Park Road
19	Loon Point	Immediately west of Toro Canyon
20	Santa Claus Lane (proposed official beach access)	Santa Claus Lane
24	Oceanview Park	Corner of Via Real and Greenwell Avenue
City of Carpinteria		
3	Carpinteria Salt Marsh Nature Park	Ash Avenue
5	Tar Pits Park	5663 Carpinteria Avenue
6	El Carro Park	Namouna Street and El Carro Lane
7	Memorial Park	Santa Ynez Avenue and Aragon Drive
8	Heath Ranch Park	Eucalyptus Street
9	Franklin Creek Park	End of Sterling Avenue
10	Carpinteria City Beach	Sandyland Road
11	Carpinteria Creek Park	5600 Via Real
21	Farmer's Parcel Open Space	Bailard Avenue
22/23	Bluffs Nature Preserve and Viola Fields	Bailard Avenue/Carpinteria Avenue
City of Santa Barbara		
12	Cabrillo Ball Park	Milpas Street and Cabrillo Boulevard
13	East Beach	1118 E. Cabrillo Boulevard
14	Dwight Murphy Field	501 Niños Drive
15	Santa Barbara Zoo/Zoological Gardens	1300 E. Cabrillo Boulevard
16	Andrée Clark Bird Refuge	1400 E. Cabrillo Boulevard
17	Sunflower Park	1124 E. Mason Street
18	Municipal Tennis Stadium	1414 Park Place

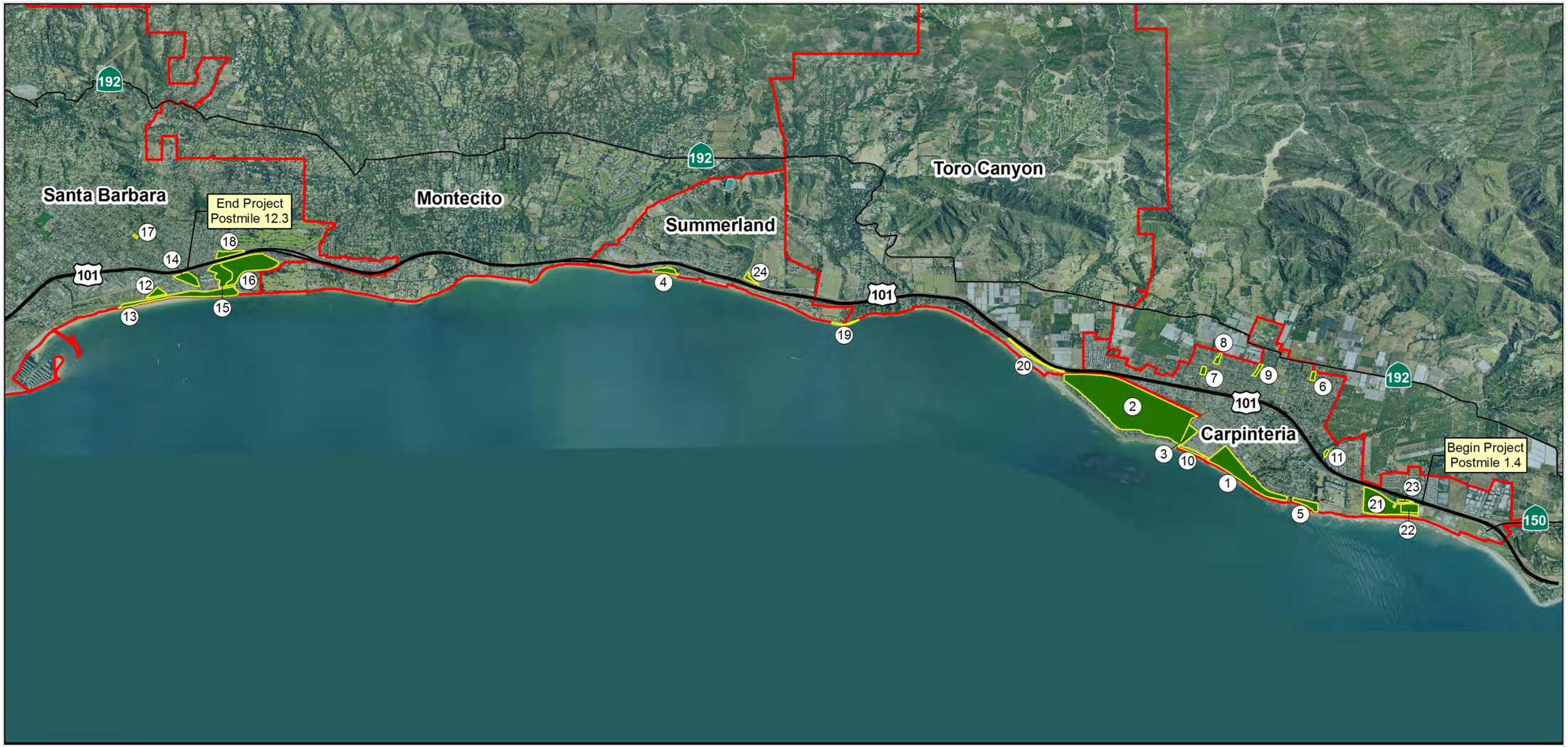

Figure 2-3 Parks and Recreation Facilities

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Five community-based parks provide open space, picnic areas, fields, playgrounds, bicycle trails, walking trails, and beach access. Lookout Park in Summerland is a community-based park and recreational facility serving Santa Barbara County. A neighborhood park known as Oceanview Park, established in 2001 about the same time the Summerland Cottages and Villas were constructed, sits on the corner of Greenwell and Via Real. Loon Point has a parking lot on the north side of Padaro Lane with trail access to the beach. Santa Claus Lane, part of the County's long-term plan, is an area used extensively by the public despite the fact that it is not yet designated as an official beach access. Wallace Avenue and Padaro Lane also provide beach access in Summerland.

In the City of Santa Barbara, several parks provide recreational opportunities for community residents and visitors. The Santa Barbara Zoo, the Andrée Clark Bird Refuge, and city beaches including East Beach, offer recreational activities within the project area. The Santa Barbara Zoo sits on 30 acres of botanical gardens within the City of Santa Barbara. The zoo is dedicated to the preservation, conservation, and enhancement of the natural world through education, research, and recreation, and it overlooks the Pacific Ocean, Andrée Clark Bird Refuge, and the Santa Ynez Mountains. The Andrée Clark Bird Refuge is across from East Beach and has a bikeway and walking path with interpretive environmental self-guided tours.

Environmental Consequences

Most of the work associated with the project would occur within the existing right-of-way and not require the use of property from any park or recreational facility. Exceptions to working within the right-of-way occur only in those areas where temporary and permanent subsurface easements are required for constructing retaining walls and soundwalls. No temporary or permanent easements are necessary for any property associated with parks or recreational areas. Therefore, the project would not result in any direct long-term effects on parks, beach access, or recreational facilities (see Appendix B, *Resources Evaluated Relative to the Requirements of Section 4(f)*). Building the preferred alternative or other build alternatives (Alternatives 2 or 3) would reduce congestion on U.S. 101, thereby improving access to parks and recreational facilities within the project area.

Avoidance, Minimization, and/or Mitigation Measures

During construction, at least two lanes in each direction would remain open for peak-period travel. U.S. 101 mainline lane closures would occur mainly during off-peak hours to minimize construction-related travel impacts within the corridor. Construction of the build alternatives would be done with measures taken to avoid public access impacts to park and recreational facilities, with alternate routes made available for use during construction.

Construction-related disruptions would be minimized through development and implementation of a Traffic Management Plan.

2.1.2 Growth

Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with 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 of Federal Regulations 1508.8) refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are 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

A Growth-Related Impact Analysis was completed for this project in June 2010. An addendum to this study was prepared in January 2014. A model was included in this study that looked at employment and residential centroids (focal points that represent the center of activity).

The South Coast U.S. 101 corridor, a major transportation route and an important link in the regional transportation system, is experiencing increased congestion. Traffic volumes along the U.S. 101 corridor are projected to increase substantially over the next 30 years, largely as a result of the increased residential and commercial development anticipated in specific areas of Santa Barbara County and Ventura County. Commuter traffic contributes to vehicle volumes exceeding capacity, resulting in severe congestion and increased travel times along U.S. 101 through the project area, mostly during peak hours.

The main factors that affect the population growth pressures in residential locations like those considered in the study are housing prices in the area, local land use plans for the area, and commute times to major employment centers. Due to implementation of the South Coast

101 HOV Lanes project and with help from the growth model analysis, the effects of changes in commute times were reviewed.

Main factors that influence growth in a suburban community are housing prices, local plans, and commute times to employment areas. Of the three, commute time is the factor most directly affected by transportation projects. Future traffic speeds in the corridor presented in the South Coast 101 HOV Traffic Study and Forecast Operations Report (October 2009; revised in December 2011) were used for this study. A model was developed to analyze commute times between jobs within and outside the region (represented by the employment centroids) and eight selected residential zones (represented by the residential centroids).

This study defines an employment centroid as a focal point that represents the center of activity of an employment zone. For the purposes of this study, zones and centroids have the same representation. For example, R-1 would represent both the first residential zone and its centroid.

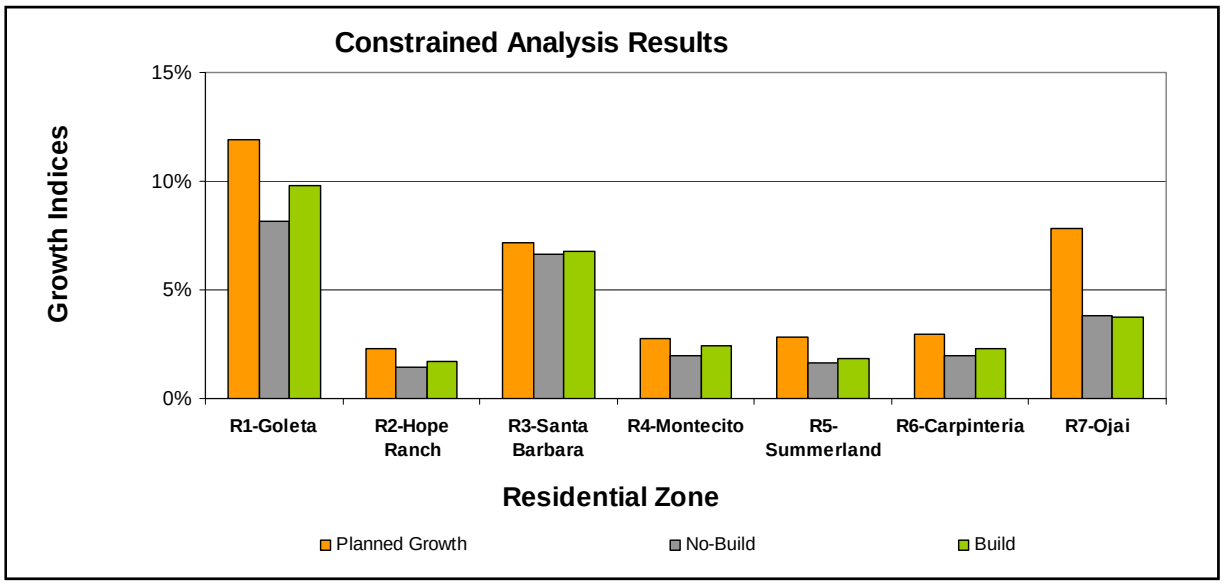
Eight residential locations, shown in Figure 2-4, were selected for testing the growth-related effects of the project. These residential locations include the communities of Goleta, Hope Ranch, Montecito, Summerland/Toro Canyon, City of Santa Barbara, City of Carpinteria, Ojai (City of Ojai and Ojai Valley), and City of Ventura. These communities are planning for varying increases in growth rates by 2040—from less than a 4 percent growth rate (Hope Ranch, Montecito, Summerland and Carpinteria) to a growth rate of 12 percent (City of Goleta). Twelve employment zones were chosen to reflect all jobs accessible from the selected residential zones and are described in each of the related general plans. The 12 employment zones are the following: Toro Canyon/Carpinteria; City of Santa Barbara; Goleta; Santa Ynez/Solvang; Lompoc; Santa Maria; San Luis Obispo; Ventura/Oxnard; Simi Valley/Thousand Oaks; Lancaster/Palmdale; West Los Angeles County; and East Los Angeles County (see Figure 2-6).

Environmental Consequences

The constrained growth indices reflect the improved access to jobs and the planned growth capacities in the analysis areas (see Figure 2-4). These indices show the combined effect of land use plans and access on relative growth pressure. Potential growth within the South Coast area is constrained by the amount and intensity of actual growth planned for in the residential zones. Figure 2-4 shows the model results without the City of Ventura (R-8) because the model results for that city eclipse the model results for the other residential areas.

Even without the project, the no-build constrained growth index for residential centroids within Santa Barbara County (R-1 through R-6) and Ojai (R-7) is projected to be lower than the planned growth in these areas.

The City of Ventura (R-8) reflects the highest share of planned residential growth among the growth areas considered. The model also suggests that with the No-Build Alternative, the City of Ventura (R-8) would have no-build growth pressures that exceed the planned growth for the area.



Source: *Growth Study Prepared for South Coast 101 Lane Project* (2010)

Figure 2-4 Constrained Analysis Results for 2040

Under the build alternatives, all residential areas in the Santa Barbara County area (R-1 through R-6) would have a slight increase in relative growth pressures compared to the No-Build Alternative; however, as shown in Figure 2-5, planned growth for these areas is still expected to be higher than the growth indices. Compared to the No-Build Alternative, the build alternatives would increase relative growth pressures slightly for all residential zones in Santa Barbara County, but the magnitude of these increases in growth pressures is minimal, with the maximum increase occurring in the City of Goleta (R-1) at an increase of 1.65 percent. Other zones in Santa Barbara County would have increases in growth pressures that are less than 1 percent for each residential area considered.

The constrained analysis shows that the travel time savings under the build alternatives would produce minimal growth pressure increases in all of the Santa Barbara County

residential study zones. These minimal increases in growth pressure are unlikely to cause growth-related impacts given the land use controls and the existing level of growth pressures in these areas.

In addition, it is anticipated that growth-related impacts will be limited in Santa Barbara County study areas; these limitations include the supply of developable land, restrictive growth policies, and a lack of affordable housing. Most residential study zones in Santa Barbara County are largely built out, have existing constraints on growth, or are planning to direct future growth to certain locations. For example, the City of Goleta plans infill developments only, especially the revitalization of its Old Town area.

Montecito has an annual permit allocation for new dwelling units of not more than one-half percent of the currently existing permitted units. The amount of available public services and facilities, such as sewage systems, water, and schools, would constrain additional growth in areas such as Summerland and the City of Carpinteria. Other residential zones, such as the Goleta Valley and Mission Canyon areas, aim to limit growth so that any future developments would be adequately served by existing services and infrastructures.

In summary, considering all growth-related factors discussed, analysis concludes that the proposed South Coast 101 HOV Lanes project is not expected to stimulate residential or related commercial growth in the region. Commuting time savings would support planned growth in the Goleta area and in other urban communities of Santa Barbara County. As growth caused by the South Coast 101 HOV Lanes project is not reasonably foreseeable, no impacts are anticipated on resources of concern.

Avoidance, Minimization, and/or Mitigation Measures

The project is not expected to stimulate residential or related commercial growth in the region. Therefore, no growth-inducing impacts would occur as a result of implementation of any of the three build alternatives. No avoidance or minimization measures are necessary.

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Figure 2-5 Residential Analysis Zones

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Figure 2-6 Employment Analysis Zones/Centroids

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2.1.3 Community Impacts

2.1.3.1 Community Character and Cohesion

Regulatory Setting

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

Under 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

A Community Impact Assessment was completed for the project in June 2010. For this study, most of the demographic characteristics of the region and within the project limits were collected from 2000 Census data. Since the time the draft environmental document was released, 2010 Census data has steadily been made available. The updated information was incorporated into the Addendum to the Community Impact Assessment, completed in April 2014.

Figure 2-7 shows the 45 census-tract block groups that were used as the study area for demographic characterization. These tracts are next to the South Coast U.S. 101 alignment.

Regional Population Characteristics

Table 2.4 shows existing and projected population, housing, and employment growth trends within Santa Barbara County, the South Coast region (City of Carpinteria, City of Santa Barbara, City of Goleta, and unincorporated areas between Santa Barbara and Carpinteria) and the Cities of Carpinteria and Santa Barbara.

The more recently available 2010 U.S. Census data for Santa Barbara County has been updated. As a result, population projections for the county are higher than what were shown in the draft environmental document.

Figure 2-7 Socioeconomic Study Area

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Table 2.4 Population, Employment, and Housing Forecast Santa Barbara County, 2010–2040

	Population Forecast					
	2010	**2020**	**2030**	**2035**	**2040**	**Percent Change 2010–2040**
Santa Barbara County	423,800	445,891	495,000	507,482	519,965	23.0
South Coast Region	202,100	205,800	211,300	215,700	216,900	7.3
City of Santa Barbara	88,410	88,600	91,000	94,876	96,000	10.0
Carpinteria	13,040	13,284	13,600	13,825	13,893	7.0
	Employment (Jobs)					
	2010	**2020**	**2030**	**2035**	**2040**	**Percent Change 2010–2040**
Santa Barbara County	197,400	229,000	241,300	250,000	257,600	30.0
South Coast Region	93,500	97,223	101,730	104,979	107,004	14.0
City of Santa Barbara	62,912	64,597	*65,525	66,449	66,667	6.0
Carpinteria	6,075	6,666	6,680	6,693	6,693	18.0
	Household (Dwelling Units)					
	2010	**2020**	**2030**	**2035**	**2040**	**Percent Change 2010–2040**
Santa Barbara County	142,100	149,900	170,200	177,400	183,600	29.2
South Coast Region	75,500	76,611	79,079	80,620	80,959	7.3
City of Santa Barbara	35,000	35,120	36,200	37,578	37,976	8.5
Carpinteria	4,760	4,841	4,950	5,030	5,054	6.2

Source: Santa Barbara County Association of Governments, Regional Growth Forecast 2010-2040, December 2012.

Population

According to the Santa Barbara County Association of Governments projections listed in Table 2.4, the Santa Barbara County population is expected to grow from 423,800 to close to 520,000, an increase of 96,200 people or 23 percent over the course of the forecast period for 2010–2040. The county's population increased from 399,347 in 2000 to 423,800 in 2010, a 6 percent increase. Growth rates were greater in the north county, especially in the City of Santa Maria, which grew at a rate of 29 percent.

The Santa Barbara County Association of Governments (SBCAG) projections indicate that the South Coast region population is expected to grow from the current estimation of 202,700 to 216,900 in 2040, which is an increase of 7.3 percent. While several cities and

unincorporated areas in the north county experienced population increases between 2000 and 2010, the cities (Carpinteria and Santa Barbara) and unincorporated areas within the project limits (Montecito, Summerland, and Toro Canyon) experienced slight declines. The City of Santa Barbara population dropped from 92,325 in 2000 to 88,410 in 2010, a decrease of roughly 4 percent. See Table 2.5 for updated 2010 census data.

Population growth in the South Coast region has slowed. Continued school enrollment declines in the South Coast region school districts suggest that young families may be migrating out of the area. This trend is likely due to high housing costs.

Employment

Employment in Santa Barbara County and the cities of Carpinteria and Santa Barbara is expected to increase at a much faster rate than the corresponding population in these areas between 2010 and 2040. The total number of jobs in Santa Barbara County, Carpinteria, the South Coast region, and the City of Santa Barbara is likely to grow by 30, 14, 6, and 10 percent, respectively.

Housing

The total number of households in Carpinteria, the South Coast region, and Santa Barbara is expected to increase about 6, 7, and 8 percent, respectively, between 2010 and 2040. And a considerable increase in the number of households—29 percent—is expected in the County of Santa Barbara.

Age Breakdown

According to the updated 2010 U.S. Census data, the study area is composed mostly (about 67 percent) of people between the ages of 18 and 64. The median age of the residents in the study area is 38. Compared to the individual jurisdictions, the study area has a relatively high percentage (about 20 percent) of residents under the age of 18.

As shown in Table 2.5, the median age in Santa Barbara County is 34 and about 64 percent of the population is made up of people between 18 and 64 years old. Compared to the neighboring jurisdictions and the study area, Santa Barbara County and the City of Carpinteria have the highest percentages of children under the age of 18. The unincorporated areas of Montecito and Toro Canyon both have relatively higher populations of people who are 65 years old or older.

Table 2.5 Age Breakdown in the Study Area

Study Area	Total Population	Under 18 Years Old	%	18 to 64 Years Old	%	65 Years Old and Older	%	Median Age
Total Study Area	59,332	11,908	20	39,684	67	7,740	13	38
Santa Barbara County	423,895	98,047	23	271,450	64	54,398	13	34
City of Carpinteria	13,040	2,618	21	8,623	64	1,799	15	39
City of Santa Barbara	88,410	16,468	19	59,369	67	12,573	14	37
Montecito CDP[7]	8,965	1,515	17	5119	57	2,331	26	50
Summerland CDP	1,448	211	14	980	68	257	18	49
Toro Canyon CDP	1,508	253	17	922	61	333	22	50

Source: 2010 U.S. Census

Ethnic Composition

Ethnicity information for the study area came from the 2010 U.S. Census data. The racial categories used were White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian or other Pacific Islander, and Some Other Race/Two or More Races. Because persons of Hispanic origin are not classified as a racial category, their numbers are noted separately as an ethnic category but are also categorized in their appropriate racial category.

While both the project's study area and Santa Barbara County are socially and culturally diverse, the main difference between the two is the number of people who identify themselves as Hispanic or Latino—47 percent in the study area and 43 percent in Santa Barbara County (see Table 2.6). In certain areas of the county such as Guadalupe, Hispanic or Latino populations are not the minority. The Asian population represents about 3 percent of the study area compared to 5 percent for Santa Barbara County.

[7] A census-designated place (CDP) is an area identified by the U.S. Census Bureau for statistical reporting. CDPs are communities that lack separate municipal government, but which otherwise resemble incorporated places, such as cities or villages.

The unincorporated areas of Montecito, Summerland, and Toro Canyon are predominantly White, with this ethnic group accounting for 93, 89, and 92 percent of the total populations, respectively, in those areas.

Figure 2-7 shows densities where minority populations are greater than 50 percent in census block groups. The figure also displays populations where minority populations are greater than 50 percent of the total ethnic population.

Table 2.6 Ethnic Composition in the Study Area

Study Area	Total Persons	White	%	Black or African American	%	American Indian/ Alaskan Native	%	Asian	%	Native Hawaiian/ Other Pacific Islander	%	Some Other Race/Two or More	%	Hispanic ethnicity	%
Total Study Area	59,332	42,773	72	907	1.5	689	1.2	1,607	3	68	0.1	2,209	3.7	28,092	47
Santa Barbara County	423,895	295,124	70	8,513	2.0	5,485	1.3	20,665	5	806	0.2	93,302	22	181,687	43
Carpinteria	13,040	9,348	72	109	0.8	144	1.1	296	2	15	0.1	3,078	24	6,351	49
Montecito CDP	8,965	8,267	93	55	0.6	38	0.4	218	2	6	.01	381	4.2	605	7
City of Santa Barbara	88,965	66,411	75	1,420	1.6	892	1.0	3,062	3	116	0.1	16,509	18	33,591	38
Summerland CDP	1,448	1,295	89	3	0.2	7	0.5	41	3	6	0.4	96	6.7	192	13
Toro Canyon CDP	1,508	1,388	92	7	0.5	7	0.5	14	1	1	0.1	91	6.0	293	19
Source: 2010 Census Data															

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Income

According to the 2007-2011 American Community Survey data, the median household income for the study area was $67,662 with 11.4 percent of individuals living below the poverty level. As shown in Table 2.7, the unincorporated areas of Montecito and Toro Canyon had the two highest median household incomes, with $113,558 and $108,438, respectively. The median household income in Santa Barbara County was lower than that of the study area. In Santa Barbara County, the percentage of indicviduals living below poverty level was slightly higher than the study area at about 15 percent. Household poverty assumes all household members (related and unrelated) combine resources to meet basic needs, whereas the 2010 Federal poverty level for a family size of four is $22,050.

Table 2.7 Median Household Income and Households Below Poverty Level

Income	Study Area	Santa Barbara County	Carpinteria	Montecito CDP*	City of Santa Barbara	Summerland CDP*	Toro Canyon CDP*
Median Household Income	$67,662	$62,723	$70,113	$113,558	$63,758	$78,750	$108,438
Households Below Poverty Level	2,840	22,597	401	145	5,219	43	40
% Individuals Below Poverty Level	11.4	15.3	8.1	8.7	14.7	6.4	4.1

Source: 2010 U.S. Census

** CDP —A census-designated place (CDP) is an area identified by the U.S. Census Bureau for statistical reporting. CDPs are communities that lack separate municipal government, but which otherwise resemble incorporated places, such as cities or villages.*

****** *2008-2012 American Community Survey 5 year estimates*
2007-2011 American Community Survey 5-year estimates (for Summerland and Toro Canyon)

Housing Needs and Trends

This section covers housing needs and characteristics in the South Coast region, which encompasses the study area. Included are key trends that will affect housing growth and development in the future as derived from the 2010 U.S. Census Population and Housing, Santa Barbara County Association of Governments Regional Growth Forecast, the Santa Barbara Association of Realtors, and the University of California at Santa Barbara Economic Forecast.

Vacancy Rates

According to the 2007-2011 American Community Survey, a little over 10 percent of the housing units in the study area were vacant. This rate was higher than the 7 percent vacancy rate in Santa Barbara County and 6.3 percent vacancy rate in the City of Santa Barbara. The City of Goleta, Mission Canyon, and the County of Ventura had the lowest vacancy rate compared to that of neighboring cities and towns. Toro Canyon, Montecito, and Summerland, have a small number of housing units yet are the more affluent areas to live with the highest vacancy rates. Toro Canyon has a vacancy rate of 22.9 percent, Montecito with 19 percent, and Summerland with a 16.5 percent vacancy rate. This may be partially attributed to new residential development, as well as seasonal, recreational, and occasional use.

Vacancy rate is defined as the percentage of total unoccupied housing units that are either for sale or for rent. The California Department of Housing and Community Development finds that a vacancy rate of 5 percent is needed to allow adequate mobility within the housing market. Furthermore, an overall vacancy rate of 4 or 5 percent indicates a healthy balance of supply and demand in the housing market. As shown in Table 2.8, a vacancy rate of 7 percent in the study area suggests a slight imbalance in supply and demand. A higher vacancy rate indicates more supply and less demand.

Table 2.8 Vacancy Rates in the Study Area

City/County	Housing Units and Occupancy Status		
	Housing Units	Vacant Units	% Vacant
Total Study Area	24,846	2,647	10.7
Santa Barbara County	152,834	10,730	7
City of Goleta	11,473	570	5.7
City of Carpinteria*	5,429	670	12.3
Montecito*	4,238	806	19.0
Toro Canyon*	804	184	22.9
City of Santa Barbara	37,820	2,371	6.3
Summerland*	823	136	16.5
Mission Canyon*	1,075	55	5.2
Ventura County	281,695	14,775	5.2
City of Ventura	42,827	2,389	6.8
City of Ojai*	3,382	271	8.0

2007-2011 and 2008-2012 American Community Survey, U.S. Census Bureau (2010), available at http://factfinder.census.gov

Household Size

According to 2010 U.S. Census data, the countywide household size was estimated to be about 2.86 persons per household. Carpinteria has a household size of 2.74 persons per household, which is the highest compared to the other study area jurisdictions. The unincorporated communities of Montecito, Summerland, and Toro Canyon have the lowest household sizes of 2.34, 2.11, and 2.43 respectively.

Housing Costs

Housing prices in California are higher than the national averages according to the 2007-2011 American Community Survey. The median value for owner-occupied homes in the U.S. was $192,400, versus California's median value of $410,200. Housing prices are higher in Santa Barbara County, with the median home value at $523,800. Housing prices tend to be much greater in the South Coast region of the county than the north region.

Housing costs play a major role in a person's choice of residential location. A lack of affordable housing opportunities can influence the need for commuters to travel long distances to work. Table 2.9 shows the median prices for single-family homes, condominiums, and town houses in the region, which is based on 2007-2011 American Community Survey data.

Rentals

There are a total of 152,834 home in Santa Barbara County in which 67,277 are occupied by individuals who rent. Within the study area, a large majority of the homes are occupied by renters. There are a total of 24,846 housing units in the study area, 13,796 or 56 percent of which are renter occupied homes. Owner occupied homes in the study area account for only 8,403 of the homes. In other words, owners reside in only 34 percent of the homes within the study area.

Median Home Values

The median home value in Santa Barbara County is $523,800 according to the U.S. Census 5-year average. However, using the median average between 2004-2010, the County median home value is $849,063 (SBCAG 2013). The discrepancy in median home values is due to the extended time period in which 2004-2010 factored-in values from the height of the housing bubble, whereas U.S. Census data calculated median home value averages at the onset of the 2007 recession.

Montecito, Summerland, and Toro Canyon have the highest median home prices within the County of Santa Barbara. Since the project travels near these three townships, it is assumed the study area's median home value is upwards of $1,000,000.

The County's median gross rent is $1,303 which is less compared to the Total Study Area's rent median of $1,489.

Table 2.9 Median Home Values

Geographic Area	Median Household Value	Median Gross Rent	Owner Occupied	Renter Occupied
Total Study Area	842,866	1,489	8,403	13,796
Santa Barbara County	523,800 849,063*	1,303	74,827	67,277
City of Carpenteria	607,300	1,385	2,347	2,412
Montecito CDP	1,000,000 +	2,000 +	2,522	910
Toro Canyon CDP	1,000,000 +	1,031	440	180
City of Santa Barbara	926,100	1,424	13,784	21,665
Summerland CDP	1,000,000 +	1,385	362	325
City of Ventura	580,565	1,306	22,408	17,532

U.S. Census Bureau: 2007-2011 American Community Survey
2010 U.S. Census: *Table DP-1: Profile of General Demographics Characteristics*
**2013 SBCAG, 2040 Regional Transportation Plan's Figure 5, Santa Barbra Median Home value between 2004-2010 Median Home Value for Study Area was average of median home values within project limits.*

Housing Characteristics

Housing characteristics, including housing types, costs, and occupancy rates in the study area, are shown in Tables 2.10 and 2.11. About half of the housing units in the study area are single-family residences, which is lower than Santa Barbara County as a whole. Multi-family residential units make up about 44 percent of the housing units in the study area and about 29 percent of the housing units in the county. The cities of Carpinteria and Santa Barbara have the smallest proportion of detached single-family housing as well as smaller household sizes.

Table 2.10 Housing Characteristics

Housing Breakdown	Total Study Area	%	Santa Barbara County	%	Carpinteria	%	Montecito CDP	%	City of Santa Barbara	%	Summerland CDP
Total Housing Units	24,846	--	152,839	--	5,429	--	4,238	--	37,820	--	823
Single-Family	12,003	50.2	92,522	64.7	2,577	47.1	3,531	84.7	19,971	53.7	498
Multi-Family	10,551	44.1	41,764	29.2	1,954	35.7	633	15.2	16,687	44.9	264
Mobile Home	1,253	5.2	8,246	5.8	908	16.6	7	0.2	402	1.1	38
Other	114	0.5	369	0.3	34	0.6	0	0.0	117	0.3	0

Source: 2000 U.S. Census Bureau (note: the 2010 Census information is only available for the total number of housing units, but not the breakdown)
U.S. Census 2010 for total housing units only

Table 2.11 Housing Occupancy

Occupancy Breakdown	Total Study Area	%	Santa Barbara County	%	Carpinteria	%	Montecito CDP	%	City of Santa Barbara	%	Summerland CDP	%	Toro Canyon CDP	%
Owner Occupied	8,403	33.8	74,827	49.0	2,347	43.2	2,522	60	13,784	36.4	362	44	440	55.0
Renter Occupied	13,796	55.5	67,277	44.0	2,412	44.4	910	21.0	21,665	57.3	325	39.5	180	22.4
Total Vacant	2,647	10.7	10,730	7.0	670	12.4	806	19	2,371	6.3	136	16.5	184	22.9
Median Household Income (in 2010 dollars)	$67,662	--	$61,896	--	68,498	--	$112,656	--	$63,401	--	$78,750	--	108,438	
Median Gross Rent	$1,489	--	$1,303	--	$1,385	--	$2001+	--	$1,424	--	$1,385	--	$1,031	

Source: 2010 U.S. Census Bureau

Housing Stock Projections

According to the Santa Barbara County Association of Governments Regional Growth Forecast 2010-2040, the excess residential capacity at the end of the 2040 forecast period is 2,443 housing units in the South Coast region and 6,335 housing units in the county. This forecast compares the year 2005-2040 average construction rate and the maximum residential capacity in the sub-regions and the county as a whole.

The total number of housing units in Santa Barbara County and the cities of Carpinteria and Santa Barbara are expected to increase by about 17, 10, and 5 percent, respectively, between 2005 and 2040.

Environmental Consequences

Build Alternative

Under all build alternatives, area residents would benefit from corridor congestion relief and enhanced public access. No regional or community-level impacts are expected to occur with implementation of the alternatives. No displacement of residents or populations would occur. Population characteristics and distribution within the project area would not change. No residences or businesses would be displaced as a result of the proposed project. No neighborhoods would be divided or separated from existing community facilities. In addition, the proposed build alternatives would not result in any residential acquisition or relocation and would not cause any impacts to community character.

No-Build Alternative

Under the No-Build Alternative, existing conditions would remain. There would be no displacement of residents or populations.

Avoidance, Minimization, and/or Mitigation Measures

The build alternatives and No-Build Alternative would not affect existing communities; therefore, no additional minimization or mitigation measures are proposed.

2.1.3.2 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 2010, this was $22,050 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 evidenced by its Title VI policy statement, signed by the Director, which can be found in Appendix C of this document.

Affected Environment

The project area as a whole consists of a variety of socioeconomic neighborhoods. Lower-income populations, ethnic minorities, and higher-income populations live within and close to the project area. The ethnic composition of the project area, as summarized in Table 2.12, is comparable to the County of Santa Barbara. The block groups located in the cities of Carpinteria and Santa Barbara have substantially higher minority populations than Toro Canyon, Summerland, and Montecito. Santa Barbara County has a minority population of about 43 percent. There is greater ethnic diversity in Carpinteria and the project area as a whole, with minority populations of about 49 and 52 percent, respectively.

The median household income of the census block groups in the project area in 1999 ranged from $46,677 to $110,669. As shown earlier in Table 2.11, the overall percentage of households in the project area below the federal poverty level was 12.4 percent in 1999. Census data shows that in 1999, about 11.6 percent of households in Santa Barbara County as a whole were below the poverty level, while 12.5 and 10.9 percent of households below the poverty level were in Summerland and the City of Santa Barbara, respectively.

Table 2.12 Minority and Low-Income Populations

	Project Area	Santa Barbara County	Carpinteria	Montecito CDP*	City of Santa Barbara	Summerland CDP*	Toro Canyon CDP*
Total Population	59,332	423,895	13,040	8,965	88,410	1,448	1,508
Total White	42,773	295,124	9,348	8,267	66,411	1,295	1,388
Total Minority**	16,559	128,771	5,692	698	11,999	143	120
% Minority**	47	43	49	7	40	13	19
Below Poverty Level	8,897	55,086	1,480	343	11,846	141	123
% Below Poverty Level	11.4	15.3	8.1	8.7	14.7	6.4	4.1

Source: U.S. Census Bureau, 2010

** CDP —A census-designated place (CDP) is an area identified by the U.S. Census Bureau for statistical reporting. CDPs are communities that lack separate municipal government, but which otherwise resemble incorporated places, such as cities or villages.*

***Minority population includes Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Hispanic, and Other Races (not White).*

Environmental Consequences

The main purpose of the South Coast 101 HOV Lanes project is to improve traffic flow on U.S. 101. The congestion relief and enhanced accessibility would benefit area residents and other users of this segment U.S. 101. The project would also benefit low-income and minority communities in the area by reducing traffic delays, particularly during peak commute hours, in the project area.

All work would be done within the existing right-of-way, except for temporary construction easements for soundwalls. Temporary construction easements would not have a disproportionate effect on minority or low-income populations. No residential or non-residential temporary relocations are expected to occur. The project would not cause high or adverse impacts to minority populations within the project limits because similar impacts would occur proportionally throughout the project limits.

Avoidance, Minimization, and/or Mitigation Measures

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

2.1.4 Utilities/Emergency Services

Affected Environment

Police protection and traffic enforcement in the study area are provided by the cities of Carpinteria and Santa Barbara, the County of Santa Barbara Sheriff's Department, and the California Highway Patrol. No police or sheriff's facilities are near the project area.

Fire protection within the project area is provided by the Carpinteria-Summerland Fire Protection District, the Montecito Fire Protection District, the City of Santa Barbara Fire Department, and the County of Santa Barbara Fire Department. Two fire stations sit within the project area.

Domestic water services in the study area are provided by the Carpinteria Valley Water District, Montecito and Summerland Water District, and Santa Barbara County Water Agency. Wastewater collection and treatment services are provided by the Carpinteria Sanitary District, Summerland Sanitary District, Montecito Sanitary District, El Estero Wastewater Treatment Plant in the City of Santa Barbara and through septic systems in portions of the unincorporated areas of Santa Barbara County.

Natural gas services in the project area are provided by the Southern California Gas Company; electricity is provided by Southern California Edison. Other utility services in the area include telephone and cable or satellite television services.

Flood control is provided and maintained by the Santa Barbara County Flood Control District.

Refer to Section 2.2.2 for discussion related to drainage and storm water treatment facilities.

The Union Pacific Railroad runs directly adjacent to the southbound lanes of U.S. 101 throughout much of the project length. The single track is used by both freight trains and Amtrak passenger trains.

Environmental Consequences

As a result of reduced congestion, improved access for emergency facilities would occur under all three build alternatives. Emergency access would be provided during construction; therefore, no temporary or long-term impacts to emergency services are expected from the proposed project.

The build alternatives could affect utilities, including domestic water service, wastewater collection and treatment, natural gas service, electric service, and telephone and television utilities.

Construction of the HOV lanes south of the Cabrillo Boulevard interchange would be accomplished without affecting the railroad right-of-way, other than temporary construction easements. Alternatives 1, 2 and 3 would each require a temporary construction easement to replace the Arroyo Parida Bridge (at Arroyo Paredon Creek). However, the proposed work to rebuild the Cabrillo Boulevard interchange would have varying railroad construction impacts that depend on which design configuration is selected. Three of the five Cabrillo Boulevard interchange configurations (J, M and M Modified) propose a full reconstruction and the need for raising the rail line profile (about 4 feet) for half a mile. They would also replace existing structures to provide hook ramps under the tracks with standard vertical clearances. Approvals and easements required from the railroad would require an additional 12 months of lead time for interchange configuration J, M or M Modified. Costs associated with railroad improvements have been estimated at approximately $50 million for interchange concepts J, M and M Modified.

Avoidance, Minimization, and/or Mitigation Measures

As indicated in Section 2.4, coordination between Caltrans and service providers would strive to ensure that utility and services are not disrupted. Pre-construction utility location would be required in conjunction with service providers to avoid disruption of any utility service. Before and during construction, all utilities in conflict with the proposed project would be relocated, avoided, or protected in place.

With the F Modified configuration for the Cabrillo Boulevard/Hot Springs Road interchange, only temporary and minor permanent easements are needed from Union Pacific Railroad.

2.1.5 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 (see 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 (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

Affected Environment

U.S. 101 is the most heavily traveled facility in the county and serves as a vital north-south connection between Northern California and Southern California. The highway also plays a vital role in enabling motorists to access local communities (Ventura, Carpinteria, Summerland, Montecito, Santa Barbara, and Goleta) and coastal areas near the project area. Recognition of this corridor's important role was the basis for preparing a comprehensive set of traffic studies for the proposed South Coast 101 HOV Lanes project.

Traffic data collected in April 2008 along a 27.5-mile section of U.S. 101 were used as a baseline for the following reports: Existing Conditions Operational Analysis (December 15, 2008, Amended December 9, 2011); Travel Forecast Report (February 9, 2009); Forecast Operations Report (October 19, 2009, amended December 9, 2011); and Cabrillo-Hot Springs Interchange Configuration Analysis Technical Memoranda (March 21, 2011 and July 19, 2011).

The traffic studies analyzed 27.5 miles of U.S. 101 from south of Rincon Point/Bates Road interchange to north of the Hollister interchange in Goleta. The extended study limits were necessary to gain a better understanding of how the proposed project would affect the entire South County section of U.S. 101. Within the traffic study area, U.S. 101 varies between four and six lanes wide, with auxiliary lanes in some segments. With the completion of the Ventura/Santa Barbara HOV project in 2015, three lanes in each direction will exist to the south of the project on U.S. 101 from the City of Ventura in Ventura County to the Carpinteria Creek Bridge (post mile 2.0). North of the project limits U.S. 101 has three lanes in each direction from Cabrillo Boulevard (post mile 11.5) to Fairview Avenue (post mile 22.5). The traffic analysis studied the existing operating characteristics of U.S. 101 as well as the interchanges on U.S. 101 that provide access to and from the local street network.

In this corridor, travel patterns show that most commuters travel from the cities of Ventura and Carpinteria into Santa Barbara in the morning and then travel the reverse commute in the evening. The morning peak commute period is generally 7:00 a.m. to 9:00 a.m., and the afternoon peak commute period is 3:30 p.m. to 6:30 p.m. This commuter trend is expected to continue based on existing and predicted housing and job patterns. In addition to daily commuter travel, the afternoon travel period tends to have a greater diversity in trip types, which is reflected by the higher numbers seen during the northbound afternoon peak hours of delay (see Table 2.15). Other trip types in this corridor include interregional travel, goods movement, tourist travel as well as more localized travel for activities such as shopping, recreation, and coastal access.

According to the *Multimodal Corridor System Management – Incorporating Analysis of Transit, Demand Management Programs and Operational Strategies* report, prepared in 2010 for Santa Barbara County Association of Governments, in addition to its regional value, the U.S. 101 serves an even larger role.

U.S. 101 is on the Interregional Road System and the National Truck network. It is designated as a High Emphasis Route and Focus Route in the 2013 Caltrans Interregional Transportation Strategic Plan. U.S. 101 is a Strategic Highway Corridor Network (STRAHNET) route, meaning it is part of a network of linked highways essential to national defense (facilitates the movement of troops and equipment to airports, ports, rail lines, and military bases). This makes this route a high priority for programming to address increased interregional travel demand with an emphasis towards goods movement, recreational, and lifeline needs. Although U.S. 101 is important for interregional traffic, it also serves commute traffic within and from outside of Santa Barbara County and can be used as an evacuation route. It is designated for use by rural areas to growing urban centers and is critical for moving people, goods, services, and technology. U.S. 101 also plays a larger role in the state economy by serving as a secondary route to Interstate 5, by connecting the Los Angeles Basin to Northern California. About 6.7 percent of the traffic along this corridor is attributed to trucks.

In terms of goods movement, there is a great deal of activity along the South Coast and between the cities of Los Angeles and San Francisco. The fresh-packed produce grown in the area, including products related to the wine industry in Santa Barbara and San Luis Obispo counties, is moved by truck or train to the two cities before being shipped out of the region. Interregional travel is also common between Los Angeles and San Francisco and points between.

Collision Rates

Collision rates were evaluated for the three-year period from October 1, 2006 through September 30, 2009 within the project limits for U.S. 101. (Three years of accident data are not yet available following completion of the Milpas Street to Hot Springs Road Operational Improvement project.) During this reporting period, there were 539 total collisions northbound and 361 collisions southbound for a total of 900 accidents on U.S. 101 within the project limits. There was one fatality and 283 accidents involving injuries for both southbound and northbound traffic. The total collision rate for the three-year period is higher than the statewide average for similar facilities (1.02 vs. 0.83). The higher total collision rate can be attributed to unstable traffic flow caused by congestion. The northbound accident rate within the project limits was 1.22 accidents per million vehicle miles. This is 47 percent higher than the statewide average of 0.83 accidents per million vehicle miles for similar four-lane urban freeways. On southbound U.S. 101, the data indicate that the total actual collision rate per million vehicle miles was less than the average rate for similar highway segments.

Of the 900-accident total, 594 collisions (66 percent) were rear-end collisions; 77 accidents (9 percent) were sideswipe collisions; and 192 accidents (21 percent) were hit-object collisions. Most of the accidents (96 percent), therefore, were congestion-related collisions. Because the purpose of the project is to reduce congestion, these accident rates on the freeway mainline are expected to drop.

Collision rates for the northbound Hermosillo Road off-ramp, northbound Cabrillo Boulevard left off-ramp, southbound Cabrillo Boulevard left off-ramp, and the southbound Los Patos Way off-ramp are all above the statewide averages for each ramp (see Table 2.13). The Hermosillo off-ramp averages one non-injury collision per year, which is too small a sample to determine if the collision rate is significant. Analysis of the collisions for the other Cabrillo Boulevard ramps noted above indicate excessive speed to be the common factor. The project proposes to close some ramps, relocate ramps with standard geometry, or improve the geometry of existing ramps. Based on these improvements, the collision rates are expected to drop for the interchange ramps.

Table 2.13 U.S. 101 and Ramp Collision Data from October 1, 2006 to September 30, 2009

Location Limits (post miles 1.4 to 12.3)	Number of Collisions			Actual Rates (*accidents per million vehicle miles traveled*)			Average Rates (*accidents per million vehicle miles traveled*)		
	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
Northbound U.S. 101	1	162	539	0.002	0.37	1.22	0.010	0.27	0.83
Southbound U.S. 101	0	122	361	0.000	0.28	0.82	0.010	0.27	0.83
Ramps within the Project Limits									
Southbound Sheffield left on-ramp	0	0	0	0.000	0.00	0.00	0.002	0.26	0.75
Southbound Sheffield left off-ramp	0	1	2	0.000	0.45	0.91	0.004	0.42	1.20
Northbound Hermosillo off-ramp	0	0	3	0.000	0.00	2.70	0.004	0.28	0.95
Northbound Cabrillo left off-ramp	0	1	4	0.000	0.34	1.35	0.002	0.31	1.00
Northbound Cabrillo on-ramp	0	0	2	0.000	0.00	0.22	0.002	0.26	0.75
Southbound Cabrillo left off-ramp	0	4	8	0.000	0.75	1.50	0.002	0.31	1.00
Southbound Los Patos off-ramp	0	1	3	0.000	1.75	5.25	0.005	0.15	0.45

Source: Caltrans Traffic Accident Surveillance and Analysis System - represents 3 years of continuous data that were not affected by periods of highway construction on the Milpas to Hot Springs Improvement Project, which would have skewed the results.

Transit

According to the Transit Needs Assessment prepared for Santa Barbara County Association of Governments in 2013, the transit providers and systems that transport commuters from outlying cities into Santa Barbara include: Santa Barbara Metropolitan Transit District (SBMTD), Ventura County Transportation Commission (VISTA), Coastal Express Limited, Clean Air Express, and City of Lompoc Transit (COLT).

SBMTD is the largest transit service provider in Santa Barbara County with a total annual ridership over 7 million (7,948,409 in fiscal year 2011/2012). This service includes bus routes throughout the area and shuttle operations serving downtown, the

waterfront, commuter lots, and the zoo. It serves Carpinteria, Summerland, Santa Barbara, and Goleta. SBMTD also operates commuter express bus service between Solvang and Buellton and the Hollister corridor in Goleta and downtown Santa Barbara. SBMTD operates 51 transit routes on the South Coast that include 28 regular routes and 23 school booster routes.

VISTA provides intercommunity bus service that operates between Ventura County and Santa Barbara, including service to University of California Santa Barbara, the Hollister corridor in Goleta, downtown Santa Barbara, and downtown Carpinteria. VISTA operates 53 weekday drips and 20 daily weekend trips between Ventura and the South Coast. VISTA, which is a joint program administered between SBCAG and the Ventura County Transportation Commission (VCTC), had a ridership of 311,827 in fiscal year 2011/2012.

The Coastal Express Limited is a pilot commuter bus service for the U.S. 101 Mussel Shoals\Carpinteria HOV Widening project and began operations in August 2011. This weekday-only commuter bus service provides two round-trips to Goleta and two to Santa Barbara from Ventura County. The Clean Air Express is a commuter bus program that currently provides service to residents of northern Santa Barbara County who commute to jobs in Santa Barbara and Goleta, with 13 round-trips each weekday from North Santa Barbara County to the South Coast. In fiscal year 2011/2012, the Clean Air Express had 222,432 boardings. On Tuesdays and Thursdays, the City of Lompoc Transit (COLT) also provides one round-trip shuttle service to Santa Barbara from Lompoc.

Bicycle and Pedestrian Routes

About 299.7 miles of bikeways run through Santa Barbara County, and about 163.1 miles of bikeways are in the South Coast region. Most of the designated bikeways in the county are Class II and Class III. One recently constructed section of Class I bikeway is adjacent to U.S. 101 along Ortega Hill between Summerland and Sheffield Drive. When bicycles share a local road with vehicles and there is no bikeway designation, it is simply known as a local road. Bikeway classifications are defined in Table 2.14.

Table 2.14 Bikeway Classifications

Bikeway Class	Definition
Class I Bikeway (Bike Path)	Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross-flow by motorists minimized.
Class II Bikeway (Bike Lane)	Provides a striped lane for one-way bike travel on a street or highway.
Class III Bikeway (Bike Route)	Provides for shared use with pedestrian or motor vehicle traffic.
Source: Caltrans Highway Design Manual, September 2006.	

The county also contains multipurpose recreational trails used by bicyclists, hikers, joggers, in-line skaters, skateboarders, and equestrians. A portion of the Pacific Coast Bike Route is located in the project area. The Pacific Coast Bike Route provides a north-south connection between Vancouver, British Columbia, Canada, and Imperial Beach in San Diego, California. Cyclists use the existing route mainly for recreation and local commuting. The Pacific Coast Bike Route through the project limits is a combination of Class I, II, and III bikeways and local roads. Due to safety reasons, bicyclists are not allowed on this stretch of U.S. 101 with the exception of the Class I bike path that parallels the highway on Caltrans right-of-way over Ortega Hill.

Several Class II bikeways are in the project area, including those on Carpinteria Avenue, Via Real, Jameson Road, San Ysidro Road, Olive Mill Road, Coast Village Road, Hot Springs Road, and Olive Mill Road. The project area also contains a few shorter segments of Class I and Class III bikeways, including the previously mentioned Class I path over Ortega Hill built in 2006 as part of the auxiliary lane project that connected the Evans Avenue on-ramp to the northbound Sheffield Drive off-ramp.

According to the Santa Barbara County Association of Governments' Regional Bicycle Plan, on a countywide basis, bicycle use for commuting purposes ranges from 2 to 4 percent of total commute trips. Similarly, according to the Santa Barbara County Association of Governments' *2007 Commute Profile for Santa Barbara, San Luis Obispo and Ventura Counties*, the percentage of Santa Barbara County commuters who bike to work is 2.8 percent, and the percentage of commuters who walk or jog to work is 2.7 percent. Between 2000 and 2011, bicycle commuting grew 47 percent nationwide, with most of the growth occurring in the larger cities: Portland, San Francisco, Seattle,

Boston, New York City and Washington D.C. Santa Barbara County ranks high for the number of bicycle commuters.

Pedestrian facilities near the project area consist of sidewalks and pedestrian trails. Main sidewalks near the project area include those along Carpinteria Avenue and Via Real in Carpinteria; Lillie Avenue in Summerland; and those along Calle Real and Coast Village Road in Santa Barbara. Sidewalks and cross-paths are provided on many streets near the interchanges, but those facilities are not continuous on all streets.

Environmental Consequences

U.S. 101 Mainline Analysis

The three build alternatives would have similar effects on U.S. 101 traffic flow because their differences are strictly focused on whether the widening is proposed to the inside median or outside shoulder. The project's performance measures associated with U.S. 101 mainline patterns were analyzed based on the following three measures of effectiveness:

- Peak period delay (vehicle hours and person hours)

  Vehicle delay is calculated based on the length of time it takes for a vehicle to complete a travel trip. Person hours are based on average vehicle occupancy multiplied by peak period vehicle hours of delay. Delay occurs on U.S. 101 when vehicles travel at speeds below 55 miles per hour. Peak period delay is the sum of all vehicle delay that occurs within a given peak period, or on a typical day, within the designated traffic study area.

- Peak hour trip time

  The length of time it takes to travel during the peak periods (morning and afternoon) between the Ventura County line and North Goleta.

- Peak hour average speed

  The average speed that occurs during a specific hour of highest travel demand (one hour in the morning and one hour in the evening).

Because of the heavily congested conditions already occurring several hours each day, the identified measures of effectiveness were selected instead of the level of service measurement typically used for Caltrans projects. Peak commute periods currently occur from about 7:00 a.m. to 9:00 a.m. and 3:30 p.m. to 6:00 p.m. The peak analysis period is from 6:00 a.m. to 10:00 a.m. and 3:00 p.m. to 7:00 p.m. The measures were

quantified using FREQ macro-simulation software that was developed by the Institute for Transportation Studies at the University of California at Berkeley.[8]

Peak hour intersection analysis was also conducted at U.S. 101 interchange locations within the traffic study limits. Intersection Level of Service, delay, and 95th Percentile Queue were used as the main measures of effectiveness for the intersection analysis.

Table 2.15 provides data for existing (2008) mainline operating conditions and anticipated mainline operating conditions in the design year (2040) based on the three measures of effectiveness noted above.

[8] The FREQ modeling software, developed by the Institute for Transportation Studies at the University of California at Berkeley, was used to simulate peak period freeway operations on U.S. 101 within the study area. The software was selected because it can quickly produce traffic operations results using planning model inputs.

Table 2.15 U.S. 101 Peak Direction Measure of Effectiveness Summary**

Measures of Effectiveness	Existing 2008	No-Build 2040	Build 2040
Northbound morning peak hour average speed (mph) ~^	44.9	26.2	40.5
Southbound afternoon peak hour average speed (mph) ~^	49.3	39.8	52.2
Northbound morning peak hour travel time (minutes) ~*	22.3	48.5	29.3
Southbound Afternoon peak hour travel time (minutes) ~*	23.0	34.7	24.5
Northbound morning peak period hours of delay (vehicle hours) ^	937	9,258	1,492
Southbound morning peak period hours of delay (vehicle hours)	154	1,507	786
Southbound afternoon peak period hours of delay (vehicle hours) ^	871	3,383	1,122
Northbound afternoon peak period hours of delay (vehicle hours)	324	4,261	3,574
Vehicle Occupancy AM	1.27	1.38	1.65
Vehicle Occupancy PM	1.40	1.42	1.70
Northbound morning peak period hours of delay (person hours) ^	1,190	12,776	2,462
Southbound morning peak period hours of delay (person hours) ^	196	2,080	1,297
Southbound afternoon peak period hours of delay (person hours) ^	1,219	4,804	1,907
Northbound afternoon peak period hours of delay (person hours) ^	454	6,051	6,076

Data from "SC 101 HOV Traffic Study forecast Operations Report" dated October 19, 2009 and errata sheet dated March 16, 2011

~ = Peak hour refers to the "worst hour" in a given peak period when travel through the corridor takes the longest

**= for a trip traveling on U.S. 101 between Linden Avenue and Los Carneros (about 20 miles)*

^ = for trips traveling within the traffic study limits (post miles 0.0/27.5)

***Using FREQ Modeling Software*

Peak Hour Speed

Within the traffic study area (U.S. 101 mainline between the Ventura and Santa Barbara county line and North Goleta), the current average speed northbound during the morning peak hour is 44.9 miles per hour. Without the project in 2040, the average speed for the same time and direction of travel would decrease to 26.2 miles per hour. Similarly, the southbound afternoon peak hour average speed is currently 49.3 miles per hour; without the project in 2040, average speeds would decrease to 39.8 miles per hour. With the project in 2040, the average speed would increase to 40.5 miles per hour northbound during the morning peak hour while the average speed would increase to 52.2 miles per hour southbound during the afternoon peak hour (see Table 2.16).

Table 2.16 Peak Hour Travel Speed (2040)

	Northbound Morning	Southbound Afternoon
Travel Speed without Project	26.2 mph	39.8 mph
Travel Speed with Project	40.5 mph	52.2 mph
Travel Speed Improvements with Project	14.3 mph	12.4 mph
Percent Improvement	54.6%	31.1%

Data from "SC 101 HOV Traffic Study forecast Operations Report" dated October 19, 2009 and errata sheet dated March 16, 2011
**Average travel speed shown for a vehicle traveling within the traffic study limits, between the Ventura County line and Winchester Canyon (approximately 27.5 miles).*

Peak Hour Travel Time

Currently, it takes about 22.3 minutes to reach Los Carneros (Goleta) from Linden Avenue (Carpinteria) during the morning peak hour traffic. Without the project in 2040, it is projected to take 48.5 minutes to travel the same distance during the northbound morning peak hour. With the project in 2040, it would take 29.3 minutes to travel the same distance and direction. When heading southbound in the afternoon peak hour period, it currently takes approximately 23 minutes. Without the project in 2040, the southbound afternoon peak hour trip is projected to take 34.7 minutes. With the project in 2040, the southbound afternoon peak hour trip would be approximately 24.5 minutes.

Table 2.17 highlights the savings in peak hour trip times expected with the project.

Table 2.17 Peak Hour Travel Time* (2040)

	Northbound Morning	Southbound Afternoon
Travel Time without Project	48.5 minutes	34.7 minutes
Travel Time with Project	29.3 minutes	24.5 minutes
Travel Time Savings with Project	19.2 minutes	10.2 minutes
Percent Reduction	39.6%	29.3%

Data from "SC 101 HOV Traffic Study forecast Operations Report" dated October 19, 2009 and errata sheet dated March 16, 2011
**Travel times shown for a roughly 20-mile trip (northbound or southbound) traveling on U.S. 101 between Linden Avenue and Los Carneros Road*

The peak hour peak-direction travel time for carpoolers and express bus riders in the HOV lanes is assumed to be equal to or better than the average travel time of others in the mixed-flow lanes.

Peak Period Vehicle Delay

Currently, there are 937 vehicle hours of delay during northbound peak period morning traffic and 871 vehicle hours of delay southbound during the afternoon peak period.

When adding the 154 vehicle hours of delay that occur during the southbound morning peak period to the 937 vehicle hours of delay that occur in the northbound direction, the total delay for the morning peak period amounts to 1,091 vehicle hours of delay. Conversely, when adding the 324 vehicle hours of delay that occur during the northbound afternoon peak period to the 871 vehicle hours of delay that occur in the southbound afternoon peak period, the total delay for the afternoon peak period amounts to 1,195 vehicle hours of delay. For both directions combined, there are currently (as of 2008) 2,286 total daily vehicle hours of delay.

In 2040, without the project, the expected delay for the northbound morning peak period would be 9,258 hours, and the expected delay for afternoon southbound peak period would be 3,383 hours. When adding the 1,507 vehicle hours of delay that occur during the southbound morning peak period to the 9,258 vehicle hours of delay in the northbound direction, the total morning peak period delay amounts to 10,765 vehicle hours. Conversely, when adding the 4,261 vehicle hours of delay for the northbound afternoon peak period to the 3,383 vehicle hours of delay in the southbound direction, the total amounts to 7,644 vehicle hours of delay for afternoon peak period. For both directions combined, there is an expected total of 18,409 daily vehicle hours of delay.

In 2040, with the project, the expected delay for northbound morning peak period travel would be 1,492 hours and the expected delay for southbound afternoon peak period travel would be 1,122 hours. When adding the 786 vehicle hours of delay for the southbound morning peak period to the 1,492 hours in the northbound direction, the total morning peak period delay amounts to 2,278 vehicle hours. Conversely, when adding the 3,574 vehicle hours of delay for the northbound afternoon peak period to the 1,122 vehicle hours of delay in the southbound direction, there is a total afternoon peak period delay of 4,696 vehicle hours. For both directions combined, there is an expected total of 6,974 daily vehicle hours of delay.

Table 2.18 highlights the savings in vehicle hours of delay expected with the project.

Table 2.18 Peak Period Vehicle Hours of Delay (2040)

	Northbound Morning	Southbound Morning	Southbound Afternoon	Northbound Afternoon	Total
Vehicle hours of delay without the project	9,258	1,507	3,383	4,261	18,409
Vehicle hours of delay with the project	1,492	786	1,122	3,574	6,974
Vehicle hours of delay reduction with the project	7,766	721	2,261	687	11,435
Percent reduction	83.9%	47.8%	66.8%	16.1%	62.1%

Data from "SC 101 HOV Traffic Study forecast Operations Report" dated October 19, 2009 and errata sheet dated March 16, 2011

Peak Period Person Hours of Delay

To determine person hours of delay, vehicle hours of delay are multiplied by the number of people in each vehicle. The traffic studies prepared for the South Coast 101 HOV project determined that currently there is an average of 1.27 persons per vehicle in the northbound and southbound morning peak period and 1.40 persons per vehicle during the northbound and southbound afternoon peak period.

With the project in 2040, it is estimated there would be an average of 1.65 persons per vehicle in the northbound/southbound morning peak period and 1.7 persons per vehicle during the southbound/northbound afternoon peak period. These slightly higher vehicle

occupancy numbers reflect the traffic studies assumption of an increase in carpoolers and transit riders.

In 2040, without the project, the South Coast 101 HOV traffic studies estimate an average of 1.38 persons per vehicle during the northbound and southbound morning peak period and 1.42 persons per vehicle during the northbound and southbound afternoon peak period.

Rather than show calculations for determining person hours of delay for each situation, an example is provided that shows how this information was calculated for the peak period travel conditions without the project in 2040. The calculation results are shown in Table 2.19.

The 1.38 persons per vehicle during the northbound morning peak period is multiplied by 9,258 (vehicle hours of delay) to get a total of 12,776 person hours of delay. For the southbound morning peak period, the 1.38 person per vehicle is multiplied by 1507 (vehicle hours of delay) to get a total of 2,080 person hours of delay during the southbound morning peak period. The 1.42 persons per vehicle in the southbound afternoon peak period is multiplied by 3,383 (vehicle hours of delay) to get a total of 4,804 person hours of delay during the southbound afternoon peak period. Conversely, for the northbound afternoon peak period, the 1.42 persons per vehicle is multiplied by 4,261 to get a total of 6,051 person hours of delay during the northbound afternoon peak period.

Comparing time savings of the build condition versus the no-build condition in 2040, the build condition would result in a person-hour savings of approximately 13,969 person hours. This number is the difference in the delay reduction with and without the project and represents an approximate 54 percent reduction in person hours of delay with the project.

Table 2.19 Person Hours of Delay during Peak Hour Travel Time (2040)

	Northbound Morning	Southbound Morning	Northbound Afternoon	Southbound Afternoon	Total
Person hours of delay without the project	12,776	2,080	6,051	4,804	25,711
Person hours of delay with the project	2,462	1,297	6,076	1,907	11,742
Person hours of delay savings with the project	10,314	783	-25	2,897	13,969
Percent reduction	80.7%	37.6%	-0.4%	60.3%	54.3%

Data from "SC 101 HOV Traffic Study forecast Operations Report" dated October 19, 2009 and errata sheet dated March 16, 2011

Intersection Analysis

Peak hour intersection analysis was also conducted at U.S. 101 interchange locations within the traffic study limits. A total of 104 intersections were analyzed within the 27.5-mile traffic study area. These intersections generally included ramp-junction intersections as well as adjacent intersections near the end of the ramp within the traffic study area. This analysis was completed to ensure that the project would not result in substantial changes to traffic levels at ramp junctions and local intersections. Many of the intersections in the study were outside of the project limits. The purpose of an expanded study was to determine the current conditions and to anticipate changes that could be brought about by the project as a result of traffic diversion and shifting traffic patterns. Peak hour intersection Delay, Level of Service, and 95th Percentile Queue were used as the main measures of effectiveness for intersection analysis.

The traffic studies show that, due to redistribution of traffic, the project would result in some changes to local traffic patterns at several ramp junctions off of the highway system.

Because this project would bring overall congestion relief to the corridor, the secondary impacts are not considered individually, but are part of the whole picture. Caltrans evaluated the overall delay in terms of context and intensity and found the impacts not significant. The overall regional traffic benefits would outweigh any minor intersection degradation. Except for modifications proposed at the Cabrillo Boulevard/Hot Springs Road interchange (discussed separately in the next section), no additional improvements

are proposed as part of this project to address the minor delay changes associated with future traffic redistribution within or outside the project limits.

During public review of the draft environmental document, several comments asked that additional details on the intersection analysis be included in this document. Previously, the information was available in the Forecast Operations Report, one of the traffic studies prepared for the project. The report was available online and at several local libraries along with all of the other technical studies prepared for the project. Figure 2-8 has been added to show the future level of service conditions for the evaluated intersections (information is from the Forecast Operations report). The figure has been divided into four sheets for the purposes of showing the entire traffic study limits, which are from south of Rincon Point/Bates Road interchange to north of the Hollister interchange in Goleta.

Of the 104 intersections evaluated in the Forecast Operations Report, nine intersections would be adversely affected by the project. However, it should be noted that these would not be considered significant under Caltrans standards. Caltrans evaluates delay in terms of context and intensity. Constructing the project would result in an overall reduction in delay to the U.S. 101 corridor. Small increases in delay at several intersections would not result from added traffic via new development, but instead would be the result of traffic moving more efficiently through the corridor and accumulating at some intersections faster than prior to the project. Because traffic forecasting relies on anticipating future local development many years out (2040), this is not easy to predict. For further discussion on evaluating the project's long-term impacts on intersections when considering local development, refer to Section 2.5, Cumulative Impacts.

Sheffield Interchange

It should also be noted that the level of service for the no-build scenario at Sheffield shows a shift of traffic onto North Jameson Lane when the parallel local street system is used during peak hours to avoid congestion on U.S. 101. Under the build scenario, traffic would use the Sheffield southbound ramps. Build-scenario delays increase by 9.4 seconds at the southbound ramp-junction intersection (#33) in the 2040 morning peak hours at LOS D. For all other peak hours in 2020 and 2040, delays increase at this intersection by less than 2 seconds at LOS C or better.

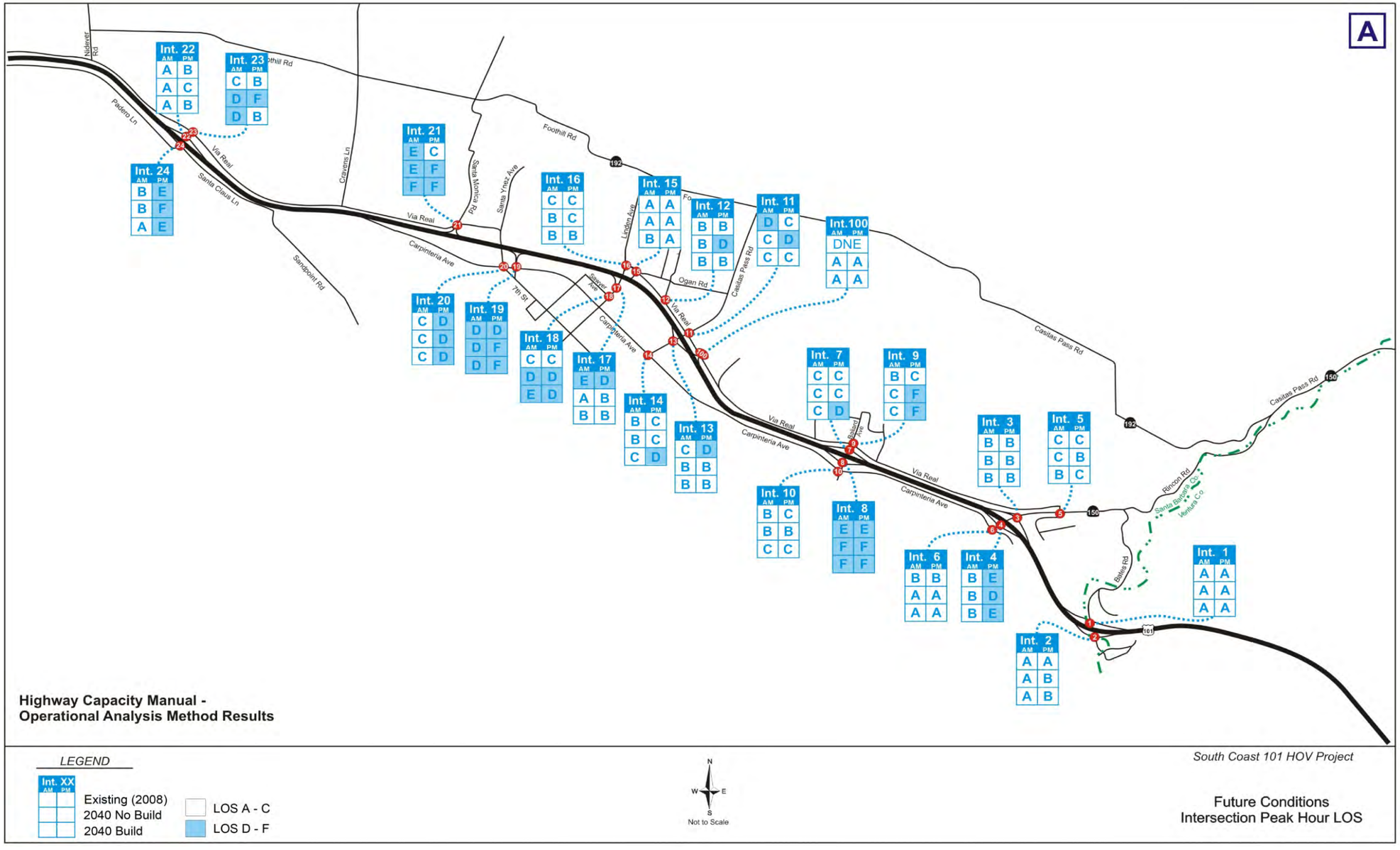

Figure 2-8 Future Conditions for Evaluated Intersections – Peak Hour Level of Service

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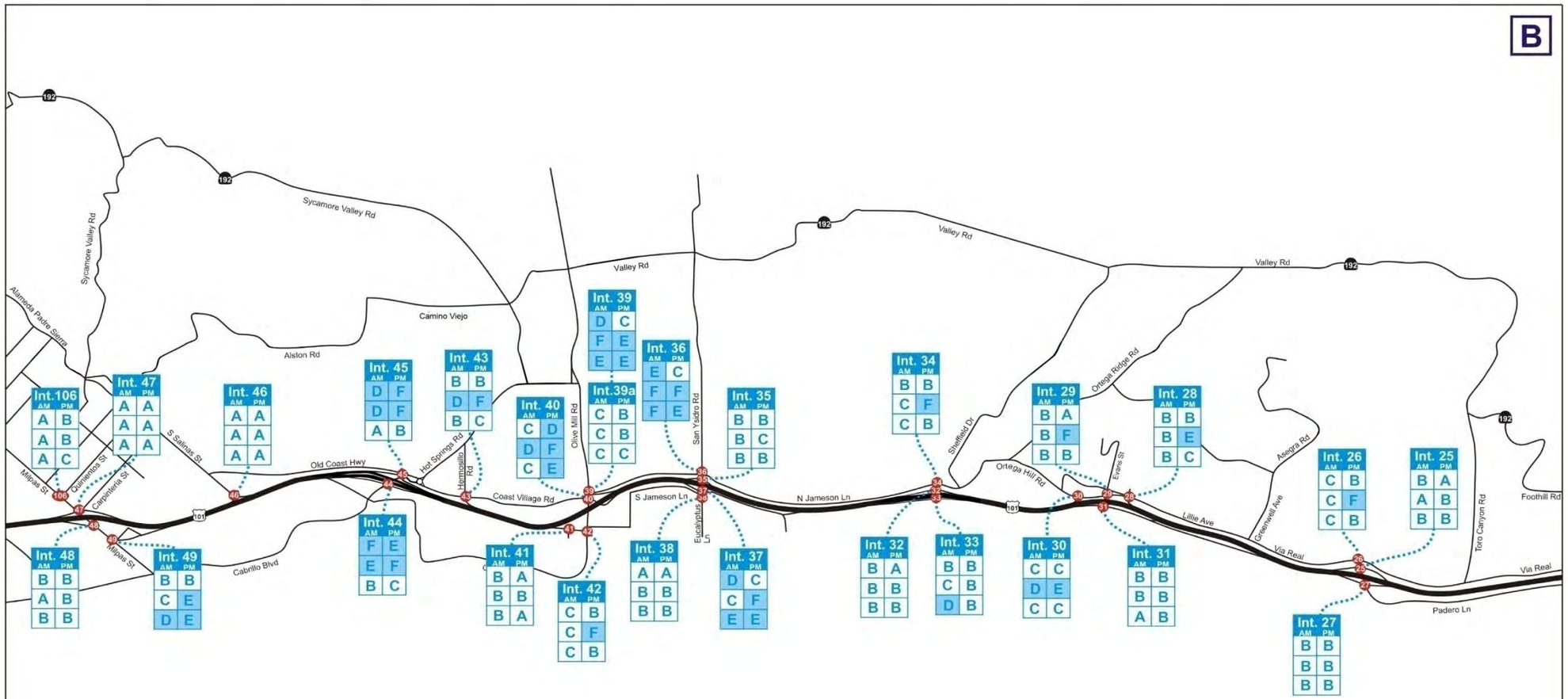
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Int. 47 AM PM A A A A A A
Int. 46 AM PM A A A A A A
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Int. 40 AM PM C D D F C E
Int. 39 AM PM D C F E E E
Int. 39a AM PM C B C B C C
Int. 36 AM PM E C F F F E
Int. 35 AM PM B B B C B B
Int. 34 AM PM B B C F C B
Int. 29 AM PM B A B F B B
Int. 28 AM PM B B B E B C
Int. 26 AM PM C B C F C B
Int. 25 AM PM B A A B B B
Int. 48 AM PM B B A B B B
Int. 49 AM PM B B C E D E
Int. 44 AM PM F E E F B C
Int. 41 AM PM B A B B B A
Int. 42 AM PM C B C F C B
Int. 38 AM PM A A B B B B
Int. 37 AM PM D C C F E E
Int. 32 AM PM B A B B B B
Int. 33 AM PM B B C B D B
Int. 30 AM PM C C D E C C
Int. 31 AM PM B B B B A B
Int. 27 AM PM B B B B B B
Sycamore Valley Rd
Alameda Padre Serra
Camino Viejo
Alston Rd
Valley Rd
Old Coast Hwy
S Salinas St
Quintessa St
Campiteria St
Milpas St
Hot Springs Rd
Hermosillo Rd
Coast Village Rd
Olive Mill Rd
San Ysidro Rd
S Jameson Ln
N Jameson Ln
Eucalyptus Ln
Shelfield Dr
Ortega Ridge Rd
Ortega Hill Rd
Evare St
Asegra Rd
Greenwell Ave
Lillie Ave
Via Real
Toro Canyon Rd
Foothill Rd
Padero Ln
Cabrillo Blvd
192
101
Highway Capacity Manual - Operational Analysis Method Results
LEGEND
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2040 Build
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South Coast 101 HOV Project
Future Conditions
Intersection Peak Hour LOS
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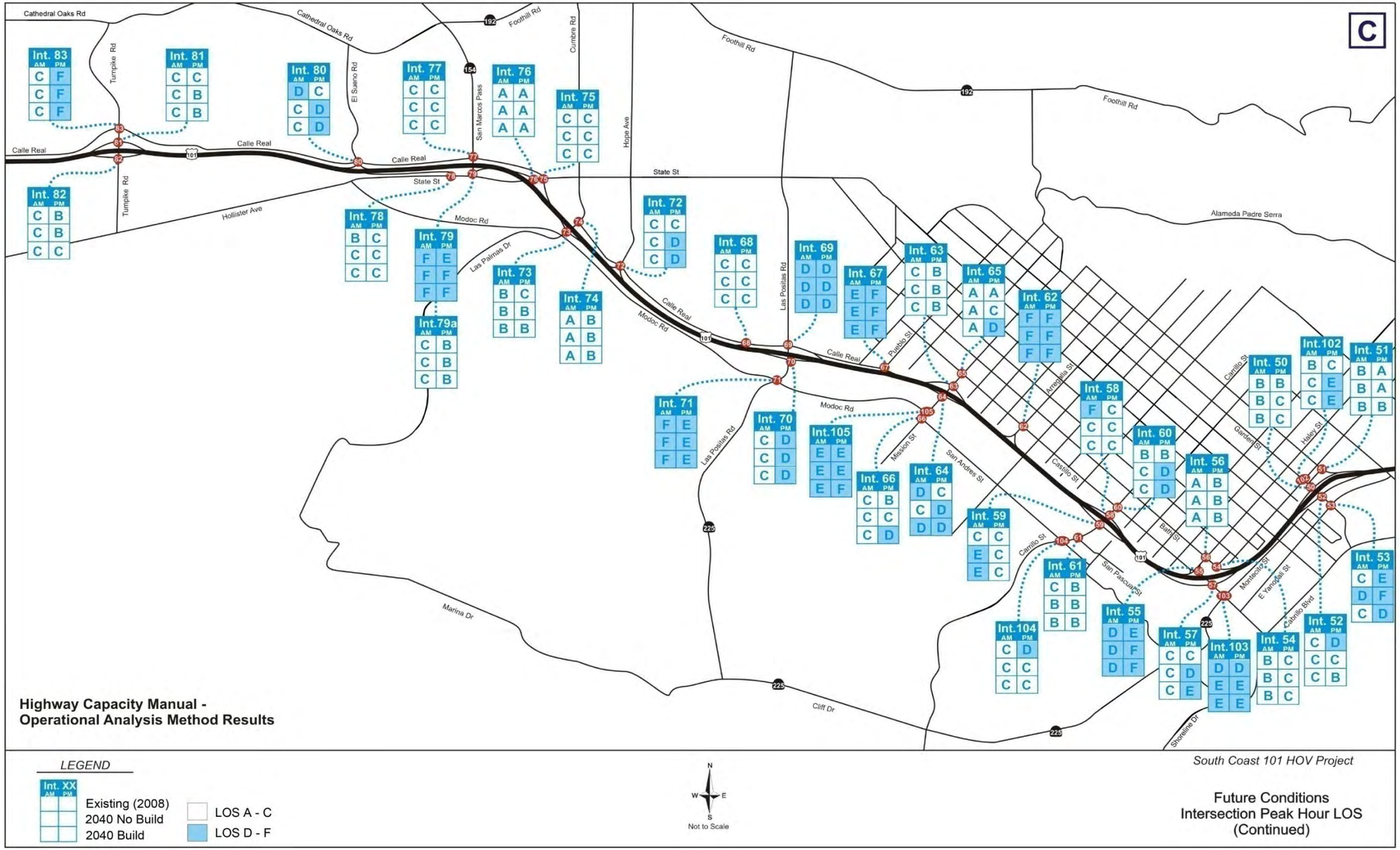
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Int. 74 AM PM A B A B A B
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Int. 69 AM PM D D D D D D
Int. 67 AM PM E F E F E F
Int. 63 AM PM C B C B C B
Int. 65 AM PM A A A C A D
Int. 62 AM PM F F F F F F
Int. 71 AM PM F E F E F E
Int. 70 AM PM C D C D C D
Int.105 AM PM E E E E E F
Int. 66 AM PM C B C C C D
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Int. 50 AM PM B B B C B C
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Int. 51 AM PM B A B A B B
Int.104 AM PM C D C C C C
Int. 61 AM PM C B B B B B
Int. 55 AM PM D E D F D F
Int. 57 AM PM C C C D C E
Int.103 AM PM D D E E E E
Int. 54 AM PM B C B C B C
Int. 52 AM PM C D C C C B
Int. 53 AM PM C E D F C D
Cathedral Oaks Rd
Turnpike Rd
El Sueno Rd
San Marcos Pass
Foothill Rd
Cumbre Rd
Hope Ave
Calle Real
State St
Hollister Ave
Modoc Rd
Las Palmas Dr
Las Positas Rd
Pueblo St
Arrellaga St
Alameda Padre Serra
Camino Cielo
Mission St
San Andres St
Castillo St
Bath St
Garden St
Haley St
Carrillo St
San Pascual St
Montecito St
E Yanonali St
Cabrillo Blvd
Shoreline Dr
Cliff Dr
Marina Dr
Las Positas Rd
Highway Capacity Manual - Operational Analysis Method Results
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South Coast 101 HOV Project
Future Conditions
Intersection Peak Hour LOS
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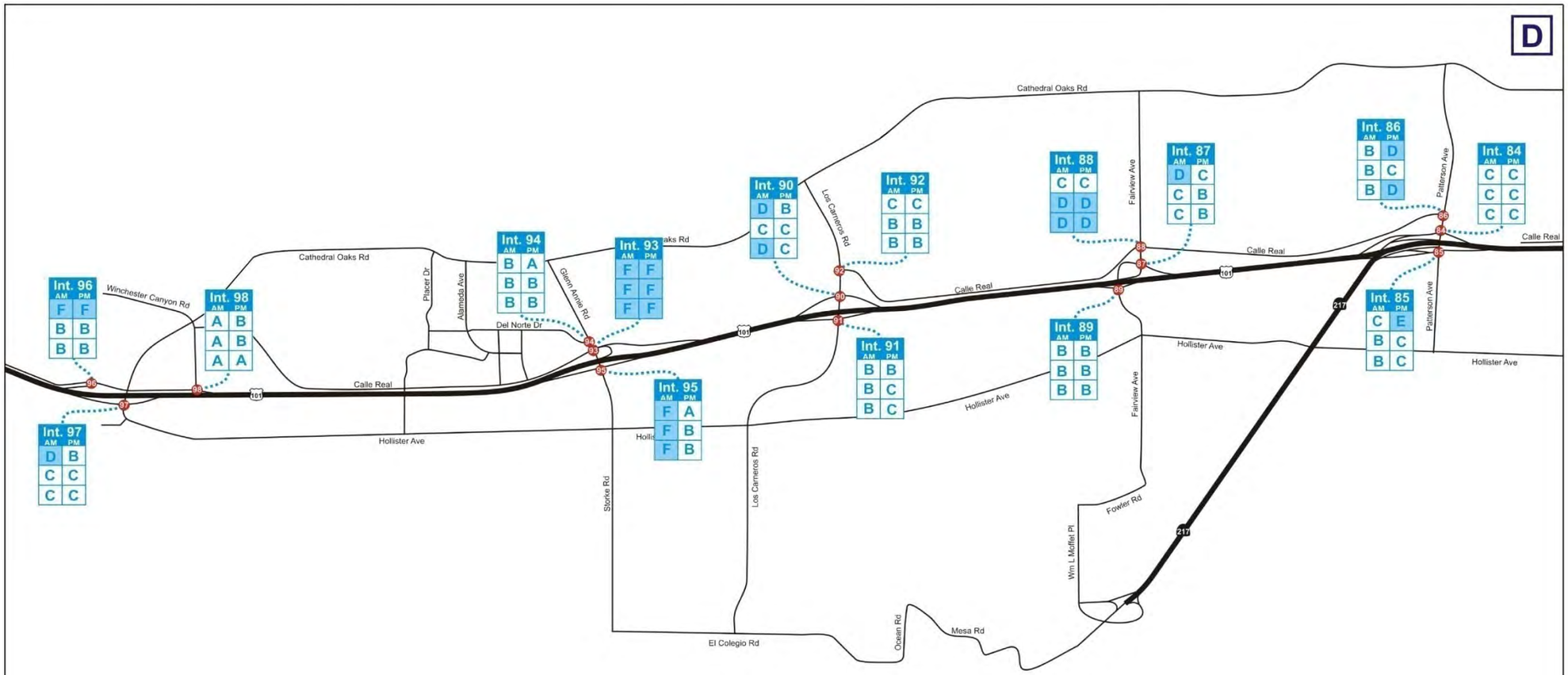
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Int. 90 AM D C D PM B C C
Int. 92 AM C B B PM C B B
Int. 88 AM C D D PM C D D
Int. 87 AM D C C PM C B C
Int. 86 AM B B B PM D C D
Int. 84 AM C C C PM C C C
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Int. 95 AM F F F PM A B B
Int. 89 AM B B B PM B B B
Cathedral Oaks Rd
Winchester Canyon Rd
Placer Dr
Alameda Ave
Del Norte Dr
Glenn Annie Rd
Los Carneros Rd
Fairview Ave
Patterson Ave
Calle Real
Hollister Ave
Storke Rd
Fowler Rd
Wm L Moffet Pl
El Colegio Rd
Ocean Rd
Mesa Rd
101
217
Highway Capacity Manual - Operational Analysis Method Results
LEGEND
Int. XX AM PM
Existing (2008)
2040 No Build
2040 Build
LOS A - C
LOS D - F
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South Coast 101 HOV Project
Future Conditions
Intersection Peak Hour LOS
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Cabrillo Boulevard/Hot Springs Interchange

The five configurations that were considered for the proposed interchange each vary in terms of traffic redistribution. Refer to Section 1.3.1 for descriptions of each configuration. As mentioned earlier in the document, the F Modified configuration was recommended by the Project Development Team as the preferred configuration. Based on public feedback, F Modified also received major support from the public (see Appendix M).

A subset of intersections was chosen based on the overall number of interchange configurations considered for Cabrillo Boulevard. For the Hot Springs/Cabrillo interchange intersection analysis, primary and secondary intersections were identified. Projected turn volumes generated by the Santa Barbara County Association of Governments' travel demand morning/afternoon peak hour models were used to estimate intersection level of service relative to state and local operational criteria.

Primary locations were defined as being intersections physically altered by an interchange concept (design changes that are essential for putting an HOV lane on the mainline). Secondary locations were defined as intersections not physically altered but potentially affected by diverted traffic from primary intersection locations.

Based on the five configurations currently under consideration, three primary intersections and 11 secondary intersections were included in the study.

The following are the three primary intersections:

- Coast Village Road and Hermosillo Road: the northbound off-ramp
- Cabrillo Boulevard and the southbound off-ramp and northbound off-ramp
- Cabrillo Boulevard and the northbound on-ramp

The following are the 11 secondary intersections:

- Olive Mill Road and the northbound off- ramp
- North Jameson Lane and Olive Mill Road
- Olive Mill Road and the southbound on-ramp
- Milpas Street and the northbound on-ramp and off-ramp
- Milpas Street and the southbound off-ramp
- Milpas Street and the southbound on-ramp and off-ramp

- Garden Street and the northbound on-ramp and off-ramp
- Garden Street and the southbound on-ramp and off-ramp
- Garden Street and Yanonali Street
- Cabrillo Boulevard and Los Patos Way
- Cabrillo Boulevard/Hot Springs Road and Coast Village Road

Note that the intersections of Coast Village and the Hermosillo Road and northbound off-ramp were considered as a primary intersection under configurations F, J, and M. Under the modified configurations F and M, however, these intersections were redefined as secondary, given that they would remain physically unchanged relative to their baseline conditions.

Table 2.20 indicates level of service information for the primary intersections that would be rebuilt as part of this project. Level of service is a measurement similar to a report card that is used to evaluate how well intersections and roadways operate. This information covers the morning and afternoon peak hours for the No-Build Alternative and the build alternatives for the 2040 design year.

Three reconstructed ramp intersections (primary intersections) that may warrant traffic signals due to increased traffic as a result of the project are: the northbound ramp(s) at Cabrillo Boulevard, the southbound ramps at Cabrillo Boulevard, and the northbound off-ramp at Hermosillo Road and Coast Village Road. Configuration F Modified and configuration M Modified do not reconstruct the intersection of Hermosillo Road at Coast Village Road; therefore, this location is not considered a primary intersection for these two interchange configurations. The primary intersections for each of the interchange configurations that may warrant traffic signals are as follows:

- Configuration F
    - Hermosillo Road at Coast Village Road
    - Cabrillo Boulevard at the southbound ramps
- Configuration F Modified
    - Cabrillo Boulevard at the northbound ramps
    - Cabrillo Boulevard at the southbound ramps

- Configuration J
    - Hermosillo Road at Coast Village Road
- Configurations M and M Modified
    - Cabrillo Boulevard at the northbound ramps

As previously discussed, maintaining continuity of existing and future bike and/or pedestrian paths will be provided as a part of all interchange configurations.

One primary intersection—Coast Village Road and Hermosillo Road northbound off-ramp— is projected to exceed the Caltrans level of service threshold criteria during one or both peak hours for Cabrillo interchange configurations F and J in the year 2040.

The following secondary intersections are projected to exceed the Caltrans level of service threshold criteria for one or both peak hours:

- Southbound off-ramp and Olive Mill Road
- Southbound on-ramp and Olive Mill Road
- Southbound off-ramp and Milpas Street
- Southbound on-ramp and off-ramp and Milpas Street

For all the above intersections except for Cabrillo Boulevard and Los Patos Way, it was determined that no work would occur at any of these locations as part of the project due to the relatively minor increases in traffic and the uncertainty in predicting traffic redistribution patterns.

The intersection of Los Patos Way and Cabrillo Boulevard is projected to operate at level of service F during peak hours in 2040. No work is being shown at this location because the City of Santa Barbara has already included an intersection improvement project at this location in the 2014-2018 Capital Improvement Program. Caltrans would work with the City to ensure this improvement is completed before constructing the ramp changes for the proposed South Coast 101 HOV Lanes project.

Based on the Highway Capacity Manual (HCM) Two-Way Stop Controlled (TWSC) methodology, the intersection of Los Patos Way and Cabrillo Boulevard is projected to operate at level of service F during peak hours in 2040[9]. This methodology does not

[9]*Note:* Two-way stop control (TWSC) intersection level of service (LOS) is based on worst approach control delay per vehicle, using the 2000 Highway Capacity Manual methodology and therefore provides a single output that does not represent travel conditions for other intersection users. Conversely, all-way

effectively reflect the anticipated conditions for travelers on Cabrillo Boulevard, as most users of this intersection would experience little to no delay. Using a weighted average control delay methodology, similar to an approach used for traffic signals, this would instead represent a 2040 LOS value of "A" in the morning peak hour and LOS "B" in the afternoon peak hour. The northbound and southbound ramp junction intersection improvements associated with the preferred interchange configuration is also anticipated to reduce queuing that would otherwise extend back into the Los Patos/ Cabrillo intersection during peak times under the 2040 no-build condition.

The City of Santa Barbara has an intersection improvement project at this location in their 2014-2018 Capital Improvement Program. The area between the southbound ramp intersection (for the preferred F Modified configuration) at Cabrillo and the Los Patos/Cabrillo intersection is also the subject of bicycle and pedestrian improvements led by Santa Barbara County Association of Governments and the City of Santa Barbara. These improvements would improve bicycle and pedestrian connectivity along Cabrillo Boulevard by replacing the Union Pacific Railroad structure over Cabrillo Boulevard, providing bike and pedestrian facilities on both sides of Cabrillo Boulevard and controlled pedestrian crossing opportunities at the Los Patos/Cabrillo Boulevard intersection. A consultant that has experience working with Union Pacific Railroad has been hired by the City of Santa Barbara to complete this work, and the SBCAG board has identified this project as a priority improvement for regional funding.

The Caltrans team has coordinated with City and SBCAG staff to ensure that F Modified can be designed in a manner that provides for bicycle, pedestrian, and vehicular connectivity and consistency with the SBCAG/City improvement project. Caltrans will coordinate closely with the City and SBCAG on these improvements during the design and permitting phase of the HOV project and options for shared funding and/or concurrent construction efforts will be further discussed at that time.

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stop and signal controlled intersection LOS in the 2000 Highway Capacity Manual is based on weighted average control delay per vehicle. At the Los Patos/Cabrillo intersection, the low LOS value indicated by the TWSC methodology is based on a limited number of vehicles making left turns that would experience a 95th percentile queue of 2-4 vehicles in 2040 from the side streets. Vehicles traveling through the intersection on Cabrillo Boulevard, however, would experience little to no control delay. Under F Modified, if no further improvements were made at this intersection apart from this project, the average vehicle control delay in 2040 for vehicles that travel through this intersection would be 3.1 seconds/vehicle in the morning peak hour and 12.1 seconds/vehicle in the afternoon peak hour. Using a weighted average control delay methodology, this would represent a 2040 LOS value of "A" in the morning peak hour and LOS "B" in the afternoon peak hour.

Table 2.20 Primary Intersection Level of Service Summary

Location and Intersection Number	Existing		No-Build		Cabrillo Interchange F		Cabrillo Interchange F Modified		Cabrillo Interchange J		Cabrillo Interchange M		Cabrillo Interchange M Modified	
	2008		2040		2040		2040		2040		2040		2040	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Southbound and northbound off-ramps (left) #44 at Cabrillo Blvd.	F	E	D	C	-	-	- -	- -	- -	- -	- -	- -	- -	- -
Southbound on- and off-ramps (right) #44 at Cabrillo Blvd.	B	D	- -	- -	C	C	B	C	- -	- -	- -	- -	- -	- -
Northbound on-ramp #45 at Cabrillo Blvd.	D	F	A	C	B	D	- -	- -	B	D	- -	- -	- -	- -
Northbound on- and off-ramps #45 at Cabrillo Blvd.	-	-	- -	- -	- -	- -	A	B	- -	- -	B	B	B	B
Northbound off-ramp (right) #43 at Hermosillo Road	C	F	C	F	B	C	*	*	B	C	- -	- -	*	*

Data from "Cabrillo/Hot Springs Interchange Configuration Traffic Analysis," March 21, 2011, and "Memorandum Cabrillo Boulevard I/C Modified Configuration Analysis" dated July 19, 2011, "South Coast 101 HOV Lanes Existing Conditions Operations Analysis" (December 15, 2008; amended December 9, 2011, and "South Coast 101 HOV Lanes Forecast Operations Report of October 19, 2009" (amended December 9, 2011). Addendum to July 19, 2011Cabrillo/Hot Spring Interchange Configuration Analysis Technical Memorandum –I/C Modified Configuration Analysis (March 14, 2014)

Table amended since release of draft environmental document to remove 2020 data based on decision that the project would not be fully constructed by that date.

*Notes: * Not a primary intersection*
Proposed intersection location and/or lane configurations vary by interchange concept for intersections #44, #45, and #107

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Bicycle and Pedestrian Routes

None of the three build alternatives would permanently affect parking, bicycle, or pedestrian facilities, including the Pacific Coast Bike Route. Where the project is proposing local-street changes, all modified pedestrian facilities would comply with the Americans with Disabilities Act. The project would facilitate pedestrian and bicycle access by ensuring all existing bicycle and pedestrian facilities are retained or replaced as needed. Building the six-lane highway would reduce through-trips by vehicular traffic on the local street system by those seeking to avoid U.S.101 congestion. In areas where traffic trips onto the local streets are reduced, there would be added benefits for bicycle, pedestrian and local transit users that depend on the local street system for travel.

In several locations within the project limits, bicycle and pedestrian improvements are desired by the local agencies and have been included as part of circulation plans. Desired improvements include access structures to cross over or under the freeway. Although the South Coast 101 HOV Lanes project would not construct those new facilities as part of its project or scope, it would not preclude the facilities from being constructed as planned.

As a result of the recent Local Coastal Plan Amendment process with the City of Carpinteria, two additional projects have been identified in the Carpinteria area that would provide greater connectivity in the city for the Coastal Route Bike Path. The first project proposes to extend the bike path adjacent to the Salt Marsh from Santa Claus Lane to Carpinteria Avenue. This Class I path proposes to close the coastal trail gap. The second project is the Rincon Coast Trail that would extend from Carpinteria Avenue to Rincon County Park. The proposed improvement will close the coastal trail gap between Carpinteria Avenue and the new Class I trail along U.S. 101 at Rincon. Currently, the Santa Barbara County Association of Governments has been identified as the lead agency for both projects. Both trails are expected to be built before completion of the South Coast 101 HOV Lanes project.

During construction of the Cabrillo Boulevard/Hot Springs interchange, consideration would be given to bicyclists, pedestrians, and persons with disabilities who need access through construction areas. Nearby is the existing Butterfly pedestrian undercrossing. Entrance points to the pedestrian undercrossing were improved as part of the Milpas Street/Hot Springs Road project. Further improvements to provide full Americans with Disabilities Act accessibility are also being considered as part of a Caltrans candidate SHOPP funded project. With Cabrillo Boulevard interchange configurations F

Modified, M, and M Modified, access or use of this facility would not be diminished, however, the existing light well in the center would be closed. For interchange configurations F and J, in addition to the closure of the light well, the Hermosillo ramp would be widened in this location, requiring a change to the eastern approach of the undercrossing structure. Provisions would be made to keep the overcrossing open for use during construction.

As noted earlier, the area between the Proposed F Modified southbound ramp intersection at Cabrillo and the Los Patos/Cabrillo Boulevard intersection is also the subject of bicycle and pedestrian improvements being completed by SBCAG and the City of Santa Barbara. The SBCAG/City of Santa Barbara projects propose to improve bicycle and pedestrian connectivity along Cabrillo Boulevard by replacing the Union Pacific Railroad structure over Cabrillo Boulevard, providing bike and pedestrian facilities on both sides of Cabrillo Boulevard and controlled pedestrian crossing opportunities at the Los Patos/Cabrillo Boulevard intersection. The Caltrans team has coordinated with the City of Santa Barbara and SBCAG staff to ensure that F Modified can be designed in a manner that provides for bicycle, pedestrian, and vehicular connectivity when the SBCAG/City of Santa Barbara improvement project is completed.

Avoidance, Minimization, and/or Mitigation Measures

- Coordinate with local jurisdictions as needed to minimize disruptions to traffic, pedestrians, and bicyclists associated with local and state road construction projects in the corridor. Refer to Construction Impacts under Traffic Circulation (including pedestrian and bicycle) for further details regarding a required Transportation Congestion Management Plan.
- Where the project proposes local street changes, all modified pedestrian facilities would comply with the Americans with Disabilities Act.
- All existing bike or pedestrian facilities would be retained or replaced as needed.

2.1.6 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 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 about 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" (California Public Resources Code Section 21001[b]).

Affected Environment

This section is based on the Visual Impact Assessment (November 2011) and the Addendum to the Visual Impact Assessment (March 2014), completed as technical studies for this project.

U.S. 101 through coastal Santa Barbara County has long been recognized for its scenic qualities. Local coastal planning policies emphasize the protection of visual resources along U.S. 101 and note the concern and sensitivity to aesthetic issues along this route.

Public opinion and policy on the established visual character of the regional landscape are important factors in assessing the baseline values of the setting. These policies and community-based goals can be used to predict the likely reaction that changes resulting from the proposed project would evoke from the viewing public.

The project passes through three local jurisdictions—Santa Barbara County, the City of Carpinteria, and the City of Santa Barbara—as well as the unincorporated communities of Summerland, Toro Canyon and Montecito. The entire project sits within the Coastal Zone. The project is subject to Coastal Zone policies and the issuance of Coastal Development Permits, so many aspects of the project would be regulated by the applicable local coastal plans and the Coastal Commission policies.

Existing Visual Setting

The regional topography is characterized by coastal bluffs and plains flowing into the rolling foothills of the Santa Ynez Mountains. The terrain is mostly flat near the coastal edge, with slopes becoming as steep as 30 percent near the hills. The form and ridgeline of the mountains about 1 to 5 miles to the northeast create a dominant element in the landscape, providing a clearly defined visual limit for the region.

Surface water plays an important role in establishing the visual character of the region. The Pacific Ocean is visible from many parts of the study area and, where seen, provides dramatic contrast in terms of color and form to the surrounding landscape. Several seasonal creeks cross the project area as they flow from the foothills to the sea. Water in these creeks is not always visible; the creeks' presence in the landscape is mostly seen as narrow corridors of riparian vegetation.

Wetlands are present in the region. The two largest are the 230-acre Carpinteria Salt Marsh and the 29-acre Andrée Clark Bird Refuge in Santa Barbara.

Vegetation throughout most of the region is varied. Much of the area has been greatly influenced by development of some sort. The typical skyline vegetation along the highway and developed areas consists of mature cypress, pine, eucalyptus and palms. Native vegetation is seen mainly on hillsides and consists of coast live oak woodland, coastal sage scrub, chaparral and riparian plant communities. Orchards occur in scattered spots, particularly in the foothills near Summerland and Carpinteria.

A wide range of development is found throughout the region. Each community has some commercial development, much of it in the vicinity of U.S. 101, with many residential areas on the inland side of the highway. Much of the commercial development is tourism oriented. The western end of the study area in Santa Barbara is the most densely developed part of the region. There is commercial development along Santa Claus Lane and at the eastern Padaro Lane/U.S. 101 interchange, both of which are visible from U.S. 101. Some light industry and greenhouses are found near the east end of the study area near Carpinteria. In the region are several recreational facilities that have tennis courts, a golf course, a county park, and beach access areas. Highway roadsides are generally well landscaped, effectively screening much of the built character of the adjacent community.

Methodology

When analyzing visual resource changes, one must look at how these attributes relate to one another and their setting. This is done by using Federal Highway Administration methodology guidance, which includes three visual rating criteria described as follows:

1. Vividness is the visual power or memorability of the landscape components as they combine in striking and distinctive visual patterns.

2. Intactness is the visual integrity of the landscape and its freedom from non-typical encroaching elements. If all of the various elements of a landscape seem to "belong" together, there will be a high level of intactness.

3. Unity is the visual harmony of the landscape considered as a whole. Unity represents the degree to which potentially diverse visual elements maintain a coherent visual pattern.

To provide a clear description of the existing visual setting and to define anticipated impacts, the project area was divided into six landscape units. Landscape Assessment Units or "Units" divide the project into manageable segments that may share visual attributes, potential project effects, and if necessary, impact reduction strategies.

The project corridor was divided into the following six Landscape Assessment Units. The units are defined along the highway corridor from the western end of the project to the east.

Carpinteria City Unit (post miles 1.4 to 4.1)—From 0.22 mile east of Bailard Avenue to 0.2 mile west of Santa Monica Road

This unit is defined by its proximity to the community center of Carpinteria. As part of the eastern section of the project corridor, views to the Santa Ynez Mountains and agriculture are important visual elements. The Carpinteria City Unit is also influenced by views of the central business district, and residential and visitor-serving commercial development along the highway. This unit is generally well landscaped and has limited or no views of the Pacific Ocean from U.S. 101, except for a brief segment near Bailard Avenue across the Bluffs Nature Preserve and Viola Fields open space areas.

Carpinteria Salt Marsh Unit (post miles 4.1 to 5.6)—From 0.2 mile west of Santa Monica Road to the Arroyo Parida (Paredon) Creek Bridge

This unit is another part of the eastern section of the project corridor, where views to the Santa Ynez Mountains and agriculture are important visual elements. The visual identity of this unit, however, is also greatly influenced by its proximity to the Carpinteria Salt Marsh. Although partially screened by roadside and median vegetation, views of the Pacific Ocean are available from this unit. As seen from U.S. 101, views of the tourist-oriented businesses along Santa Claus Lane are also available. This landscape assessment unit includes views of some of the lesser-developed areas along the project corridor.

Padaro Unit (post miles 5.6 to 7.1)—From Arroyo Parida (Paredon) Creek Bridge to the North Padaro Lane overcrossing

This unit includes the unincorporated Toro Canyon area between the City of Carpinteria and the unincorporated community of Summerland. The visual environment through this unit is defined to a great extent by mature trees and landscaping along and next to the highway corridor. A group of trees known as the Memorial Oaks line a portion of U.S. 101 within this unit. These oaks were planted to honor Santa Barbara County soldiers who died in World War I and, although not a historical resource, are considered of local interest. The oaks contribute to the vegetative character of the Padaro Unit, although their commemorative value is likely not apparent to the casual highway traveler. Further discussion of the Memorial Oaks is provided below. A low to moderate amount of development is seen in this area, mostly residences—from medium-density north of the highway to large estates along the ocean bluff. A limited amount of commercial development is visible at the eastern Padaro undercrossing. Long distance ocean views exist from the eastern and westernmost portions of this assessment unit.

Summerland Unit (post miles 7.1 to 9.2)—From the North Padaro Lane overcrossing to 0.2 mile west of the Sheffield undercrossing

This unit is composed of the Summerland community and its vicinity. This visually distinctive unit includes dramatic ocean and coastline vistas as well as views of the Summerland commercial area and residential community extending uphill from U.S. 101. A moderate amount of landscaping is found along and next to the highway corridor throughout this assessment unit.

Montecito Unit (post miles 9.2 to 11.1)—From 0.2 mile west of the Sheffield undercrossing to Hermosillo Road

This unit includes the highway corridor and vicinity from just west of Ortega Hill to the Los Patos Way off-ramp. This unit is characterized to a great degree by its abundance of mature highway and neighborhood landscaping, along with a somewhat more curvilinear highway alignment. Several large median trees are found in this assessment unit. Few if any ocean views are available from the highway through the Montecito unit.

Santa Barbara City Unit (post miles 11.1 to 12.3)—From Hermosillo Road to Sycamore Creek

This unit represents the westernmost segment of the project corridor study area. This assessment includes the Cabrillo Boulevard Interchanges as well as the Andrée Clark Bird Refuge. Although mature landscaping is an important component in the area, this

unit is also partially influenced by the more urban visual character of Santa Barbara City. Ocean views are not available from this assessment unit.

Memorial Oaks

Apart from the Landscape Assessment Units described above, the Memorial Oaks area along U.S. 101 in the Serena Park area west of Carpinteria was identified as an area of special community interest. Although the Memorial Oaks are not eligible as a historical resource, they do contribute to the vegetative character of the corridor. As a result, they are being addressed here under Visual/Aesthetics.

In the aftermath of World War I, countless memorials were erected across the United States to honor the nation's war dead. One particular form of memorial, the planting of living trees, was promoted as being an especially fitting way of perpetuating the memory of fallen troops. In addition to memorializing a community's loss, memorial trees were also seen as an effective way of greening the landscape, replanting a stock of trees to replace those that had been harvested for wartime purposes, and beautifying the county's streetscapes and open highways, dovetailing in some respects with civic improvement and the "Good Roads" movement. State highway departments also embraced the idea as part of the general highway beautification trend and as a practical solution to help prolong the life of road pavement surfaces by keeping them shaded.

A decade after the end of World War I, Santa Barbara County planted 71 Memorial Oaks in the Serena Park area between Carpinteria and Summerland alongside what was, at the time, a narrow rural two-lane highway. The trees were planted about 50 feet apart in a quarter-mile-long row on both the north and south shoulders of the highway, and each tree reportedly had a wooden marker inscribed with the name of a local soldier who had died in service. Under the direction of Santa Barbara's American Legion Post 49, whose idea it had been to plant the trees, the Memorial Oaks were officially dedicated on Mother's Day, May 13, 1928, in a ceremony attended by more than 150 former soldiers, their families and friends, and the State Highway arboriculturist. Local Boy Scouts planted flowers and placed small flags around the trees, and the ceremonies concluded with a volley fired by the American Legion drill team, and the playing of taps.

In the mid-1950s, the California Division of Highways (later the California Department of Transportation, or Caltrans) converted the two-lane highway to full freeway status by adding two lanes to the north of the existing lanes and limiting access from side roads. As a result of these changes, the Memorial Oaks that formerly had been located on the

north side of the two-lane highway were now in the median of the four-lane freeway. Over the years, some of the original oaks died and acorns sprouted and matured in between the original plantings.

The Memorial Oaks were evaluated for National Register eligibility in 1991 in connection with the Santa Barbara Six-Lane project. In 2009, Caltrans retained JRP Historical Consulting to do research and evaluate historic-period built-environment resources in the current project's area of potential effects, including the Memorial Oaks. JRP revisited the resources and again evaluated the significance and integrity of the trees. JRP documented that, during the nearly 20-year interval since the first evaluation, the Memorial Oaks had continued to dwindle in number, with fewer than half of the original 71 still standing based on an estimate of 16 in the median and 16 along the southbound shoulder of U.S. 101. The JRP studies confirmed Caltrans' earlier evaluation that the original roadway appearance, with 71 oak trees spaced at regular intervals along the rural two-lane highway, was a landscape that no longer existed, and that the oaks were not eligible for listing in the National Register of Historic Places. The State Historic Preservation Officer concurred with this determination on January 26, 2011 (see Appendix D). However, while the oaks do not meet the criteria for the National Register of Historic Places or as historical resources under the California Environmental Quality Act, they are of local interest and are discussed in Sections 2.3 Biological Environment and 3.3 Mitigation Measures for Unavoidable Impacts under the California Environmental Quality Act.

As part of the process of gathering information about historic-period resources in the project area of potential effects, Caltrans formed a Memorial Oaks Focus Review Group to learn community opinions and hear community concerns about the oak trees. Caltrans recognized that, although the Memorial Oaks are not officially designated as a local historical resource, the trees are mentioned in the *101 In Motion Final Report* (2006) and the *Toro Canyon Plan (*Santa Barbara County, 2004*)*, and would be directly affected by the project. The Focus Review Group met five times between April 7, 2009, and May 5, 2010, with the following participants:

Vera Bensen, Carpinteria Valley Association
Bob Duncan, Santa Barbara County Historic Landmarks Advisory Commission
David Griggs, Carpinteria Valley Historical Society and Museum of History
Gretchen Johnson, Carpinteria Citizen
Roxie Lapidus, Carpinteria Valley Association
William Stewart, Vietnam Veterans of America

Staff from the Santa Barbara County Planning and Public Works Department, the Santa Barbara County Association of Governments, JRP Historical Consulting, and Caltrans also participated in the meetings.

During the course of these meetings, JRP staff presented the results of the studies and their conclusion that, given that the trees in their present setting lack sufficient integrity to be able to convey their significance as a World War I memorial, they are not eligible for listing in the National Register and do not constitute historical resources for the purposes of the California Environmental Quality Act. Caltrans presented information on design scenarios for adding the new HOV lanes and how these might variously affect the Memorial Oaks. Caltrans staff also reported that, today, there are only approximately 32 trees believed to be from the original planting, that these trees are now intermixed with younger volunteer oaks and other vegetation, and that there is a wide variation in the health and appearance of these trees. Ongoing maintenance of the mature oaks, especially in the median, often requires severe pruning that interferes with the oaks' natural wide-spreading habit of growth. Trees damaged by roadway collisions or toppled by storms have also been removed.

The Focus Review Group developed and considered a number of recommendations to minimize project impacts to the Memorial Oaks and potentially revive their commemorative aspects. The group noted that as highway and freeway speeds have increased, the opportunity to park alongside the roadway, walk under the trees, and read the names is now long gone, making it more difficult to observe and appreciate the Memorial Oaks for what they are. The Focus Review Group gave considerable attention to a number of factors when developing recommendations: specific engineering constraints; impacts to other resources; the health and viability of the trees at their present location; options available for signage and other treatments on U.S. 101 to make drivers aware of the Memorial Oaks; potential for moving trees; and the possibility of developing a nearby offsite location to serve as a fitting focal point for a memorial. These efforts resulted in several formal recommendations being made to the Project Development Team. It was acknowledged, however, that certain elements were beyond the scope of the project.

Observer Viewpoints

Within the Landscape Assessment Units described above, 27 critical viewing locations were identified to best reveal the project features and any potential visual character change. The total number of potential viewpoints associated with this approximately 11-mile project is infinite, and it would not be possible to attempt to show every possible

viewing scenario. Consistent with Federal Highway Administration guidance, representative viewing locations, called Observer Viewpoints (OV), were selected to best disclose the typical visual character of the project, show unique project components or affected resources, and represent affected viewer groups.

Table 2.21 lists the Observer Viewpoints, which include viewpoints both from the highway as well as from the surrounding community.

The viewpoints are also shown in Figures 2-9, 2-10, and 2-11.

Table 2.21 Observer Viewpoint Locations

OV No.	Landscape Assessment Unit	Location
1	Carpinteria City Unit	From Linden Ave. overcrossing looking northbound.
2	Carpinteria City Unit	From U.S. 101 near Santa Monica Road looking southbound.
3	Carpinteria Salt Marsh Unit	From U.S. 101 near Cravens Lane looking northbound.
4	Carpinteria Salt Marsh Unit	From Via Real near Sunset Drive looking southbound.
5	Padaro Unit	From U.S. 101 near the Polo Fields looking southbound.
5A	Padaro Unit	From U.S. 101 west of South Padaro Lane looking southbound.
6	Padaro Unit	From U.S. 101 east of the North Padaro overcrossing looking northbound.
7	Summerland Unit	From U.S. 101 west of the North Padaro overcrossing looking northbound.
8	Summerland Unit	From Lillie Ave. near west of Greenwell Ave. looking northbound.
9	Summerland Unit	From U.S. 101 near the Evans Ave. undercrossing looking southbound.
10	Summerland Unit	From Ortega Hill Rd. near the bike path looking south toward U.S. 101.
11	Summerland Unit	From Colville Street looking south toward U.S. 101.
12	Summerland Unit	From Hollister Street looking south toward U.S. 101.
13	Montecito Unit	From U.S. 101 east of Sheffield Dr. undercrossing looking northbound.
14	Montecito Unit	From U.S. 101 west of Sheffield Dr. undercrossing looking southbound.
15	Montecito Unit	From U.S. 101 east of Romero Creek looking northbound.
16	Montecito Unit	From U.S. 101 near Posilipo Lane looking southbound.
17	Montecito Unit	From North Jameson Lane near Santa Isabel Lane looking southwest.
18	Montecito Unit	From San Ysidro Road overcrossing looking northbound.
19	Montecito Unit	From U.S. 101 west of San Ysidro Rd. overcrossing looking northbound.
20	Montecito Unit	From Olive Mill Road overcrossing looking northbound.
21*	Santa Barbara City Unit	From U.S. 101 east of the Cabrillo Boulevard interchange looking northbound.
22*	Santa Barbara City Unit	From the Old Coast Highway north of the Cabrillo Boulevard interchange looking southwest.
23*	Santa Barbara City Unit	From Los Patos Road looking northwest toward U.S. 101.
24	Santa Barbara City Unit	From approximately 1000 ft. west of Cabrillo Blvd. looking southbound.
24A*	Santa Barbara City Unit	From approximately 1500 ft. west of Cabrillo Blvd. looking southbound.
25	Santa Barbara City Unit	From U.S. 101 near Salinas Street looking northbound.

** Observer Viewpoints 21 through 24A represent the Cabrillo Boulevard interchange.*

Source: Visual Impact Assessment (November 2011)

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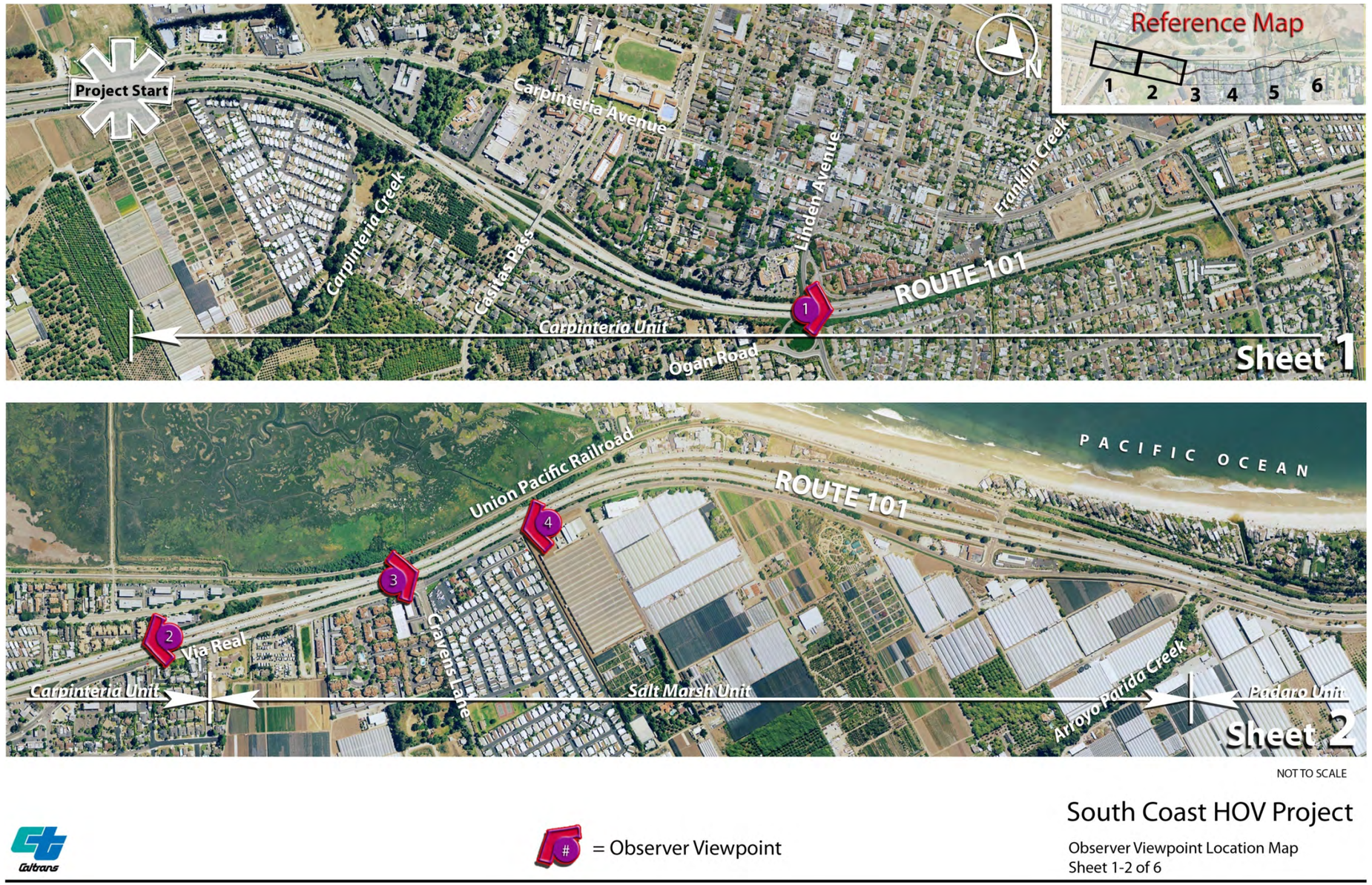

Figure 2-9 Observer Viewpoint Location Map

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Figure 2-10 Observer Viewpoint Location Map

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Figure 2-11 Observer Viewpoint Location Map

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Environmental Consequences

Implementation of the project would result in substantial visual changes through much of the highway corridor. Because of the length of the project and the virtually unlimited number of viewpoints from which the project would be seen, potential impacts are equally as varied and location specific. However, through analysis of the representative views (observer viewpoints), combined with extensive field review, the visual effect of the project can be identified.

The overall visual impact of the project, regardless of build alternative, would be the increased urban character caused by the added highway lanes, reduced landscaping, and proposed soundwalls at several locations. New landscaping proposed by the project, along with aesthetic treatment to walls, would help offset the urban appearance. But, the visual change related to the increase in scale and additional hardscape would be unavoidable and noticeable. For casual observers and people traveling through the area, the proposed scale of the facility would not be unexpected in the visual context of the freeway. Overall, however, viewer sensitivity and response to change is expected to be high, indicated by the many local coastal planning policies on visual character and scenic view protection (see Appendix B).

Proposed soundwalls would not only affect the visual character, but some of the walls would block scenic views. Although at most proposed soundwall locations the existing landscaping or intervening development already blocks scenic views, at some proposed wall locations, mostly within the Summerland area, views of important scenic resources such as the Pacific Ocean would be blocked. Several of the proposed soundwalls would interrupt ocean views from along Lillie Avenue as well as from viewpoints at the lower elevations of the hillside neighborhoods to the north. As seen from U.S. 101, the proposed soundwalls would also limit much of the view to the Summerland community, including the commercial area along Lillie Avenue. Because of the interrupted ocean views, portions of the soundwalls are recommended for elimination or for clear panels through which the ocean views could be seen.

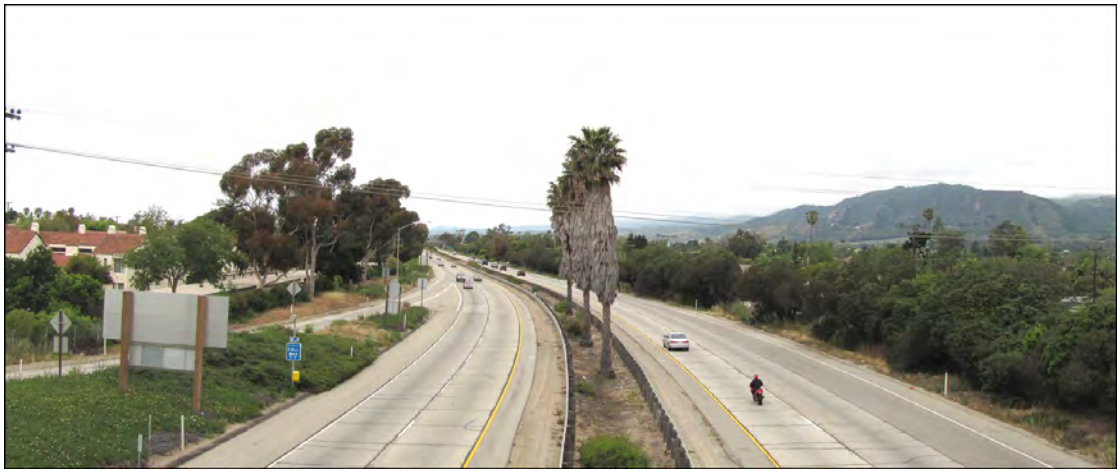
The following section analyzes the project in terms of the difference in physical change (Visual Quality Evaluation rating) combined with the expected sensitivities and responses of potential viewer groups (Viewer Response rating). The Visual Quality Evaluation rating is combined with the Viewer Response rating, with the results providing the basis for understanding and determining the type and extent of potential visual impacts. The Visual Impact rating and analysis are done for each of

the 27 Observer Viewpoints and organized according to the previously described Landscape Assessment Units. The Visual Impact Assessment and addendum are the source for all of the following simulations and evaluations.

Carpinteria City Assessment Unit

Observer Viewpoint 1 – From Linden Avenue overcrossing looking northbound

OV-1 Existing Condition



The existing view from the Linden Avenue overcrossing is dominated by U.S. 101 in the foreground, with the surrounding residential areas of Carpinteria in the mid-ground and the Santa Ynez Mountains rising up to the north. The mature vegetation seen in adjacent neighborhoods and along the highway roadside helps to visually moderate the urban appearance of the city view. The mountains add to the memorability of the view and provide a scenic backdrop from this viewpoint and along much of the U.S. 101 corridor in this area. The view from this location is generally intact, with most of the visual elements visually appropriate for this type of suburban freeway landscape and the overall visual composition of the view somewhat unified. As a result, the existing visual quality rating from this viewpoint is moderately high.

Viewer Response

From Observer Viewpoint 1, sensitive visual resources would mainly include distant views of the Santa Ynez Mountains and rural open space, and to a lesser extent views of the beachside community. In addition to motorists, potential viewers from this

location would include pedestrians and bicyclists, who may have longer duration views of the surroundings. The expected viewer sensitivity rating from this viewpoint is identified as moderately high.

OV-1 Proposed Condition – Alternatives 1 and 3

Alternatives 1 and 3 would build most of the project improvements to the inside, toward the highway median. Although Alternatives 1 and 3 would eliminate the existing median planting area, most of the roadside landscaping would be kept. Because the existing median is sparsely planted, its visual value is reduced. Loss of the existing median would be offset to some degree by the retention of the existing vegetation along the roadsides. Roadside landscaping also provides a visual transition between U.S. 101 and the community. As seen from Observer Viewpoint 1, Alternatives 1 and 3 would reduce the overall visual quality rating, but the rating would still be defined as moderately high.

OV-1 Proposed Condition – Alternative 2

Alternative 2 would build most of the project improvements to the outside of the existing highway lanes. Alternative 2 would keep the existing plantable median but reduce its width. By widening to the outside, Alternative 2 would eliminate a portion of the landscaped areas along the roadside. All three criteria indentified by the visual quality rating would be reduced as a result of Alternative 2.

Although the new median would help retain some of the visual quality, the overall loss of vegetated character caused by the removal of roadside planting would have a greater effect on views. The increased exposure of the northbound soundwall would add to the urban character of the highway facility. From this viewpoint, the overall visual quality rating would be lowered from moderately high to moderate with implementation of Alternative 2.

Observer Viewpoint 2 – From U.S. 101 near Santa Monica Road looking southbound

OV-2 Existing Condition

The existing view from Observer Viewpoint 2 includes a variety of visual elements including residential and commercial development, U.S. 101 with sparsely planted roadsides and median, and the Linden Avenue overcrossing bridge in the distance. The Santa Ynez Mountains provide a scenic backdrop to the south and southeast. The Visual Quality Evaluation ratings for this existing view indicate a slightly lower than average visual quality, due mostly to a disharmonious visual composition and land uses. The distant mountains add some degree of memorability to the view. From Observer Viewpoint 2, the visual quality rating of the existing view is slightly below average.

Viewer Response

The distant view of the Santa Ynez Mountains is the main sensitive visual resource seen from Observer Viewpoint 2. Potential viewers at this location are limited to highway users in vehicles. The overall potential viewer sensitivity along U.S. 101 in the coastal area is considered above average. At this particular viewpoint, the potential sensitivity is somewhat tempered by the few available visual resources, resulting in a viewer response rating identified as slightly above moderate.

OV-2 Proposed Condition – Alternatives 1 and 3

Alternatives 1 and 3 would add lanes to the highway median. As a result, no median planting would occur with this alternative. Roadside planting would be maintained and supplemented in this area, and a new soundwall would be considered for the southbound highway right-of-way line. The visual quality rating for this viewpoint shows only a slight increase in visual quality associated with the construction of Alternative 1 or 3. The additional roadside planting would somewhat unify the view and partially block the visually discordant adjacent land uses. The lack of median planting, however, would allow visual access to the full six-lane width of the highway, which would add to the urbanized character of the corridor.

OV-2 Proposed Condition – Alternative 2

Alternative 2, with widening mainly to the outside of the existing lanes would allow for new planting in the highway median. A new soundwall would be considered for the southbound right-of-way line. A guardrail would be placed in front of the proposed soundwall, allowing new landscaping between the highway and the wall. With implementation of Alternative 2, the visual quality from this observer viewpoint would increase in part due to the unifying character of additional median and roadside landscaping. Views of the additional paved highway lanes, as well as views of the somewhat cluttered adjacent commercial areas and backsides of residences would be partially screened due to new planting in the median, the proposed soundwall, and the roadside planting.

Summary—Carpinteria City Assessment Unit

This unit is defined by its proximity to the community center of Carpinteria. As part of the eastern section of the project corridor, views to the Santa Ynez Mountains and agriculture are important visual elements. The Carpinteria City Unit is also influenced by views of the central business district, as well as residential and visitor-serving commercial development along the highway. This unit is generally well landscaped and has limited to no views of the Pacific Ocean.

Visual changes caused by the project would be seen from U.S. 101 itself, the bridge overcrossings, and local frontage roads and streets. Because of the amount of existing intervening development and vegetation, views to the project would be mostly limited to the areas right next to the highway.

All project alternatives would increase the visual scale of U.S. 101 and add to the urban character of the corridor. The predominant visual effect of the project would be the wider paved highway and reduction in the amount of landscaping. Proposed soundwalls and a concrete median barrier would also contribute to the change in character.

The visual effect would depend on the particular vantage point. As seen from the highway overcrossing bridges, the loss of roadside landscaping associated with Alternative 2 would result in the greatest visual impact because the overall vegetative character of the corridor is more easily seen from those elevated viewing locations. From those elevated viewpoints, the roadside vegetation generally provides greater visual benefit than the existing median vegetation does. As seen from the U.S. 101 roadway perspective, the median planting associated with Alternative 2 would help minimize the urbanizing effect of the project by limiting views across the freeway to the opposing lanes of traffic.

At certain limited spots along the western portion of this assessment unit, the new landscaping proposed by the project would slightly increase visual quality because it would provide visual continuity and screen incompatible off-highway views.

Overall, however, the project would result in a reduction of visual quality. Through the Carpinteria City Assessment Unit, although visual resources such as the Santa Ynez Mountains and coastal views would not be affected, the scale and character of the “small beach town image” would be adversely affected. Alternative 2 would result in the greatest reduction of visual quality because of the higher value of roadside landscaping compared to median landscaping through much of this area.

Carpinteria Salt Marsh Unit

Observer Viewpoint 3 – From U.S. 101 near Cravens Lane looking northbound

OV-3 Existing Condition

The existing view from Observer Viewpoint 3 received a relatively high Visual Quality Evaluation rating. The salt marsh, Pacific Ocean, Channel Islands, and the Santa Ynez Mountains are all visible to some degree along this segment of U.S. 101, increasing the vividness or memorability of the view. The vegetated roadsides and minimal amount of visible development contribute to a fairly high unity and intactness rating. The rural and agricultural character of the area is evident along the foothills to the north. Minor detractions to the quality of the existing view include the utility poles and overhead lines along the northbound lanes and the somewhat weedy appearance of the highway median.

Viewer Response

From Observer Viewpoint 3, sensitive visual resources consist of the salt marsh, Pacific Ocean and the Channel Islands, with distant views of the Santa Ynez Mountains and the rural and agricultural landscape. Viewers at this location are limited to highway users in vehicles. Due mainly to the availability of sensitive visual resources, the expected viewer sensitivity rating from this viewpoint is moderately high.

OV-3 Proposed Condition – Alternatives 1 and 3

Alternatives 1 and 3 would add lanes toward the highway median, which would eliminate the existing median planting but would preserve much of the roadside landscaping. A proposed soundwall would be placed along the northbound lanes and Via Real. Because roadside planting would be preserved, visibility of the soundwall would be reduced at this highway viewpoint. The added paved lanes and the single concrete median barrier proposed with Alternatives 1 and 3 would increase the urban character of the view. However, with no planting in the median, views of the salt marsh, Pacific Ocean and Channel Islands would be retained. The visual quality rating for Alternative 3 at this viewing location would be reduced compared to the existing conditions, but would still be moderately high.

OV-3 Proposed Condition – Alternative 2

Alternate 2 would widen the highway to the outside, resulting in the loss of much of the roadside vegetation. A new soundwall is being considered for the area between the highway and Via Real. The limited area in front of the soundwall would allow for

vine planting. Median planting is proposed through this area. The Visual Quality Evaluation for Alternative 2 resulted in a substantial reduction in the vividness, intactness and unity ratings. The change in visual quality is based mostly on the visual dominance of the proposed soundwall, as well as the partial blockage of the salt marsh, ocean and islands caused by the new median barrier planting. As a result, the overall quality rating for Alternative 2 from this viewpoint is moderately low.

Observer Viewpoint 4 – From Via Real near Sunset Drive looking southbound

OV-4 Existing Condition

The existing view from the Via Real frontage road includes both natural and suburban elements. Residential development, the frontage road and the freeway occupy the foreground and mid-ground, and are seen in a background context of the Carpinteria salt marsh, Pacific Ocean and Rincon Mountain. These diverse visual elements combine for a Visual Quality Evaluation rating that is slightly above average. The views of the salt marsh, ocean and hillsides, although somewhat filtered by intervening vegetation and traffic, increase the memorability (vividness) from this viewpoint, but the paved highway and frontage road, fencing and overhead utilities adversely affect the unity and intactness ratings.

Viewer Response

From Observer Viewpoint 4, sensitive visual resources would include the Carpinteria salt marsh, the Pacific Ocean and distant views of the Santa Ynez and Rincon Mountains. In addition to motorists, viewers from this location include pedestrians and bicyclists who may have longer duration views of the surroundings. As a result, the expected viewer sensitivity rating from this viewpoint is moderately high.

OV-4 Proposed Condition – Alternatives 1, 2 and 3

Along this section of the project, all proposed alternatives are the same. As a result, the Visual Quality Evaluation and subsequent analysis as seen from Observer Viewpoint 4 would also be the same for each of the three alternatives.

Because of the proposed soundwall along Via Real, Alternatives 1, 2 and 3 would look the same as seen from this viewpoint. All alternatives would include a consideration for building a soundwall next to Via Real that would block views to U.S. 101 and the other aspects of the project. In addition to blocking views to the freeway, the proposed soundwall would also block views to the salt marsh and the ocean beyond, which would reduce the vividness rating. Although the visual intactness and unity would be lowered to a lesser extent—the wall would be somewhat visually imposing—it would also offer some visual continuity to the scene. Proposed vine planting would help moderate some of the urbanizing character of the wall. As seen from this viewpoint, the project would result in a slightly lower than average Visual Quality Evaluation rating.

Summary - Carpinteria Salt Marsh Assessment Unit

The Carpinteria Salt Marsh Unit is another part of the eastern section of the project corridor, where views to the Santa Ynez Mountains and agriculture are important visual elements. The visual identity of this unit is also greatly influenced by its proximity to the Carpinteria salt marsh. This Landscape Assessment Unit includes views of some of the lesser-developed areas along the project corridor.

The native plant communities associated with the Carpinteria salt marsh highway help to identify the marsh as a scenic resource. The highway landscaping does provide moderate value in terms of visual unity and partial screening of non-

compatible visual elements, both to and from the highway. And although the existing highway landscaping is somewhat sparse, it also reduces visibility of scenic resources such as the Carpinteria salt marsh, the Pacific Ocean, and the Santa Ynez Mountains.

With all the project alternatives, as seen from U.S. 101, the wider highway and concrete median barrier would represent the greatest visual change. Where a new soundwall is being considered along the northbound lanes, the wall would also be a dominant visual element. This visual change would result in a reduction of rural character for this area.

As seen from the highway, Alternative 2 would result in the greatest amount of visual change, mainly in the area of the proposed soundwall. Although the existing northbound roadside vegetation already partially blocks the view of the Santa Ynez Mountains, construction of the proposed soundwall would block mountain views to a greater extent.

By widening to the outside, Alternative 2 would cause more roadside vegetation removal and would substantially reduce the opportunity for new landscaping. The Alternative 2 proposed vine planting on the highway side of the proposed soundwall would reduce visibility of the wall, but the additional planting of large shrubs associated with Alternatives 1 and 3 would create a more informal vegetated appearance in front of the wall and result in less visual impact.

A median barrier with planting is proposed with Alternative 2. Although median planting provides some degree of visual benefit, throughout much of this area, the median planting may also limit views to the salt marsh as seen from the northbound lanes of the highway.

All project alternatives would include a consideration for placing a soundwall along Via Real near Sunset Drive. From this section of Via Real, the soundwall would dominate views to the south. The wall would block views of the Carpinteria salt marsh. This visual impact would be somewhat offset since the wall would also block views of the freeway. Vines would be planted on the highway side of the wall and allowed to grow through small holes in the wall to the Via Real side. Over time, the vines would provide coverage of the wall and reduce its urbanizing effect.

All project alternatives would adversely affect the rural character of the Carpinteria salt marsh assessment unit. Alternative 2 would result in the greatest visual impact due to the increased visibility of the proposed soundwall as seen from the highway.

Padaro Assessment Unit

Observer Viewpoint 5 – From U.S. 101 near the polo fields looking southbound

OV-5 Existing Condition

The existing view from the southbound lanes of U.S. 101 in this area received a moderately high Visual Quality Evaluation rating mainly because of the well-vegetated median and roadsides and the scarcity of visible development. The Memorial Oaks are near this observer viewpoint, contributing to the vegetative character of the corridor and increasing the memorability of the view. The Santa Ynez Mountains rise up to the south, adding to the scene's vividness. The visual intactness received a higher rating because of the minimal encroachment of uncharacteristic elements. Visual unity also was considered somewhat high because of the visual continuity created by the existing vegetation along the corridor. No ocean views are available from this location.

Viewer Response

The distant view of the Santa Ynez Mountains and the well-vegetated highway corridor, including the Memorial Oaks, are the main sensitive visual resources seen from Observer Viewpoint 5. The Memorial Oaks, as discussed earlier, are considered of local interest, which increases the potential viewer sensitivity and response for those viewers who are aware of the meaning of the oaks. But, their commemorative value would not necessarily be apparent to the casual highway traveler. Potential viewers at this location are limited to highway users in vehicles. Although no ocean views are available in this area, the overall potential viewer sensitivity along U.S. 101

in the coastal area is considered above average. The resulting viewer response rating is somewhat above moderate.

OV-5 Proposed Condition – Alternatives 1 and 2

Alternatives 1 and 2 would add lanes to the outside of the highway and provide concrete barriers with planting in the median. From this viewpoint, distant vistas of the Santa Ynez Mountains would not be affected by the project. Loss of the existing Memorial Oaks along the roadside would adversely affect all three rating criteria. The planted median would partially limit views of opposing freeway traffic and, combined with the existing roadside vegetation, would help retain some of the landscaped character of the corridor. The overall Visual Quality Evaluation rating, however, would be reduced because of the added lanes and more urban-scale highway.

OV-5 Proposed Condition – Alternative 3

Alternative 3 would add lanes toward the highway median, which would result in no planting in the median. With no median planting, views across the highway would be opened up, increasing the perceived visual scale of the freeway. Loss of the existing Memorial Oaks in the median would adversely affect all three rating criteria. Continued visibility of roadside vegetation would help retain much of the vegetated character of this segment of the corridor. However, the overall Visual Quality Evaluation ratings would be lowered somewhat due to the increased scale of the highway and added paved surfaces.

Observer Viewpoint 5A – From U.S. 101 west of South Padaro Lane looking southbound

OV-5A Existing Condition

Similar to Observer Viewpoint 5, the existing view from the southbound lanes of U.S. 101 in this area received a moderately high Visual Quality Evaluation rating mainly because of the well-vegetated median and roadsides and the scarcity of visible development. Roadside vegetation precludes ocean views along this particular section of highway. The ocean does, however, become visible from the highway about 0.3 mile east of this observer viewpoint.

On U.S. 101 east of this viewpoint, the businesses along Santa Claus Lane are easily seen in the mid-ground. In addition, a Caltrans stockpile area is visible between the highway and Santa Claus Lane. The businesses and the stockpile area partially block views of the beach and the ocean beyond, reducing the visual quality. As seen from this section of highway, the Santa Ynez Mountains rise to the northeast, adding vividness to the scene. The visual intactness received a higher rating because of the minimal encroachment of uncharacteristic elements. Visual unity also was considered somewhat high because of the visual continuity created by the existing vegetation along the corridor.

Viewer Response

The distant view of the Santa Ynez Mountains and the well-vegetated highway corridor are the main sensitive visual resources seen from Observer Viewpoint 5A. Potential viewers at this location are limited to highway users in vehicles. Although no ocean views are available in this area, the overall potential viewer sensitivity along

U.S. 101 in the coastal area is considered above average. The resulting viewer response rating is somewhat above moderate.

OV-5A Proposed Condition – Alternatives 1 and 3

Alternatives 1 and 3 would add lanes toward the highway median. With this alternative, the soundwall would be placed along the southbound edge of pavement and would be continuous for about 1,700 feet, the same as Alternative 2. Because of widening to the inside, however, no planting would be provided in the median with this alternative. With no median planting, views across the highway would be opened up, increasing the perceived visual scale of the freeway facility.

The predominant vegetated character of this segment of the corridor would be diminished, and the overall Visual Quality Evaluation ratings would be substantially lowered. It should be noted that a soundwall at this location would have minimal visual effect as seen from Padaro Road, which runs parallel to U.S. 101 in this area. Within the county right-of-way, a substantial amount of screening vegetation exists between U.S. 101 and Padaro Road. This vegetation would not be affected by the project. As a result, the proposed soundwall may be visible to some extent but would be mostly screened by existing vegetation. In addition, where visible, the soundwall would provide a visual benefit to viewers along Padaro Road by blocking existing views of the freeway.

OV-5A Proposed Condition – Alternative 2

Alternative 2 would add lanes to the outside of the highway, build a new soundwall at the pavement edge, and provide concrete barriers with planting in the median. Along this section of the project, no planting area would be available on the highway side of the soundwall, so vines would be planted on the far side of the wall and small holes would be provided in the wall to allow vines to creep through and grow on the highway side. The soundwall proposed in this area would be about 1,700 feet long. The length of the wall and its close proximity to the highway lanes would be visually imposing and would adversely affect the vegetated character of the corridor through this area. From along this section of the highway, distant vistas of the Santa Ynez Mountains would not be affected by the project. Although the planted median would help retain some of the landscaped character of the corridor, the overall Visual Quality Evaluation rating would be substantially reduced.

It should be noted that placement of a soundwall at this location would have minimal visual effect as seen from Padaro Road, which runs parallel to U.S. 101 in this area. Within county right-of-way, a substantial amount of screening vegetation exists between Highway 101 and Padaro Road. This vegetation would not be affected by the project. As a result, the proposed soundwall may be visible to some extent, but would be mostly screened by existing vegetation. In addition, where visible, the soundwall would provide a visual benefit to viewers along Padaro Road by blocking existing views of the freeway.

Observer Viewpoint 6 – From U.S. 101 east of the North Padaro overcrossing looking northbound

OV-6 Existing Condition

The existing view from this location received moderately high Visual Quality Evaluation ratings based on the overall vegetated character and the absence of visible development other than the highway. Although no ocean views exist from this vantage point, the memorability remained above average due in part to the existing skyline trees. The visual intactness and unity ratings benefited from the densely vegetated highway median.

Viewer Response

The well-vegetated highway corridor is the most important visual resource seen from Observer Viewpoint 6. Potential viewers at this location are limited to highway users. Although no ocean views are available in this area, the overall potential viewer sensitivity along U.S. 101 in the coastal area is considered above average. The resulting viewer response rating is identified as somewhat above moderate.

OV-6 Proposed Condition – Alternatives 1 and 2

The most noticeable changes associated with Alternatives 1 and 2 would include the addition of the new lane in the highway median and the alteration of the median planting. With this alternative, the existing larger-scale planting in the median would be replaced with a concrete barrier and less landscaping. The Visual Quality Evaluation ratings indicate that although visual quality would be reduced by increasing the visual scale of the freeway, the view would keep much of its existing character in terms of vividness, intactness and unity.

OV-6 Proposed Condition – Alternative 3

By widening to the median, Alternative 3 would remove the existing median landscaping. A single concrete barrier would be placed between the northbound and southbound lanes. A minor decrease in roadside planting would occur, but the reduction in vegetated character would be due mostly to the loss of median planting. The visual scale of the highway would be increased in this area because the loss of median planting would open up views and allow views across the full width of the

freeway. The visual quality would be reduced to some extent in all three rating categories.

Summary—Padaro Landscape Assessment Unit

This Landscape Assessment Unit includes the unincorporated area between the communities of Carpinteria and Summerland. The visual environment through this unit is defined to a great extent by mature trees and landscaping along and next to the highway corridor, including the Memorial Oaks. A low to moderate amount of development is seen in this area, mostly residences, from medium density north of the highway to large estates along the ocean bluff. Long distance ocean views exist from the eastern and westernmost portions of this assessment unit.

Although not a historical resource, the Memorial Oaks are considered of local community interest, which increases the potential viewer sensitivity and response for those viewers who are aware of the oaks. But, their commemorative value would not necessarily be apparent to the casual highway traveler. Because of the local interest in the Memorial Oaks, combined with their somewhat unique configuration along the roadside and their contribution to the vegetative character, removal of the oaks would result in an adverse visual change.

The most noticeable visual characteristics of the project through the Padaro Assessment Unit would be the added highway lanes, removal of existing median vegetation, and the proposed soundwall along the southbound lanes of the highway. The proposed soundwall would not block views of the ocean, salt marsh or Santa Ynez Mountains. The wall would, however, have an effect on the rural character of this section of U.S. 101, in part because of its proximity to the highway lanes. Vine planting is proposed on the back side of the wall, with holes to allow the vines to grow through to the highway side. This planting would reduce the urbanizing effect of the wall but, because of the wall's highly noticeable location and scale, adverse impacts would result. A second proposed soundwall along the northbound lanes near Serena Park would be set back to allow planting, similar to the existing wall in that area.

Throughout the Padaro Assessment Unit, Alternative 2 would widen to the outside of the highway and build a new median barrier with median planting. Throughout this area, the median planting would limit views across the freeway to the opposing lanes, thereby reducing the perceived visual scale of the highway for highway users. As a

result, Alternative 2 would cause fewer visual impacts than the other project alternatives.

Summerland Assessment Unit

Observer Viewpoint 7 from Lillie Avenue near Greenwell Avenue looking northbound

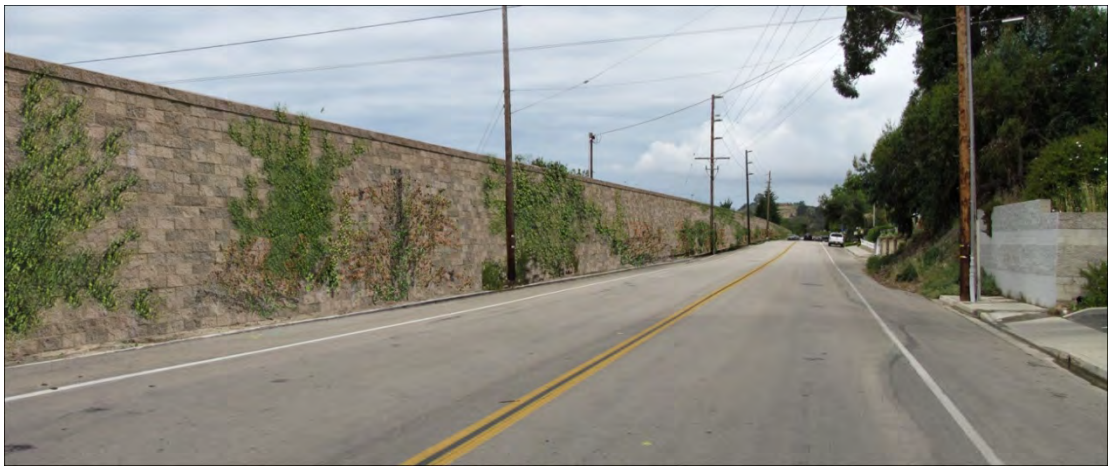
OV-7 Existing Condition

The existing view as seen from Observer Viewpoint 7 and other locations along this section of Lillie Avenue includes a diverse mix of visual elements including direct views of the ocean and Fernald Point and the coastline in the distance, with highway and frontage roads lanes, utility poles and lines, and chain-link fencing and signage in the foreground and mid-ground. Filtered views of the Summerland Community can be seen to the north. On balance, the Visual Quality Evaluation rating for this existing view is moderately high. The ocean views enhance the memorability in spite of the partially cluttered foreground and mid-ground; the existing landscaping along Lillie Avenue, and to some extent along the highway, provides some degree of visual unity.

Viewer Response

As seen from Observer Viewpoint 7, the most sensitive visual resources are the direct views of the Pacific Ocean, Fernald Point and the coastline. Community views, although limited, are also important. Potential viewers from this local roadway include pedestrians and bicyclists as well as motorists. As a result, the expected viewer sensitivity rating from this viewpoint is high.

OV-7 Proposed Condition – Alternatives 1 and 3



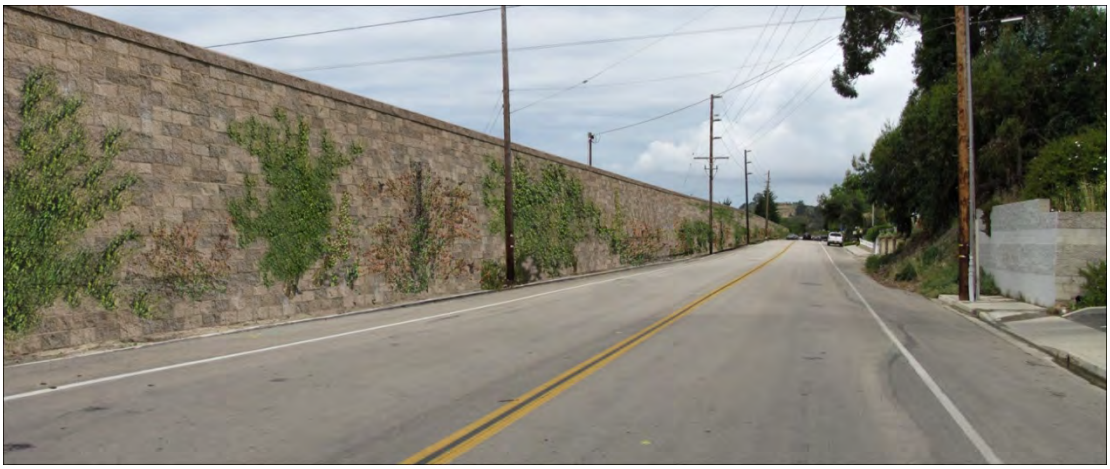
Alternative 1 (the preferred alternative) and Alternative 3 would include a consideration for building a 14-foot-high soundwall at the highway right-of-way adjacent to Lillie Avenue. No planting area would be available at the base of the wall along the frontage road; however, holes would be built into the wall so that vines planted on the highway side of the wall could grow through to the Lillie Avenue side. Construction of the proposed soundwall at this location would completely block views of the Pacific Ocean and the coastline. In addition, the proximity and scale of the wall would be visually imposing as seen from Lillie Avenue. Although there would be an element of continuity associated with the wall, the overall visual quality rating from this viewpoint would be substantially diminished. Visual intactness or memorability would be the most adversely affected. An additional soundwall was proposed after determining the presence of a severe receptor (since the draft environmental document) along Lillie Avenue about 0.2 mile east of this viewpoint (near the Summerland Cottages/Villas development). The visual effect of that wall would also substantially diminish visual quality as seen from Lille Avenue and would have a similar impact as the 14-foot-high wall described above.

At this location, eliminating the proposed soundwall would substantially maintain ocean views and minimize potential visual impacts as seen from Lillie Avenue. A recommendation to eliminate the proposed soundwall at this location is noted in the Avoidance, Minimization and/or Mitigation Measures section. The view is shown in the observer viewpoint below. A similar situation occurred for a separate soundwall 0.2 mile east of this location (near Summerland Cottages/Villas) where beneficial receptors were recalculated as a result of public comment. Subsequent to releasing the draft environmental document for public review, the soundwall was determined to be

reasonable, but was recommended for elimination due to the loss of high-quality ocean views.

OV-7 Proposed Condition - View of Alternatives 1 and 3 with the proposed soundwall eliminated to preserve high-quality ocean views

OV-7 Proposed Condition – Alternative 2



All project alternatives would include a soundwall along Lillie Avenue to provide noise attenuation; however, this wall would completely block views of U.S. 101 and the ocean. As a result, the only noticeable difference as seen from this viewpoint and others along this section of Lillie Avenue would be the height of the wall itself. Alternative 2 would build a 16-foot-tall soundwall compared to 14-foot-tall soundwall for the preferred alternative (Alternative 1) and Alternative 3.

The overall visual effect of the project would be the same with all alternatives. The Visual Quality Evaluation ratings for Alternative 3 show a substantial reduction in vividness, intactness, and unity. The shorter wall would have a negligible effect on reducing the visual quality ratings. Regardless of the height, the wall would completely block ocean views and would be out of scale with the character of the local frontage road. An additional soundwall (added since the draft environmental document) was considered along Lillie Avenue, about 0.2 mile east of this viewpoint (near Summerland Cottages/Villas). This second wall would also substantially diminish visual quality as seen from Lillie Avenue, and would be a similar impact as that described for the wall shown here.

At this location, eliminating the proposed soundwall would maintain ocean views and minimize potential visual impacts as seen from Lillie Avenue. A recommendation to eliminate the soundwall at this location is noted in the Avoidance, Minimization and/or Mitigation Measures section, and the view is shown in the observer viewpoint below. The same situation applies to the separate soundwall 0.2 mile east of this location where the wall was considered after the draft environmental document. The wall was proposed due to the presence of a severe receptor. However, the wall is not recommended due to severe visual impacts created by blocking prime ocean views.

OV-7 View of Alternative 2 with the proposed soundwall eliminated to preserve high-quality ocean views

Observer Viewpoint 8 – From U.S. 101 west of the North Padaro overcrossing looking northbound

OV-8 Existing Condition

Existing views from U.S. 101 at this location include sweeping vistas of the Pacific Ocean, Fernald Point, and the coastline beyond. Portions of the Summerland community can also be seen in the distance. Because of the visibility of these scenic coastal resources, the memorability of the view is high. The somewhat curvilinear alignment of the highway, combined with the moderately vegetated corridor result in above-average visual intactness and unity ratings.

Viewer Response

From Observer Viewpoint 8, sensitive visual resources would include views of the Pacific Ocean, Fernald Point and the coastline beyond, plus portions of the Summerland community. Motorists would be the only viewer group seeing the view from Observer Viewpoint 8. Because of the visual access to the ocean and other high-quality coastal scenic resources, the expected viewer sensitivity rating from this viewpoint is high.

OV-8 Proposed Condition – Alternatives 1 and 3

By adding new highway lanes toward the median, Alternatives 1 and 3 would not require a retaining wall along the northbound lanes. The existing sparsely planted median would be replaced with a concrete barrier. High-quality views of the ocean would remain. As with Alternative 2, a new soundwall would be required between the highway and the frontage road.

Due mostly to the larger expanse of paving and the loss of median planting (although sparse), the overall visual quality rating from this viewpoint would be moderately reduced. Some of the unity and intactness ratings would be maintained because of the proposed northbound roadside planting in front of the new soundwall.

At this location, eliminating the proposed soundwall would substantially maintain ocean views and minimize potential visual impacts as seen from parts of the Summerland community. A recommendation to eliminate the soundwall at this location is noted in the Avoidance, Minimization and/or Mitigation Measures section, and the view is shown in Observer Viewpoint 8 below.

OV-8 View of Alternatives 1 and 3 with the soundwall eliminated to preserve high-quality ocean views as seen from parts of the Summerland community

OV-8 Proposed Condition – Alternative 2

Alternative 2 would add highway lanes to the outside, allowing sufficient room for median planting. Because of the sloped topography, a new retaining wall with a maximum height of about 14 feet would be required along the northbound lanes. Both project alternatives would include a consideration for the placement of a soundwall between the freeway and Lillie Avenue. Planting would not be possible in front of the retaining wall, but landscaping would occur between the retaining wall and the proposed soundwall.

The Visual Quality Evaluation ratings for Alternatives 1 and 2 indicate that the vividness of the view would remain high, due mainly to the preservation of ocean views. The intactness and unity ratings would be reduced, but would remain above average. Although the median planting and roadside planting proposed with

Alternative 2 would provide some visual continuity, the retaining wall would add to the visual scale of the highway and would increase the urban character of the area.

At this location, eliminating the proposed soundwall would substantially maintain ocean views and minimize potential visual impacts as seen from parts of the Summerland community. A recommendation to eliminate the soundwall at this location is noted in the Avoidance, Minimization and/or Mitigation Measures section, and the view is shown in Observer Viewpoint 9 below.

OV-9 View of Alternative 2 with the proposed soundwall eliminated to preserve high-quality ocean views as seen from parts of the Summerland community

Observer Viewpoint 9 – From U.S. 101 near the Evans Avenue undercrossing looking southbound

OV-9 Existing Condition

The elevated viewing position of Observer Viewpoint 9 allows for panoramic views of the Pacific Ocean and the coastline. Summerland is readily visible on the hillside rising up from the highway to the north. The combination of the ocean vistas along with the small beach community result in high-quality view ratings, evidenced by the Visual Quality Evaluation. The memorability of the view is high because of the vista, and the unity and intactness are benefited by the topography and the generally well-vegetated corridor and surrounding community. Minor visual distractions are the existing utility poles and overhead lines and highway fencing.

Viewer Response

Sensitive visual resources would include the views of the Pacific Ocean and the coastline as well as the Summerland community and the hillside backdrop. Motorists would be the main viewer group at Observer Viewpoint 9. Because of the direct visual access to the ocean and other high-quality coastal scenic resources, the expected viewer sensitivity rating from this viewpoint is high.

OV-9 Proposed Condition – Alternatives 1 and 3

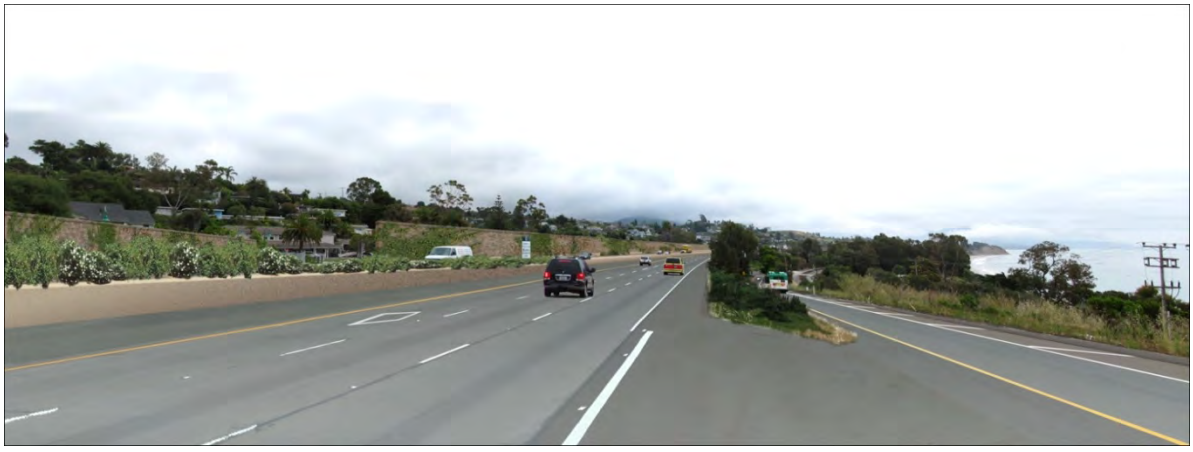
Alternative 1 (the preferred alternative) and Alternative 3 would make highway improvements to the inside, precluding the ability to plant in the median through this area. As with Alternative 2, soundwalls would be considered along the northbound lanes. Vine planting would be included with the soundwalls. The preferred alternative and Alternative 3 would preserve most of the roadside vegetation.

The visual quality evaluation for Alternatives 1 and 3 show a reduction in vividness, intactness and unity due mostly to the increased urban character of the larger highway and loss of views to the Summerland community. Views of the ocean and coastline would not be affected.

At this location, eliminating portions of the proposed soundwalls would substantially maintain ocean views and minimize potential visual impacts as seen from parts of the Summerland community. A recommendation to eliminate portions of the soundwalls at this location is noted in the Avoidance, Minimization and/or Mitigation Measures section, and the view is shown below.

OV-9 View of Alternatives 1 and 3 with some of the proposed soundwalls eliminated to preserve high-quality ocean views as seen from parts of the Summerland community

OV-9 Proposed Condition – Alternative 2



Alternative 2 would add lanes to the outside of the highway, allowing for planting in the median for portions of this location. New soundwalls would be considered along the northbound lanes to mitigate for noise impacts. Vines would be planted along the community side of the proposed soundwalls and allowed to grow through holes to the freeway side. As seen from U.S. 101, the soundwalls would block much of the views

of the Summerland community along Lillie Avenue and the lower portions of the hillside. From Observer Viewpoint 9, the walls would not block the upper portions of the background hills or ridgeline. Minor amounts of roadside vegetation would be affected.

All three visual rating criteria would be reduced. Although views of the ocean and coastline would not be affected, the overall visual composition would be changed due to the loss of views to the community. The increase in the number of paved lanes and the new soundwalls would add an urbanizing character to the view.

At this location, eliminating portions of the proposed soundwalls would substantially maintain ocean views and minimize potential visual impacts as seen from parts of the Summerland community. A recommendation to eliminate portions of the soundwalls at this location is noted in the Avoidance, Minimization and/or Mitigation Measures section, and the view is shown below.

OV-9 – View of Alternative 2 with some of the proposed soundwalls eliminated to preserve high-quality ocean views as seen from parts of the Summerland community

Observer Viewpoint 10 – From Ortega Hill Road near the bike path looking south toward U.S. 101

OV-10 Existing Condition

Observer Viewpoint 10 shows the view from Ortega Hill Road across U.S. 101 toward the ocean to the south. This somewhat elevated viewpoint allows for increased views of the ocean and the Channel Islands. The visual quality evaluation done from this viewpoint found that the existing view quality is high. The memorability rating is elevated because of the ocean view. The unity and intactness ratings are high largely because of the visual continuity of the well-vegetated beachside community. Visually detracting elements include signs, fencing, and traffic on the highway and local roads.

Viewer Response

As seen from Observer Viewpoint 10, the most sensitive visual resources are the direct views of the Pacific Ocean and Channel Islands. Community views, although limited, are also important. Viewers from these local roadways include pedestrians and bicyclists as well as motorists. As a result, the expected viewer sensitivity rating from this viewpoint is high.

OV-10 Proposed Condition – Alternatives 1, 2 and 3

All project alternatives propose soundwalls as noise abatement, but the soundwalls would block most views of U.S. 101 and beyond. As a result, the overall visual effect of the project would be the same with all alternatives.

The Visual Quality Evaluation ratings for Alternatives 1, 2, and 3 show a substantial reduction in vividness, intactness and unity. The walls would completely block ocean views and be out of scale with the character of the local roadway and community.

The most noticeable elements of the project would be the new soundwalls proposed along the northbound lanes. As seen from Observer Viewpoint 10, the soundwalls would block views of the ocean and Channel Islands. The soundwalls visible from this location would range in height from 14 to 16 feet. At locations next to Lillie Avenue where the highway is elevated, the perceived scale of the walls would be increased. Vines and other landscaping would be included, which would help reduce the visual dominance of the wall to some degree, but the view blockage would result in substantial visual impacts.

The visual quality evaluation from Viewpoint 10 shows that all three project alternatives would substantially reduce vividness, intactness and unity. This reduction would be due mostly to the out-of-character scale of the walls and elimination of ocean views.

At this location, eliminating portions of the proposed soundwalls would substantially maintain ocean views and minimize potential visual impacts. A recommendation to eliminate portions of the soundwalls at this location is noted in the Avoidance, Minimization and/or Mitigation Measures section, and the view is shown below.

OV-10 View of Alternatives 1, 2 and 3 with some of the proposed soundwalls eliminated to preserve high-quality ocean views as seen from portions of the Summerland Community

Observer Viewpoint 11 – from Colville Street looking south toward U.S. 101

OV-11 Existing Condition

Observer Viewpoint 11 from Colville Street represents the views from this and other similar streets in Summerland that intersect Lillie Avenue and extend up the hillside to the residential areas. Viewpoints from the upper elevations of Colville Street include greater panoramic views of the ocean. This existing view from Colville Street includes residential and commercial community views, along with glimpses of U.S. 101 in the mid-ground and the ocean and Channel Islands in the background. The view has an above-average degree of visual intactness and unity, mostly because of the vegetated character and the lack of non-typical visual elements. Views to the ocean are limited but, where available, they increase the memorability of the view. Because of these characteristics, the Visual Quality Evaluation rating as seen from this viewpoint is moderately high.

Viewer Response

Sensitive visual resources visible from Observer Viewpoint 11 include glimpses of the Pacific Ocean and the Channel Islands and to a lesser extent the community itself. Viewers from this local roadway would be pedestrians and bicyclists as well as motorists. The generally high viewer sensitivity from this viewpoint is somewhat moderated by the relatively few number of potential viewers at this location. As a result, the expected viewer sensitivity rating from this viewpoint is moderately high.

Alternatives 1, 2 and 3

OV-11 Proposed Condition – Alternatives 1, 2 and 3

All project alternatives propose a soundwall (referred to as S210) at this location as noise abatement. As a result, as seen from Observer Viewpoint 11 and similar viewpoints in the area, the overall visual effect of the project would be the same with all alternatives.

The Visual Quality Evaluation ratings for Alternatives 1, 2 and 3 show a reduction in vividness, intactness and unity. The project would build a 14-foot-tall soundwall with landscaping along the northbound lanes of the highway in this area.

Although existing ocean views are very limited, the few places they do exist would be blocked by the proposed wall as seen roughly from the southernmost 150 feet of Colville Street. This extent of partial ocean view blockage would be similar for Evans Avenue, Hollister Street, Valencia Road and Temple Street that extend up the hillside to the north. The wall would also block visibility of the highway from this location. The proposed landscaping would help reduce the visual dominance of the wall, but the height and length of the wall would still appear somewhat out-of-scale with the local roadway and community context.

At this location, installing clear panels along the upper portion of the soundwall would substantially maintain ocean views and minimize potential visual impacts. A recommendation to include clear panels in the wall design at this location is noted in the Avoidance, Minimization and/or Mitigation Measures section.

Observer Viewpoint 12 – from Hollister Street looking south toward U.S. 101

OV-12 Existing Condition

Observer Viewpoint 12 at Hollister Street represents a viewing condition similar to that in Observer Viewpoint 11 (Colville Street) in that Hollister Street intersects with Lillie Avenue and continues uphill to the north. The view from this location shows community commercial and residential uses in the foreground, with the Pacific Ocean and Channel Islands in the distance. U.S. 101 occupies the mid-ground view.

The Visual Quality Evaluation rating indicates that visual quality from Observer Viewpoint 12 is moderately high. Visibility of the Pacific Ocean increases the visual memorability. The unity and intactness of the view, although above average, are moderated somewhat by the high noticeability of the freeway here.

Viewer Response

Sensitive visual resources visible from Observer Viewpoint 12 include the Pacific Ocean and the Channel Islands as well as the community itself in the foreground. Viewers from this location would be pedestrians, bicyclists and motorists. The generally high viewer sensitivity from this viewpoint is somewhat moderated by the relatively few number of potential viewers at this location. As a result, the expected viewer sensitivity rating from this viewpoint is moderately high.

OV-12 Proposed Condition – Alternatives 1, 2 and 3

All project alternatives propose a soundwall at this location. As a result, as seen from Observer Viewpoint 12 and similar viewpoints in the area, the overall visual effect of the project would be the same with all alternatives. The Visual Quality Evaluation ratings for Alternatives 1, 2 and 3 show a reduction in vividness, intactness and unity.

The project proposes a 16-foot-tall soundwall with landscaping along the northbound lanes of the highway in this area. Although existing ocean views are very limited, the few places they do exist would be blocked by the proposed wall as seen roughly from the southernmost 150 feet of Hollister Street. This extent of partial ocean view blockage would be similar for Evans Avenue, Colville Avenue, Valencia Road and Temple Street that extend up the hillside to the north. The soundwall would also block visibility of the highway from this spot.

As seen from this viewpoint, there is little existing landscaping or development to block visibility of the proposed soundwall. Proposed landscaping would help reduce the visual dominance of the wall, but the height and length of the wall would still appear somewhat out-of-scale within the local roadway and community context. As a result, the Visual Quality Rating for the project at this viewing location is below average.

At this location, installing clear panels along the upper portion of the proposed soundwall would substantially maintain ocean views and minimize potential visual impacts. A recommendation to include clear panels in the wall design at this location is noted in the Avoidance, Minimization and/or Mitigation Measures section.

Observer Viewpoint 13 – From U.S. 101 east of Sheffield Drive undercrossing looking westbound

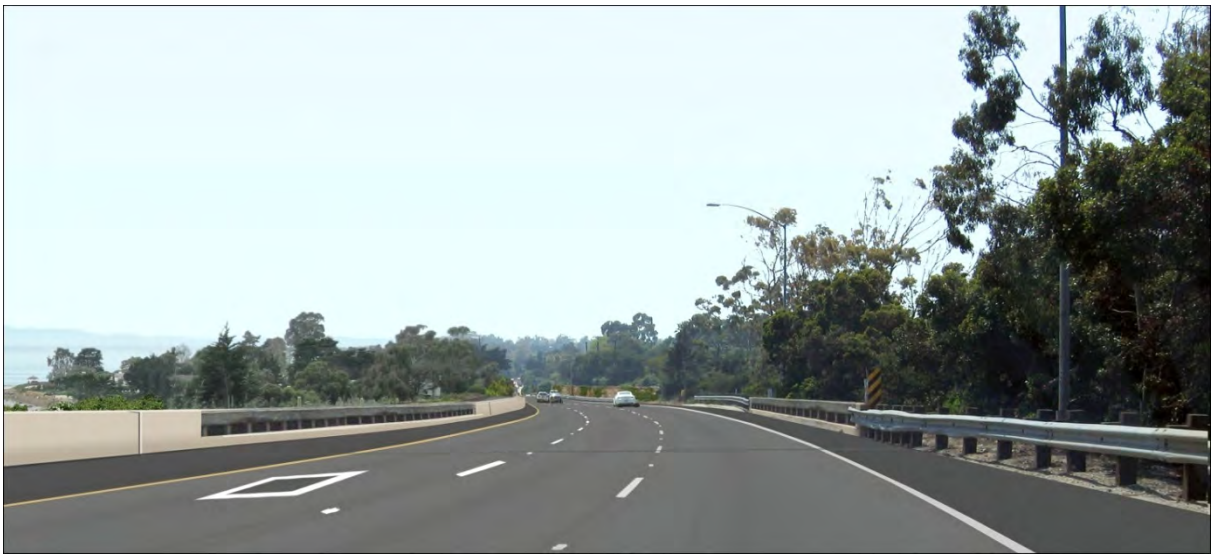
OV-13 Existing Condition

The existing view from Observer Viewpoint 13 received a high visual quality evaluation rating. The Pacific Ocean, Channel Islands, Fernald Point and the beach are all visible to some extent along this segment of U.S. 101 northbound, increasing the vividness or memorability of the view. The heavily vegetated roadsides contribute to high unity and intactness ratings. The somewhat elevated viewing position and the curvilinear highway alignment create a panoramic viewing opportunity. Light poles and roadside barriers are minor detractions to the quality of the existing view.

Viewer Response

From Observer Viewpoint 13, sensitive visual resources include the views of the Pacific Ocean, Fernald Point and the beach, as well as the mature vegetation along the highway and in the community. Motorists would be the main viewer group experiencing the view from the highway; bicyclists and pedestrians using the Ortega Hill bike path may have similar views. Because of the visual access to the ocean and other high-quality coastal scenic resources, the expected viewer sensitivity rating from this viewpoint is high.

OV-13 Proposed Condition - Alternative 1 (preferred alternative)



Alternative 1 (the preferred alternative) at this location would reconfigure the southbound highway lanes and ramps and would construct a southbound Sheffield Drive Bridge. The project would allow for limited planting in the median. A total of four new retaining walls would be built along the southbound lanes. Two of these walls would be located between the highway and the railroad and would not be visible from the highway. They would be visible from the train and from certain locations on the beach. Two additional retaining walls would be built along the southbound lanes between the highway and the southbound ramps. These two walls would be visible from the southbound ramps as well as from the train and certain locations on the beach.

The Visual Quality Evaluation for Alternative 1 shows a moderate reduction in visual quality from Observer Viewpoint 13. The change would be due mostly to the wider expanse of paving and the loss of vegetation along the southbound roadside. With low-height median planting in place, views of Fernald Point and the ocean beyond would remain intact. The visual dominance and high-quality views of the ocean and coast would remain, but the increased scale of the highway, retaining walls visible from the on- and off-ramps, and loss of vegetation would add a somewhat urbanizing character, which would negatively affect all three visual rating criteria to some degree.

OV-13 Proposed Condition –Alternatives 2 and 3

Along this section of the project, Alternatives 2 and 3 are the same. As a result, the visual quality evaluation and subsequent analysis as seen from Observer Viewpoint 13 would also be the same for both of those alternatives.

Alternatives 2 and 3 at this location would reconfigure the southbound highway lanes and ramps and widen the existing Sheffield Drive Bridge. The project would add lanes toward the median, eliminating the existing median planting. Two new retaining walls would be built along the southbound lanes between the highway and the railroad. The walls would be downhill from the on- and off-ramps and would not be visible from the highway. The walls would be visible from the train and from certain beach locations.

The visual quality evaluation for the project shows a moderately low reduction in visual quality from Observer Viewpoint 13. The change would be due mostly to the wider expanse of paving and the loss of vegetation in the median and along the southbound roadside. With low-height median planting in place, views of Fernald Point and the ocean beyond would remain intact. The visual dominance and high-quality views of the ocean and coast would remain, but the increased scale of the highway and loss of vegetation would add a somewhat urbanizing character, which would negatively affect all three visual rating criteria to some degree.

Observer Viewpoint 14 – From U.S. 101 west of Sheffield Drive undercrossing looking eastbound

OV-14 Existing Condition

The elevated viewing position of Observer Viewpoint 14 allows for panoramic views of the Pacific Ocean and the coastline. Southbound on U.S. 101, this viewpoint represents the first direct ocean views since the Gaviota Coast. The Visual Quality Evaluation rating for this viewpoint is high. The memorability of the view is increased because of the sweeping coastal view. The unity and intactness are benefited by the topography, skyline trees and the well-vegetated surroundings, both within the highway corridor and throughout the surrounding community.

Viewer Response

Sensitive visual resources would include sweeping views of the Pacific Ocean and the coastline, skyline trees and mature vegetation. Motorists would be the primary viewer group associated with Viewpoint 14. Because of the direct visual access and exposure to the ocean and other high-quality coastal scenic resources, the expected viewer sensitivity rating from this viewpoint is high.

OV-14 Proposed Condition – Alternative 1 (preferred alternative)

Alternative 1 would reconfigure the southbound highway lanes and ramps. Alternative 1 at this location would add a new southbound Sheffield Drive bridge. A limited amount of planting would be placed in the median. The project would impact some of the roadside vegetation. High quality views of the ocean and coast would remain, however the vegetated visual character would be adversely affected. Four retaining walls would be added below the main line along the southbound direction. The increased visual scale of the additional lanes and walls, and the standardized on and off ramp configuration would create a more urbanized highway aesthetic. The Visual Quality Evaluation rating of the proposed project would be moderately reduced.

OV-14 Proposed Condition – Alternatives 2 and 3

Along this section of the project, Alternatives 2 and 3 are the same. As a result, the visual quality evaluation and subsequent analysis as seen from Observer Viewpoint 14 would also be the same for both of these alternatives.

Alternatives 2 and 3 would reconfigure the southbound highway lanes and ramps. Alternative 2 and 3 would widen the existing Sheffield Drive bridge and add lanes toward the median. The project would affect some of the roadside vegetation. High-quality views of the ocean and coast would remain, but the vegetated visual character would be adversely affected. The increased visual scale of the additional lanes, walls, and the standardized on- and off-ramp configuration would create a more urbanized highway aesthetic. The Visual Quality Evaluation rating of the proposed project would be moderately reduced.

Summary – Summerland Assessment Unit

From the North Padaro Lane overcrossing to 0.2 mile west of the Sheffield undercrossing

This Landscape Assessment Unit is composed of the Summerland community and its vicinity. This visually distinctive unit includes dramatic ocean and coastline vistas as well as views of the Summerland commercial area and residential community extending uphill from U.S. 101. A moderate amount of landscaping is found along and next to the highway corridor throughout this assessment unit.

Each of the project alternatives would adversely affect the small-town community character of Summerland. The proposed highway lanes, loss of highway planting, and addition of proposed soundwalls would all be new urbanizing elements. Of these project elements, the proposed soundwalls would have the greatest overall negative effect on visual quality. As seen from U.S. 101, the soundwalls would have no effect on views to the ocean or coast, but they would block some of the views to the community and adjacent hillside. Recommended measures to eliminate certain soundwalls and place clear panels along the tops of other soundwalls through Summerland would maintain critical ocean views for much of the affected community.

The existing median planting is generally sparse through the Summerland community area due in part to the concern for maintaining views of the ocean. Alternative 3 proposes new median planting, which would have a greater potential for affecting coastal views from the northbound lanes of U.S. 101 and portions of the community.

Alternative 2 would widen to the outside and build a retaining wall along the northbound lanes. The new retaining wall would allow median planting to be kept, but would also add another urbanizing element to the corridor. As a result, the positive visual benefits of median planting would be mostly offset by the negative effect of the new retaining wall.

From parts of Lillie Avenue and from portions of the community along the lower elevations of the hillside, the proposed soundwalls would be generally hidden because of the existing buildings and mature landscaping.

The Sheffield Drive undercrossing, which is included in this assessment unit would undergo substantial visual change with implementation of the project. All three of the alternatives at this location would reconfigure the southbound highway lanes and ramps and would replace the existing Sheffield Drive bridge. The project would eliminate the existing median planting for Alternatives 2 and 3 and remove most of the median planting for Alternative 1 (preferred alternative). All project alternatives

would recommend a soundwall along the northbound lanes. Visual changes at the Sheffield Drive undercrossing would be due mostly to the wider expanse of paving and the loss of vegetation in the median and along the southbound roadside. Although high-quality views of the ocean and coast would remain, the increased scale of the highway facility and loss of vegetation would add an urbanizing character, which would negatively affect visual quality.

The three project alternatives would require widening the Evans Avenue undercrossing. Although the structure profile would not appreciably change, the wider bridge deck would result in a somewhat longer "tunnel effect" for those traveling on Evans Avenue. Views to surrounding coastal resources would not be greatly affected; however, the larger bridge structure would contribute to a more urbanized visual character.

Retaining walls would be included at the reconstructed Sheffield undercrossing, between the southbound on- and off-ramps and the railroad tracks. The retaining walls would not be visible from the highway; however with Alternative 1 (preferred alternative), the walls would be seen from the southbound ramps, the train and from certain locations on the beach. With Alternative 2 the retaining walls would be seen only from the tracks and portions of the beach. Where visible, the retaining walls would create a more urban effect and reduce visual quality.

Throughout all of the Summerland Assessment Unit, each of the project alternatives would result in adverse visual changes. Of the three project alternatives, Alternative 2 would result in impacts over and above the other two alternatives due mostly to the retaining wall proposed along the northbound lanes near post mile 7.8, as seen from U.S. 101 only.

Montecito Assessment Unit

Observer Viewpoint 15 – From U.S. 101 east of Romero (Picay) Creek looking northbound

OV-15 Existing Condition

The visual quality rating of the existing view at Observer Viewpoint 15 shows consistently high ratings for vividness, intactness and unity. The visual impression of this section of the highway is mostly defined by the abundant mature vegetation along the highway and in the surrounding community. This vegetated character increases both the visual unity and intactness ratings. The memorability is increased largely because of the large skyline trees in the highway median and along the roadside.

Viewer Response

The sensitive visual resource visible from Observer Viewpoint 15 is the mature landscaping along the highway corridor and in the adjacent community. The dominant skyline trees and the close proximity of the landscaped areas to the highway traveler are the main visual characteristics of the visual resource. Viewers at this location are exclusively motorists using the highway. No ocean views are available from Observer Viewpoint 15, and views to the hills are mostly screened by intervening vegetation. As a result, the expected viewer sensitivity rating from this viewpoint is moderately high.

OV-15 Proposed Condition – Alternatives 1, 2 and 3

Along this stretch of the project, all proposed alternatives are the same. As a result, the visual quality evaluation and subsequent analysis as seen from Observer Viewpoint 15 would also be the same for each of the three alternatives.

All of the alternatives would add lanes toward the median, which would result in the removal of the existing median trees and shrubs. A new concrete barrier would be placed in the median, and a new soundwall would be considered along the northbound fence line. Through this area, a metal-beam barrier would be placed in front of the proposed soundwall, providing an area for landscaping in front of the wall.

The visual quality evaluation for the project shows a substantial rating reduction for all three rating criteria. The most noticeable visual change at this viewpoint would be the loss of large trees and shrubs in the median and the addition of the proposed soundwall. Skyline trees and other vegetation in the adjacent community would be preserved, and the new roadside planting would screen much of the visibility of the proposed soundwall. Overall, the perceived scale and urban visual character of the highway would be increased at this viewing spot.

Observer Viewpoint 16 – From U.S. 101 near Posilipo Lane looking southbound

OV-16 Existing Condition

Observer Viewpoint 16 shows high Visual Quality Evaluation ratings for vividness, intactness and unity. The visual impression of this stretch of the highway is defined by the scale and proximity of mature vegetation along the highway and in the surrounding community. This vegetated character increases both the visual unity and intactness ratings. The memorability is increased due to the large skyline trees in the highway median and along the roadside. At this viewing location, although the existing soundwall can be seen along the southbound lanes, vine planting reduces the wall's noticeability. No ocean views are available from this location, and the views to the hillsides are greatly limited by intervening vegetation and other development.

Viewer Response

The sensitive visual resource visible from Observer Viewpoint 16 is the mature landscaping along the highway corridor and in the adjacent community. The dominant skyline trees and the close proximity of the landscaped areas to the highway traveler are the main visual characteristics of the visual resource. Viewers at this location are exclusively motorists using the highway. No ocean views are available from Observer Viewpoint 16, and views to the hills are mostly screened by intervening vegetation. As a result, the expected viewer sensitivity rating from this viewpoint is moderately high.

OV-16 Proposed Condition – Alternatives 1, 2 and 3

Along this section of the project, all proposed alternatives are the same. As a result, the visual quality evaluation and subsequent analysis as seen from Observer Viewpoint 16 would also be the same for each of the three alternatives.

At this location, the project would add lanes to the inside of the highway and remove the existing median vegetation and replace it with a concrete barrier. The visual quality evaluation for the project shows a substantial rating reduction for all three rating criteria. Existing skyline trees and other vegetation in the adjacent community would be preserved, which would help maintain much of the vegetated character of the corridor. But, the most noticeable visual change at this viewpoint would be the loss of large trees and shrubs in the median. Overall, the perceived scale and urban visual character of the highway would be increased at this viewing location.

Though not visible from this particular viewpoint, new soundwalls would be considered by each of the project alternatives along portions of the northbound lanes: one about 0.1 mile east of this location and one about 0.1 mile west of this location. These proposed soundwalls would somewhat increase the urban character of the corridor and are discussed more in the Project Impact by Assessment Unit summary section.

Observer Viewpoint 17 – From North Jameson Lane near Santa Isabel Lane looking southwest

OV-17 Existing Condition

Observer Viewpoint 17 shows the existing view along North Jameson Lane next to the freeway. The Visual Quality Evaluation rating shows an above-average rating at this location. The visual character can be defined as a well-vegetated suburban landscape. The urbanizing elements of the freeway, frontage road and residences are balanced by the substantial amount of mature landscaping throughout the highway and the community.

At this location, the existing trees and shrubs visually screen much of the view of the freeway and associated traffic. The scale of the adjacent landscaping contributes to its visual presence and character-defining quality. Existing chain-link fencing and overhead utilities detract somewhat from the overall view quality.

Viewer Response

From Observer Viewpoint 17, sensitive visual resources would include the mature landscaping in the community and along the highway corridor. The close proximity of the landscaped areas to the viewers is the main visual characteristic of the visual resource. In addition to motorists, potential viewers from this spot include pedestrians and bicyclists, who may have a longer duration views of the surroundings. From this location, ocean and hillside views are effectively blocked by existing vegetation and development. The expected viewer sensitivity rating from this viewpoint is moderately high.

OV-17 Proposed Condition – Alternatives 1, 2 and 3

The most noticeable visual change seen from this viewpoint would be the possible addition of a new 10-foot-tall soundwall between a portion of North Jameson Lane and U.S. 101. The proposed soundwall would require floodgates along its base, and vine planting would be included. As seen from North Jameson Lane, the soundwall would block views to U.S. 101 and other aspects of the project on the highway. All three Visual Quality Evaluation rating criteria would be reduced because the wall would be visually imposing along this local roadway. The wall would offer some degree of continuity to the scene, but the loss of vegetation would adversely affect the visual character. Over time, the proposed vine planting would help moderate some of the urbanizing character of the wall. As seen from this viewpoint, the project would result in a lower-than-average Visual Quality Evaluation rating.

Observer Viewpoint 18 – From San Ysidro Road overcrossing looking northbound

OV-18 Existing Condition

As seen from Observer Viewpoint 18, the visual quality ratings indicate a generally well-balanced view that includes both urban and vegetative elements. From this vantage point, the existing median planting helps reduce the visual scale of the highway. Although the landscaping is sparse next to the on-ramp at the right, the overall corridor has a well-vegetated appearance. The existing palms are distinguishing visual elements for this location and provide skyline character benefits for the community. The Santa Ynez Mountains can be seen to the north. This suburban setting received an above-average Visual Quality Evaluation rating.

Viewer Response

From Observer Viewpoint 18, sensitive visual resources are the well-landscaped highway corridor and community, and the distant views of the Santa Ynez Mountains. In addition to motorists, viewers from this location are pedestrians and bicyclists, who may have a longer duration of views of the surroundings. The expected viewer sensitivity rating from this viewpoint is moderately high.

OV-18 Proposed Condition – Alternatives 1, 2 and 3

Along this section of the project, all proposed alternatives are the same. As a result, the visual quality evaluation and subsequent analysis as seen from Observer Viewpoint 18 would also be the same for each of the three alternatives.

The project through this area would build new lanes toward the inside, resulting in the loss of median planting. By adding lanes to the median, the roadside landscaping would be preserved. In addition, the project proposes to enhance existing roadside planting in deficient areas such as the northbound on-ramp seen from this viewpoint. The Visual Quality Evaluation rating from Observer Viewpoint 18 shows that, although visual changes would occur, the loss of median planting would be mostly

offset by the additional landscaping along the roadside. As a result, only a minor net change in visual quality would occur as seen from this location.

Observer Viewpoint 19 – From U.S. 101 west of San Ysidro Road overcrossing looking northbound

OV-19 Existing Condition

The existing visual quality evaluation done from U.S. 101 west of the San Ysidro Road overcrossing shows a view with relatively high marks for all three rating criteria. From this vantage point, the mature median and landscaping planting help reduce the visual scale of the highway. The highway corridor and community are well vegetated, which contributes to increased visual intactness and unity ratings. No ocean views exist from this location, and the mountains to the north are mostly blocked from view. Although still above average, the vividness component received the lowest rating because few specifically memorable features are part of the view.

Viewer Response

The main sensitive visual resources as seen from Observer Viewpoint 19 are the well-landscaped highway corridor and community, which are expressly valued in community planning policy. Viewers from this location are limited to those in vehicles. The viewer sensitivity rating from this viewpoint is moderately high.

OV-19 Proposed Condition – Alternatives 1, 2 and 3

Along this section of the project, all proposed alternatives are the same. As a result, the visual quality evaluation and subsequent analysis as seen from Observer Viewpoint 19 would also be the same for each of the three alternatives.

The project along this section of U.S. 101 would build new lanes toward the inside, resulting in the loss of median planting. By adding lanes to the median, much of the roadside landscaping would be preserved. At this location, new soundwalls would be considered along both sides of the highway. Visibility of the proposed soundwalls would be minimized by keeping the existing landscaping and adding new planting. The visual quality evaluation from Observer Viewpoint 19 shows that all three ratings would be moderately reduced. The effect of more lanes, loss of median planting, and the visibility of the proposed soundwalls would be an increase in the visual scale of the highway.

Observer Viewpoint 20 – From Olive Mill Road overcrossing looking northbound

OV-20 Existing Condition

The visual quality ratings done from the Olive Mill Road overcrossing describe a mostly well-balanced view that includes both urban and vegetative elements. From this vantage point, the somewhat curvilinear alignment of the roadway and the existing median planting help reduce the visual scale of the highway. The highway corridor and community are well vegetated, which contributes to increased visual intactness and unity ratings. No ocean views are available from this location, and the mountains to the north are mostly blocked from view. This suburban freeway setting received an above-average Visual Quality Evaluation rating.

Viewer Response

The sensitive visual resource as seen from Observer Viewpoint 20 is the well-landscaped highway corridor and community. In addition to motorists, viewers from this location are pedestrians and bicyclists, who may have a longer duration views of the surroundings. As a result, the expected viewer sensitivity rating from this viewpoint is moderately high.

OV-20 Proposed Condition – Alternatives 1 (preferred alternative), 2 and 3

Along this section of the project, all proposed alternatives are the same. As a result, the visual quality evaluation and subsequent analysis as seen from Observer Viewpoint 20 would also be the same for each of the three alternatives.

The project along this stretch of U.S. 101 would build new lanes toward the inside, resulting in the loss of median planting. By adding lanes to the median, the roadside landscaping would be preserved. In addition, the project proposes to enhance existing roadside planting where deficient. Two soundwalls are recommended for the top of the existing slope and along the southbound side of the highway. Visibility of the soundwalls would be minimized by keeping the existing landscaping and adding new planting. Vines would be planted to cover the soundwall along the highway mainline.

The visual quality evaluation from Observer Viewpoint 20 shows that all three ratings would be reduced slightly. This reduction would be mostly due to the loss of median planting and, to a lesser extent, the visibility of the proposed southbound soundwalls. Some of this visual effect would be offset by the additional landscaping along the roadside. As a result, only a minor net change in visual quality would occur as seen from this location.

Summary – Montecito Assessment Unit

The Montecito Assessment Unit includes the highway corridor and vicinity from just west of Ortega Hill to the Hermosillo off-ramp. This unit is characterized to a great degree by its abundance of mature highway and neighborhood landscaping, along with a somewhat more curvilinear highway alignment. Several large median skyline trees are found in this assessment unit. Within the Montecito Assessment Unit, only filtered ocean views are available briefly from the easternmost portion of U.S. 101 and North Jameson Lane.

The most noticeable aspects of the project through the Montecito Assessment Unit would be the reconfiguration of the Cabrillo Boulevard interchange, the additional lanes of the highway, removal of mature vegetation and skyline median trees, and the proposed soundwalls. Throughout most of the Montecito unit, Alternative 1 (the preferred alternative), as well as Alternatives 2 and 3, would appear the same. Because of the limited highway right-of-way through this area, each of the alternatives would require removing the existing median planting and building a single median barrier. Soundwalls would be considered for most of the Montecito unit along the northbound lanes and along the southbound lanes between the San Ysidro Road and Olive Mill Road overcrossings. Proposed soundwalls would include either solely vines or both vines and shrubs on both the highway and community sides. Some of the existing roadside vegetation would stay, and most of the landscaping near the San Ysidro Road and Olive Mill Road overcrossings would not be disturbed. New landscaping would be planted in the existing bare areas at the overcrossings.

The visual character of the Montecito Assessment Unit would be greatly affected by construction of the project. Although the proposed walls' aesthetic treatment and associated planting are expected to result in a generally attractive highway, the additional lanes, loss of median planting and extent of proposed soundwalls would be more typical of a suburban-type highway than what currently exists here. Much of the existing somewhat enclosed spatial quality caused by the narrower highway and fairly

overgrown vegetation would be replaced with a more visually open character. The curved highway alignment, however, which helps define the Montecito assessment unit and increases the visual quality, would be kept.

Much of the substantial vegetation and mature trees within the community along the highway corridor would still be seen from the highway, which would help keep some of the existing visual quality for highway viewers. In addition, over time the proposed vine-covered soundwalls would be visually consistent with the many manicured perimeter hedges and vine-covered walls seen in the adjacent Montecito community. A vine-covered soundwall would replace much of the existing vine-covered chain-link fence between U.S. 101 and North Jameson Lane. Although the vines would create certain visual similarities, the increased scale of the proposed soundwall would be noticeable, especially as seen from local frontage roads such as North Jameson Lane. Floodgates would be required along a portion of the proposed soundwall, which would negatively affect the fundamental aesthetics of the wall and would make successful vine planting coverage more difficult.

Santa Barbara City Assessment Unit

The U.S. 101/Cabrillo Boulevard Interchange

The proposed configuration changes at the U.S. 101/Cabrillo-Hot Springs interchange are each independent of Alternatives 1, 2 and 3 and could be built with any of the three project alternatives. Because of this independence and extent of proposed changes, the Cabrillo Boulevard interchange improvements are referred to separately as interchange configurations F, F Modified, J, M, and M Modified.

The visual quality evaluations from Observer Viewpoints 21 through 24 represent and assess potential visual impacts associated with the U.S. 101/Cabrillo-Hot Springs interchange and interchange configurations F, F Modified, J, M, and M Modified (see Figures 2–12 through 2–17).

Note that the concept-level illustrations in Figures 2-12 through 2-17 show the comparative differences between roadway configurations. Highway lanes, ramps, local roadway alignments, connections, and adjacent surrounding land uses are shown in a broad-brush format. These figures are not intended to show vegetation removal or potential replanting areas.

Figure 2-12 Existing Configuration of U.S. 101-Cabrillo Boulevard Interchange

Figure 2-13 Conceptual Image of Interchange Configuration F

Note: This concept-level illustration shows the comparative differences between roadway configurations. Highway lanes, ramps, local roadway alignments, connections and adjacencies to surrounding land uses are shown. This figure is not intended to depict vegetation removal or potential replanting areas.

Figure 2-14 Conceptual Image of Interchange Configuration F Modified

Note: This concept-level illustration shows the comparative differences between roadway configurations. Highway lanes, ramps, local roadway alignments, connections and adjacencies to surrounding land uses are shown. This figure is not intended to depict vegetation removal or potential replanting areas.

Figure 2-15 Conceptual Image of Interchange Configuration J

Note: This concept-level illustration shows the comparative differences between roadway configurations. Highway lanes, ramps, local roadway alignments, connections and adjacencies to surrounding land uses are shown. This figure is not intended to depict vegetation removal or potential replanting areas.

Figure 2-16 Conceptual Image of Interchange Configuration M

Note: This concept-level illustration shows the comparative differences between roadway configurations. Highway lanes, ramps, local roadway alignments, connections and adjacencies to surrounding land uses are shown. This figure is not intended to depict vegetation removal or potential replanting areas.

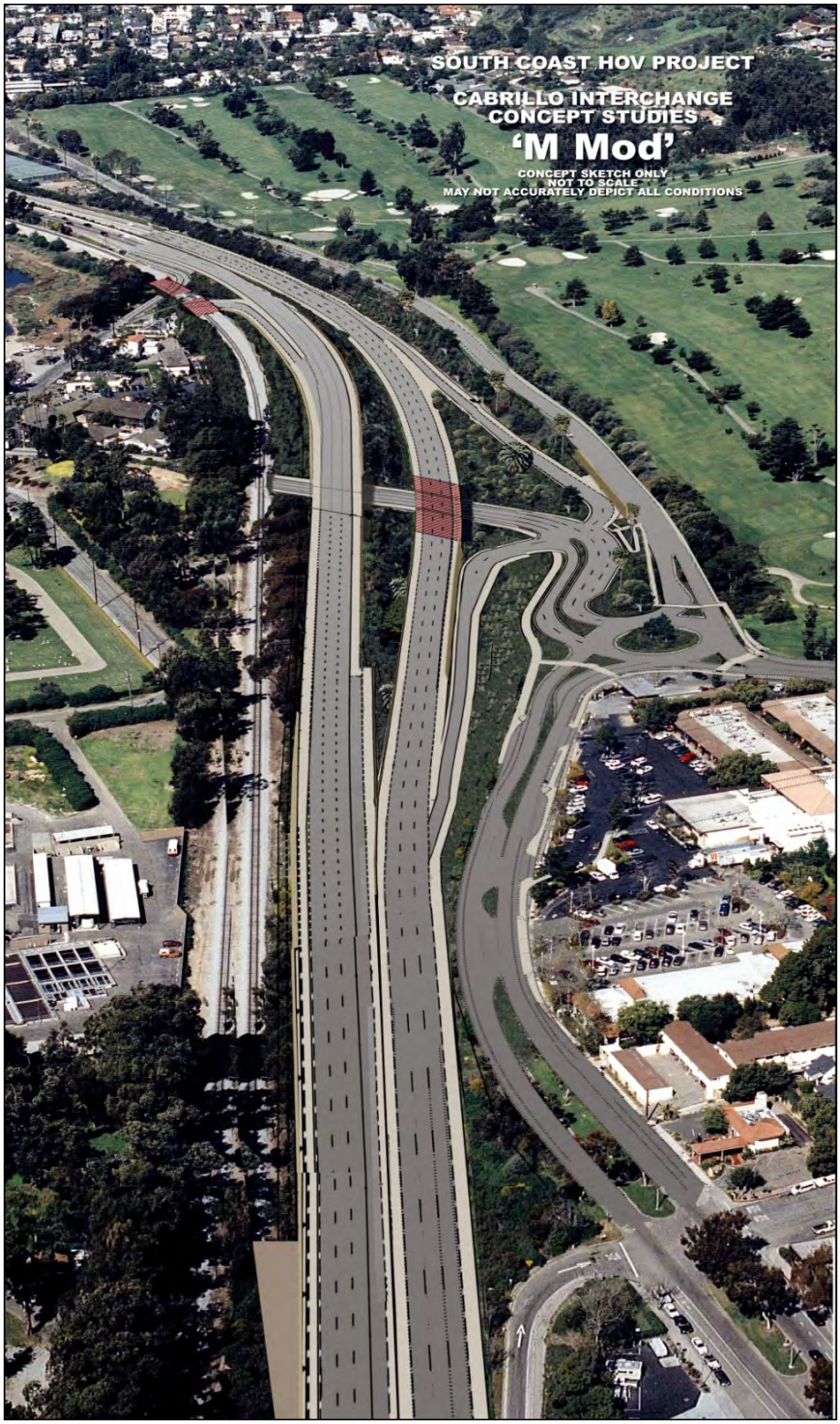


Figure 2-17 Conceptual Image of Interchange Configuration M Modified

Note: This concept-level illustration shows the comparative differences between roadway configurations. Highway lanes, ramps, local roadway alignments, connections and adjacencies to surrounding land uses are shown. This figure is not intended to depict vegetation removal or potential replanting areas.

Observer Viewpoint 21 – From U.S. 101 east of the Cabrillo Boulevard interchange looking northbound

OV-21 Existing Condition

The Visual Quality Evaluation rating indicated a relatively high-quality view based mostly on the mature vegetation visible along the corridor and throughout the community. Skyline eucalyptus trees dominate the view to the southwest, and portions of the golf course are visible ahead. The left-side ramp and off-ramp contribute to the memorability of the view. Median planting partially obscures views of southbound traffic. Although this section of the highway is passing through a somewhat commercial area, the road curvature and mature vegetation limit noticeability of the developed character.

Viewer Response

The main sensitive visual resources as seen from Observer Viewpoint 21 are large-scale skyline trees, the well-landscaped highway corridor and community, the curvilinear highway, and the unique configuration of the interchange. Viewers from this location are limited to those in vehicles traveling the highway. The viewer sensitivity rating from this viewpoint is moderately high.

OV-21 Proposed Condition – Cabrillo Boulevard Interchange Configuration F

As seen from this viewpoint, the most noticeable visual change would be the additional highway lane and closure of the left-side off-ramp. The visual quality would be affected by the loss of many of the large skyline trees along the southbound lanes and the construction of the concrete median barrier. Roadside vegetation along the northbound roadside would stay. The visual quality evaluation showed a moderately high reduction in visual quality. Even with this reduction, configuration F would keep an above-average view quality as seen from this vantage point, due mostly to the well-vegetated roadsides.

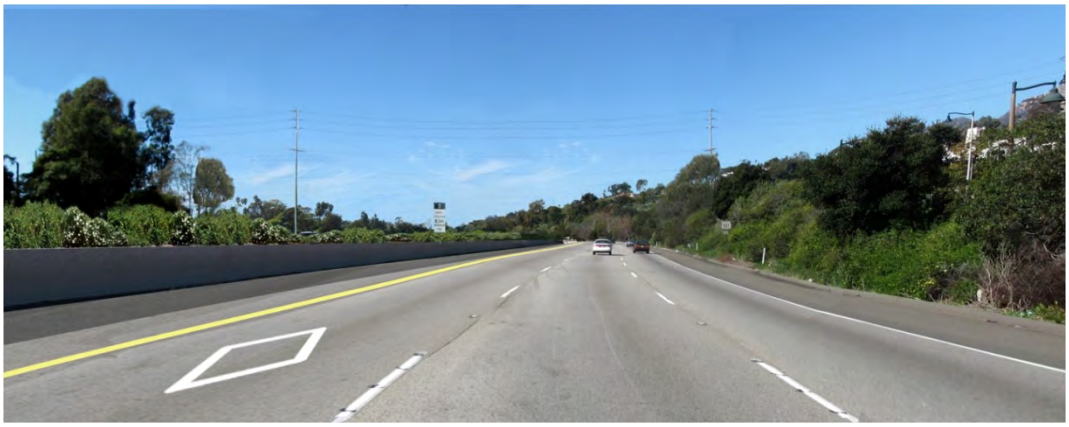
OV-21 Proposed Condition – Cabrillo Boulevard Interchange Configuration F Modified

From this perspective, configuration F Modified would be noticeable by the shift of the highway lanes to the south, the additional highway lane, the new right-side off-ramp, and closure of the left-side off-ramp. The visual quality would be affected by

the loss of many of the large skyline trees along the southbound lanes and construction of the concrete median barrier. Configuration F Modified would provide for limited planting in the median.

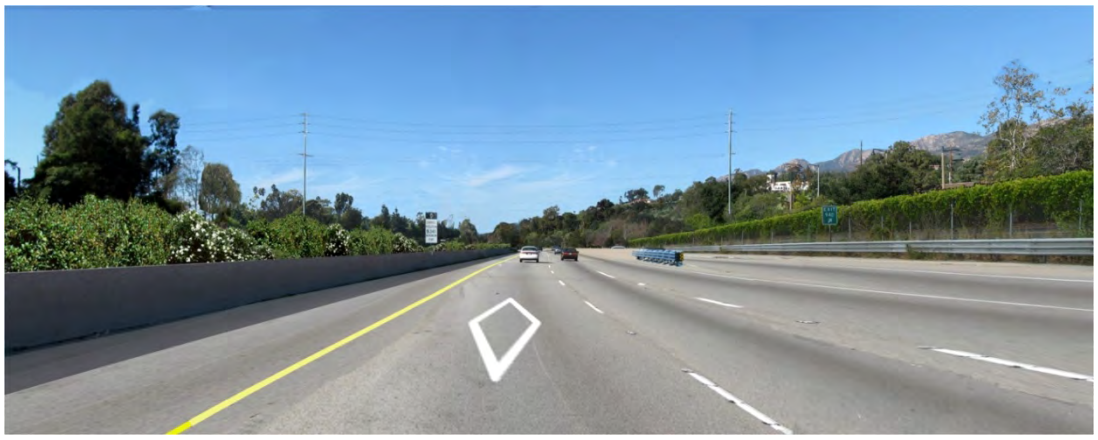
The visual quality evaluation showed a moderately high reduction in visual quality at this location. Even with this reduction, configuration F Modified would maintain an above-average view quality as seen from this viewpoint.

OV-21 Proposed Condition – Cabrillo Boulevard Interchange Configuration J



As seen from this viewpoint, configuration J would appear much like configuration F, as previously described. Most of the changes unique to configuration J would occur along the southbound lanes and would not be easily seen from this viewing location. As with configuration F, the visual quality of configuration J would be adversely affected by the loss of skyline trees along the southbound lanes and construction of concrete median barrier. Roadside vegetation along the northbound roadside would stay. The visual quality evaluation indicates a moderately high reduction in visual quality. Configuration F, however, would retain an above-average view quality as seen from this vantage point, due mostly to the well-vegetated roadsides.

OV-21 Proposed Condition – Cabrillo Boulevard Interchange Configuration M and M Modified



Configurations M and M Modified would remove some of the existing skyline trees and install concrete median barrier. But, as seen from this viewpoint, the greatest visual change with configuration M would be due to construction of a northbound off-ramp. The new off-ramp would result in the loss of most of the existing planting between the highway and Coast Village Road. Vines would be planted on the proposed highway fencing, but much of the vegetated character and screening would be lost, resulting in a reduction in visual quality.

Observer Viewpoint 22 – From the Old Coast Highway north of the Cabrillo Boulevard interchange looking southwest

OV-22 Existing Condition

The existing visual quality rating for this viewpoint shows high marks for all three evaluation criteria. The curved roadways, open bridge rail, landscaping, and architectural and site details all contribute to a well-balanced human-scale view. As seen from this viewing location, the elements create a very intact suburban-type

landscape, with a high degree of visual unity and continuity, due in large part to the plentiful landscaping. Because the high intactness and unity are noticeable, the memorability of the view is also increased.

Viewer Response

Sensitive visual resources visible from Observer Viewpoint 22 are the U.S. 101 bridge structures and the plentiful landscaping and skyline trees at and near the interchange. The curved roadways also contribute to a visual character expressly valued in local planning policy. Viewers from this local roadway are pedestrians, bicyclists and motorists. As a result, the expected viewer sensitivity rating from this viewpoint is high.

OV-22 Proposed Condition – Cabrillo Boulevard Interchange Configurations F and J

Interchange configurations F and J would appear the same from Observer Viewpoint 22 because the changes unique to each of these configurations would occur along the southbound lanes and would not be seen from this viewpoint. The most noticeable visual changes seen from this viewpoint would be construction of an additional lane along southbound Hot Springs Boulevard. The change would reduce the amount of landscaping area and slightly increase the visual scale of the interchange. The visual quality evaluation indicates that in spite of this visual change, the view would still maintain high ratings for vividness, intactness and unity.

OV-22 Proposed Condition – Cabrillo Boulevard Interchange Configuration F Modified

Interchange Configuration F Modified proposes a new northbound off-ramp connecting to Hot Springs Blvd. As seen from Observer Viewpoint 22, the construction of the ramp would require a retaining wall along the northbound lanes of the highway, and the removal of the existing vegetation in that area. New vine planting would be included along the retaining wall. The intersection of Hot Springs Blvd. and the highway ramps would likely require traffic signals and additional signage. As seen from OV-22, although a slightly different layout, the overall extent of paved surfaces and landscaping associated with Configuration F Modified would be perceived as generally similar to the other configurations. The Visual Quality Evaluation shows that the vividness, intactness and unity would be reduced with Configuration F Modified. As a result, the visual scale and urban character of the interchange would be substantially increased.

OV-22 Proposed Condition – Cabrillo/Hot Springs Interchange Configurations M and M Modified

Interchange configuration M and M Modified propose a new northbound off-ramp connecting to Hot Springs Boulevard. As seen from Observer Viewpoint 22, construction of the ramp would require a retaining wall along the northbound lanes of the highway and removal of the existing vegetation in that area. New vine planting would be included along the retaining wall. The intersection of Hot Springs Boulevard and the highway ramps would likely require traffic signals and additional signage. The visual quality evaluation shows that vividness, intactness and unity would all be reduced with configurations M and M Modified. As a result, the visual scale and urban character of the interchange would be substantially increased.

Observer Viewpoint 23 – From Los Patos Way looking northwest toward U.S. 101

OV-23 Existing Condition

The existing view from Los Patos Way toward U.S. 101 includes a variety of elements including the railroad bridge structure, skyline trees, the Andrée Clark Bird Refuge, and commercial buildings. Utility poles, roadway signage, and highway traffic in the distance contribute to the somewhat mixed visual character of this view. The visual quality evaluation done from Observer Viewpoint 23 resulted in moderately above-average ratings for vividness, intactness and unity. The stone abutments of the railroad structure, the large trees and the bird refuge raised the memorability of the view, and the vegetation seen throughout the area added a degree of visual continuity. Overall, however, the view had a somewhat visually discordant character and was fairly cluttered.

Viewer Response

Sensitive visual resources visible from Observer Viewpoint 23 include the Andrée Clark Bird Refuge, the sandstone abutments of the railroad bridge structure, and the skyline trees. Viewers from this local roadway are pedestrians, bicyclists and motorists. The generally high viewer sensitivity from this viewpoint is somewhat moderated by the relatively few number of potential viewers at this location. As a result, the expected viewer sensitivity rating from this viewpoint is moderately high.

OV-23 Proposed Condition – Cabrillo Boulevard Interchange Configuration F and F Modified

As seen from this observer viewpoint, the main visual change with configuration F would be the closure and removal of the southbound off-ramp under the railroad bridge. New landscaping would be planted on portions of the removed roadway, and traffic signage associated with the abandoned off-ramp would be eliminated. As a result, the visual quality evaluation found that the quality of the view would slightly improve at this location with configurations F and F Modified.

OV-23 Proposed Condition – Cabrillo Boulevard Interchange Configurations J, M, and M Modified

Configurations J, M, and M Modified would add a new southbound on-ramp at Los Patos Way. The existing railroad bridge structure would be lengthened and raised about 4 feet. Access-control fencing would be required along a portion of the on- and off-ramps, and new roadway signage would be required. Aesthetic treatment would be included as part of the new bridge, and landscaping would be included between the on- and off-ramps. The visual ratings for configurations J, M and M Modified show a slight decrease in visual quality at this location. The increased visual scale and urbanization of the setting would represent a change in character here.

Observer Viewpoint 24 – from U.S. 101 about 1,000 feet west of Cabrillo Boulevard looking southbound

OV-24 Existing Condition

The existing visual conditions as seen from Observer Viewpoint 24 received moderately high quality ratings. The left-hand off-ramp is somewhat unique, adding to the memorability of the scene. Mature vegetation and skyline trees also contribute

to the vividness. The amount of vegetation plays a major factor in the high unity and intactness ratings and the somewhat rural appearance of the view. The open-style guardrail and bridge rail reinforce that rustic character. The existing median planting obscures most views of the northbound lanes. Although this section of the highway is passing through an area of commercial development, the road curvature and mature vegetation limit noticeability of the surrounding built character.

Viewer Response

The main sensitive visual resources seen from Observer Viewpoint 24 are large-scale skyline trees, the well-landscaped highway corridor and community, the curvilinear highway, and the unique configuration of the interchange. Viewers from this location are limited to those in vehicles traveling the highway. The viewer sensitivity rating from this viewpoint is moderately high.

OV-24 Proposed Condition – Cabrillo Boulevard Interchange Configuration F

Configuration F would essentially switch locations of the existing southbound highway mainline and the off-ramp, creating a more “standard” type of configuration. The most noticeable aspects of this change would be the wider expanse of pavement, loss of the left-hand off-ramp, and reduction of mature landscaping and skyline trees. New landscaping would be provided in the highway median and along the roadsides, though to a lesser degree than what currently exists. Because of the loss of the left-hand off-ramp and the skyline trees, the memorability rating would be reduced the most. Configuration F would create a more typical-looking highway facility, and views to the northbound lanes would increase, resulting in a more urban visual character. The Visual Quality Evaluation rating indicates a moderately substantial reduction in visual quality here. The remaining existing vegetation and the new planting, however, would help the view maintain an above-average degree of intactness and unity.

OV-24 Proposed Condition – Cabrillo Boulevard Interchange Configuration F Modified

Similar to configuration F, interchange configuration F Modified would create a more standard type of configuration with a right-hand southbound off-ramp. Configuration F Modified would, however, also shift the northbound and southbound highway lanes closer together and farther to the south. This more compact configuration would result in a somewhat narrower median as well as the need to build retaining walls between the southbound mainline and the southbound on- and off-ramps. The new retaining walls would be about 12 feet tall and 460 feet and 500 feet long, respectively. The two new walls would be below the highway and not easily seen from the mainline, as shown in Observer Viewpoint 24.

The most noticeable aspects of this change would be the wider expanse of pavement, loss of the left-hand off-ramp, construction of the new right-hand ramp, and reduction of mature landscaping and skyline trees. Because of the tighter ramp configuration, no planting area would be available between the southbound paved shoulder and the top of the new retaining wall. New landscaping would be provided in the highway median and along the roadsides, though to a lesser degree than what currently exists.

Losing the left-hand off-ramp and the skyline trees would reduce the memorability rating the most. Configuration F Modified would create a more urban-looking highway facility. Views across to the northbound lanes of traffic would increase, and much of the current view of vegetation along the southbound roadside would be replaced with new off- and on-ramps.

The Visual Quality Evaluation rating indicates a moderately substantial reduction in visual quality here. The remaining existing vegetation and the new planting, however, would help the view maintain a slightly above-average degree of intactness and unity.

OV-24 Proposed Condition – Cabrillo Boulevard Interchange Configuration J

As seen from this viewpoint, configuration J would remove the existing left-hand off-ramp and build a new highway lane. The existing left-hand off-ramp would be removed and a new on-ramp built at Los Patos Way. The southbound lanes of the highway would generally follow their existing alignment. Similar to the other interchange configurations, the most noticeable characteristics of configuration J would be the loss of the left-hand off-ramp, the wider expanse of pavement, and the reduction of mature landscaping and skyline trees. New landscaping would be provided in the highway median and along the roadsides.

Because of the loss of the left-hand off-ramp and the skyline trees, the memorability rating would be reduced. Due to the wider median and associated planting opportunities with this configuration, views to the northbound lanes would only slightly increase. The remaining existing vegetation and the new planting would help the view maintain an above-average degree of intactness and unity. The Visual Quality Evaluation rating indicates a moderately substantial reduction in visual quality here.

OV-24 Proposed Condition – Cabrillo Boulevard Interchange Configurations M and M Modified

As seen from Observer Viewpoint 24, configurations M and M Modified would appear generally similar to configuration J. The existing left-hand off-ramp would be removed, and a new on-ramp would be built at Los Patos Road. Because of a different alignment of the northbound highway lanes, the median would be somewhat narrower than that proposed with configuration J. New landscaping would be provided in the highway median and along the roadsides, though to a lesser degree than what now exists.

Similar to the other interchange configurations, the most identifiable visual characteristic of configuration M would be loss of the left-hand off-ramp, the wider expanse of pavement, and the reduction of mature landscaping and skyline trees. Views to the northbound lanes would increase with configuration M, resulting in a more urban visual character as seen from this viewpoint. The Visual Quality Evaluation rating indicates a moderately substantial reduction in visual quality, though the remaining existing vegetation and the new planting would help the view retain an above-average degree of intactness and unity.

Observer Viewpoint 24A – from U.S. 101 about 1,500 feet west of Cabrillo Boulevard looking southbound

OV-24A Existing Condition

The existing visual conditions as seen from Observer Viewpoint 24A received moderately high quality ratings. The left-hand off-ramp seen ahead in the mid-ground is fairly unique, somewhat increasing the memorability of the view. Skyline trees, including large stands of eucalyptus, also contribute to the vividness.

Throughout this area, mature vegetation plays a major factor in the high unity and intactness ratings. Scattered native vegetation contributes to somewhat informal-looking landscaping and a quasi-rural appearance of the view. The existing median planting partially obscures views of the northbound lanes, and the vegetation and topography along the southbound roadside limits views of the adjacent railroad tracks.

Viewer Response

Sensitive visual resources as seen from Observer Viewpoint 24A include the large-scale skyline trees, well-landscaped highway corridor and community, and curvilinear highway. Although from this particular location views of the Santa Ynez Mountains are limited and the Andrée Clark Bird Refuge is not visible, the viewer sensitivity rating is identified as moderately high through this part of the corridor. This viewpoint would be limited to those in vehicles traveling the highway.

OV-24A Proposed Condition–Cabrillo Boulevard Interchange Configuration F

Configuration F would remove the left-hand off-ramp and build a new off-ramp on the right side. This more typical-style interchange configuration would cause the removal of mature roadside and median landscaping and skyline trees. A new 450-foot-long retaining wall with a maximum height of 8 feet would be built between the off-ramp and the railroad tracks. Views across to the northbound lanes of traffic as well as the railroad tracks to the south would be increased. New landscaping would be provided in the highway median, though to a lesser degree than what currently exists. Configuration F would create a more typical, urban-looking highway facility

with a somewhat open visual character and a less vegetated appearance. The Visual Quality Evaluation rating indicates a moderately substantial reduction in visual quality as seen from this location. The remaining vegetation along with the new median planting and modest roadside planting, however, would help the view maintain a somewhat above-average degree of intactness and unity.

OV-24A Proposed Condition – Cabrillo Boulevard Interchange Configuration F Modified

As seen from this viewpoint, configuration F Modified would shift the highway lanes slightly to the south, in a more compact layout than configuration F. As a result, less planting area would be available in the median, between the mainline and southbound ramps, and along the southbound roadside. Removal of the left-hand off-ramp and construction of a new off-ramp on the right side would create a more typical "diamond"-style interchange. A new 450-foot-long retaining wall with a maximum height of 8 feet would be built between the off-ramp and the railroad tracks. Configuration F Modified would remove mature roadside and median landscaping and skyline trees. Views across to the northbound lanes of traffic as well as the railroad tracks to the south would be increased. New landscaping would be provided in the highway median and along the roadsides, though to a lesser degree than what currently exists.

This more compact configuration would result in the need to build two additional retaining walls between the southbound mainline and the southbound on- and off-ramps. The new retaining walls would be about 12 feet tall and 460 feet and 500 feet

long, respectively. These two new walls would be below the highway and not easily seen from the mainline, but would be easily seen from the on- and off-ramps.

No room to plant would exist between the southbound lanes and the top of the retaining walls; however, shrubs and possibly vines would be provided at the base of the retaining walls to help reduce their visual scale and urbanizing character as seen from the ramps. In spite of proposed landscaping, at a maximum height of 12 feet, the walls would remain dominant visual features along the southbound ramps.

Configuration F Modified would result in a more typical, urban-looking highway with a somewhat open visual character and a less vegetated appearance. The Visual Quality Evaluation rating indicates a substantial reduction in visual quality as seen from this location. The remaining existing vegetation within the highway right-of-way and the adjacent community, along with the new planting in the median and roadside, would help the view retain a moderate degree of intactness and unity.

OV-24A Proposed Condition–Cabrillo Boulevard Interchange Configuration J

As seen from Observer Viewpoint 24A, configuration J would remove the existing left-hand off-ramp and add a new highway lane. In addition to the new HOV lane, the existing left-hand off-ramp would be removed and a new on-ramp built at Los Patos Way. A retaining wall would be required along the southbound lanes to fit the new southbound Los Patos on-ramp between the highway and the adjacent railroad track. Southbound lanes of the highway would generally follow their existing alignment.

The most noticeable characteristics of configuration J at this location would be the retaining wall, loss of the left-hand off-ramp, wider expanse of pavement, and reduction of mature landscaping and skyline trees. New landscaping would be provided in the highway median and along the roadsides. Because of the loss of the left-hand off-ramp and skyline trees, the memorability rating would be reduced. Due to the wider median and associated planting opportunities with this configuration, views to the northbound lanes would only slightly increase. The remaining existing vegetation and the new planting would help the view maintain an above-average degree of intactness and unity. The Visual Quality Evaluation rating indicates a moderately substantial reduction in visual quality as seen from this location.

OV-24 Proposed Condition–Cabrillo Boulevard Interchange Configurations M and M Modified

As seen from Observer Viewpoint 24A, configurations M and M Modified would appear generally similar to configuration J. The existing left-hand off-ramp would be removed and a new on-ramp and retaining wall would be built at Los Patos Way. Because of the different alignment of the northbound highway lanes, the median would be somewhat narrower than that proposed with configuration J.

New landscaping would be provided in the highway median and along the roadsides, though to a lesser degree than what currently exists. The most identifiable visual characteristic of configurations M and M Modified would be the loss of the left-hand off-ramp, wider expanse of pavement, new retaining wall, and reduction of mature

landscaping and skyline trees. Views to the northbound lanes would increase with configurations M and M Modified, resulting in a more urban visual character as seen from this viewpoint. The Visual Quality Evaluation rating indicates a moderately substantial reduction in visual quality. The remaining vegetation and new planting, however, would help the view retain an above-average degree of intactness and unity.

Summary—Cabrillo Boulevard Interchange

Due to replacement or widening, changes proposed for the Cabrillo Boulevard interchange would be substantial and would affect the mainline, on- and off-ramps, local roadway alignments, and bridge structures. Earthwork required to accommodate the new configurations would be extensive, and existing landscaping in the vicinity would be greatly affected. The proposed configuration changes at the U.S. 101 Cabrillo Boulevard interchange are each independent of Alternatives 1, 2, and 3 and could be built with any of the three project alternatives.

Because of the interchange's size and proximity to local roads and other public land uses, views of the interchange are innumerable and widely varied. U.S. 101 is elevated in this area, which increases viewing opportunities from the highway, but at the same time limits views from local roads to the surrounding area. The mature, dense landscaping throughout the interchange restricts many of the views from potential viewpoints. As a result, many views from local roads and sidewalks are isolated to one side of the highway or the other.

Views from the highway while passing through the interchange are high quality, based mostly on the mature vegetation seen along the corridor. Skyline eucalyptus trees dominate the view to the south, along the highway and the adjacent railroad tracks. The left-hand off-ramps are somewhat unique and contribute to the memorability of the interchange. The open-style guardrail and bridge rail reinforce a non-urban character visual character. Road curvature and mature vegetation obscure views of highway traffic between the northbound and southbound lanes and limit noticeability of the surrounding development.

As seen from the local roadways and pedestrian areas surrounding the interchange, the curved roadways, open bridge rail, landscaping, architectural and site details all contribute to a well-balanced, human-scale view. From local roads south of the interchange, the stone abutments of the railroad structures, the large trees and the bird refuge add to the view quality, and the vegetation visible throughout the area adds

visual continuity. Near the Los Patos off-ramp, however, the view was found to be somewhat visually cluttered.

Summary—Interchange Configuration F

From viewpoints on northbound U.S. 101, the most noticeable visual change would be the additional highway lane and closure of the left-side off-ramp. The visual quality would be reduced by the loss of many of the large skyline trees along the southbound lanes and by construction of concrete median barrier. Roadside vegetation along the northbound roadside would remain in place.

Along southbound U.S. 101, configuration F would switch locations of the existing southbound mainline and the off-ramp, resulting in a more "standard" type of configuration. This would result in a wider expanse of pavement, loss of the left-side off-ramp, and reduction of mature landscaping and skyline trees. A new 450-foot-long retaining wall with a maximum height of 8 feet would be built between the southbound off-ramp and the railroad tracks. New landscaping would be provided in the highway median and along the roadsides, though to a lesser degree than what now exists. Because of the loss of the left-hand off-ramp and skyline trees, memorability of the view would be reduced. Views between the northbound and southbound lanes would increase somewhat, resulting in a more urban visual character. From U.S. 101, the visual quality of the interchange would be substantially reduced. In spite of the adverse visual impacts, the amount of remaining existing vegetation along with the new median planting and modest roadside planting would help maintain a somewhat above-average degree of scenic quality.

Seen from local roads to the north such as the Old Coast Highway and Coast Village Road, configurations F and J would appear the same because the changes unique to each of these configurations would occur along the southbound lanes and would not be seen. From these viewpoints, the most noticeable visual changes would be the additional lane along southbound Hot Springs Boulevard. The change would reduce the amount of landscaping area and slightly increase the visual scale of the interchange. A reduction in visual quality would occur, but the view would still maintain above-average ratings for vividness, intactness and unity.

From the Los Patos Way side of the interchange, the main visual change with configuration F would be the closure and removal of the southbound off-ramp. New landscaping would be planted on portions of the removed roadway, and traffic signage for the abandoned off-ramp would be taken away. In the immediate area of

the existing Los Patos off-ramp, the quality of the view would slightly improve with configuration F.

Summary—Interchange Configuration F Modified

As seen from the northbound lanes of U.S. 101, the greatest visual change associated with configuration F Modified would be the closure of the existing left-side off-ramp and construction of a new right-hand off-ramp. The northbound lanes would shift closer to the southbound lanes to accommodate the new northbound off-ramp, resulting in less planting area in the median. The new northbound off-ramp would result in the loss of much of the existing planting between the highway and Coast Village Road. Vines would be planted on the proposed highway fencing in that area, but much of the vegetated character and screening would be lost. Removal of several existing skyline trees from the southbound roadside would be seen, and additional lanes would combine for a more urban appearance and reduction in visual quality.

As seen from the southbound lanes of U.S. 101, configuration F Modified would remove the existing left-side off-ramp and build new southbound on- and off-ramps between the highway mainlines and the railroad tracks to the south. A new 450-foot-long retaining wall with a maximum height of 8 feet would be built between the southbound off-ramp and the railroad tracks. Because of the different alignment of the northbound highway lanes, the median would be narrower. New landscaping would be provided in portions of the highway median and roadsides, though to a lesser degree than what now exists. Views between the northbound and southbound lanes would increase with configuration F Modified, resulting in a more urban visual character.

With configuration F Modified, a substantial reduction in visual quality would occur compared to the existing condition. The remaining vegetation and the new planting, however, would help the view keep a slightly above-average degree of intactness and unity.

As seen from the Coast Village Road and Old Coast Highway areas, construction of a new northbound off-ramp connecting to Hot Springs Boulevard would require a retaining wall along the northbound lanes of the highway and removal of the existing vegetation in that area. New vine planting would be included along the retaining wall. The intersection of Hot Springs Boulevard and the highway ramps would likely require traffic signals and additional signage. As a result, the visual scale and urban

character of the interchange would be substantially increased, and the visual quality would be reduced with configuration F Modified.

Configuration F Modified would add new southbound on- and off-ramps at Cabrillo Boulevard. Three retaining walls would be required to fit the new ramps between the highway mainline and the existing railroad tracks. The retaining walls would be visible from the on- and off-ramps and would increase visual scale and urbanization of the setting. Overall, configuration F Modified would represent a change in character and, as a result, the visual quality would decrease.

Summary—Interchange Configuration J

Most of the changes unique to configuration J would occur along the southbound lanes. The visual quality of configuration J would be adversely affected by the loss of skyline trees along the southbound lanes, the additional highway lanes and closure of the left side off-ramps. Roadside vegetation along most of the northbound roadside would remain in place. The southbound lanes of the highway would generally follow their existing alignment, and a new on-ramp would be built at Los Patos Way. New landscaping would be provided in the highway median and along the roadsides.

Due to the wider median and associated planting opportunities with configuration J, views between the northbound and southbound lanes would be limited. The Visual Quality Evaluation rating indicates a moderately substantial reduction in visual quality as seen from the highway. The remaining amount of existing vegetation and the new planting, however, would help configuration J maintain an above-average degree of intactness and unity.

Configurations F and J would appear mostly the same from viewpoints north of the interchange because the changes unique to each of these configurations would occur along the southbound lanes. The most noticeable visual changes seen from the Coast Village Road and Old Coast Highway areas would be construction of an additional lane along southbound Hot Springs Boulevard. The change would reduce the amount of landscaping area and slightly increase the visual scale of the interchange. From these vantage points north of the interchange, configurations J and F would result in a loss of visual quality, but the reduced-quality view would still be considered above average.

Alternative J adds a new southbound on-ramp at Los Patos Way. The existing railroad bridge would be lengthened, and new roadway signage required. Aesthetic treatment

would be included as part of the new bridge, and landscaping would be included between the on- and off-ramps. The increased visual scale and urbanization of the setting would represent a change in character at this location and result in a slight decrease in visual quality.

Summary—Interchange Configuration M

As seen from the northbound lanes of U.S. 101, the greatest visual change associated with configuration M would be closure of the existing left-side off-ramp and construction of a new right-hand off-ramp. The new off-ramp would result in the loss of most of the existing planting between the highway and Coast Village Road. Vines would be planted on the proposed highway fencing in that area, but much of the vegetated character and screening would be lost. Removal of several existing skyline trees from the southbound roadside would be seen, and additional lanes would combine for a more urban appearance and a reduction in visual quality. Configuration M would also close the existing northbound Hermosillo Road off-ramp, which would provide additional landscaping opportunity in that area.

As seen from the southbound lanes of U.S. 101, configuration M would remove the existing left-side off-ramp, and a new on-ramp would be built at Los Patos Way. Because of a different alignment of the northbound highway lanes, the median would be somewhat narrower. New landscaping would be provided in the highway median and along the roadsides, though to a lesser degree than what now exists. Views between the northbound and southbound lanes would increase with configuration M, resulting in a more urban visual character. With configuration M, a moderately substantial reduction in visual quality would occur, though the remaining existing vegetation and the new planting would help the view keep an above-average degree of intactness and unity.

As seen from the Coast Village Road and Old Coast Highway areas, construction of a new northbound off-ramp connecting to Hot Springs Boulevard would require a retaining wall along the northbound lanes of the highway and removal of the existing vegetation in that area. New vine planting would be included along the retaining wall. The intersection of Hot Springs Boulevard and the highway ramps would likely require traffic signals and additional signage. As a result, the visual scale and urban character of the interchange would be substantially increased, and the visual quality would be reduced with configuration M.

Alternative M would add a new southbound on-ramp at Los Patos Way. The existing railroad bridge would be lengthened, and new roadway signage required. Aesthetic treatment would be included as part of the new bridge, and landscaping would be included between the on- and off-ramps. The increased visual scale and urbanization of the setting would represent a change in character here and, as a result, the visual quality would decrease.

Summary—Interchange Configuration M Modified

Configuration M Modified would result in the same visual changes and effects as configuration M described above, except that the existing northbound Hermosillo Road off-ramp would remain in place. As a result of leaving the Hermosillo ramp in place and building an additional northbound off-ramp just west at Cabrillo Boulevard, that area would appear more urban and less landscaped than the existing condition.

Observer Viewpoint 25 – From U.S. 101 near Salinas Street looking northbound

OV-25 Existing Condition

The existing view from Observer Viewpoint 25 includes a variety of visual elements, including residential and recreational uses, U.S. 101 with sparse to moderate planted roadsides and median, and a soundwall along the northbound lanes. Mature vegetation can be seen in the surrounding community. Limited views of the Andrée Clark Bird Refuge and Santa Barbara Zoo are toward the southwest, as are a chain-link highway fence and railroad tracks. The Visual Quality Evaluation ratings for this existing view indicate a generally average visual quality, due mostly to the minimal

highway landscaping and soundwall. The median planting adds some degree of unity to the view. The existing view is somewhat intact as a typical suburban freeway context, and glimpses of the bird refuge slightly increase the memorability rating.

Viewer Response

The main sensitive visual resources seen from Observer Viewpoint 25 are the Andrée Clark Bird Refuge and the well-vegetated community beyond the highway corridor. No quality ocean views are available from Observer Viewpoint 25, and viewers at this location are exclusively motorists using the highway. As a result, the expected viewer sensitivity rating from this viewpoint is moderately above-average.

OV-25 Proposed Condition – Alternatives 1 (preferred alternative), 2, and 3

As seen from Observer Viewpoint 25, the project proposes no alterations to the highway beyond those that were built as part of the Milpas/Hot Springs project. As a result, the proposed condition from this viewpoint would not change from the existing condition. It is important to note that configurations J, M and M Modified would result in raising the railroad track profile south of the highway about 1 to 4 feet for a distance of 0.67 mile as part of ramp improvements at the Los Patos Way railroad overhead structure. The elevated railroad embankment would transition back to the existing grade through this area, but would have some effect on existing views of the Andrée Clark Bird Refuge as seen from the eastbound lanes.

Summary—Santa Barbara City Assessment Unit

The Santa Barbara City Assessment Unit represents the westernmost segment of the project corridor study area. Although landscaping and views of the Santa Ynez

Mountains are important scenic components of this unit, the visual character is also influenced by the more urban visual character of the City of Santa Barbara.

The Santa Barbara unit includes a variety of visual elements that include residential and recreational uses, U.S. 101 with sparse to moderate planted roadsides and median, and a soundwall along the northbound lanes. Mature vegetation can be seen in the surrounding community. Limited views of the Andrée Clark Bird Refuge and the Santa Barbara Zoo are to the southwest, as are the chain-link highway fence and the railroad tracks. Views of the hills and Santa Ynez Mountains are important scenic resources for viewers traveling eastbound on U.S. 101. The Cabrillo Boulevard interchange is considered part of the Santa Barbara City Assessment Unit, but is discussed separately in the previous section.

Through this area, the existing median planting provides a benefit in terms of visual continuity and reducing the perceived scale by somewhat limiting views across the full width of the highway. Roadside planting does not dominate the views through this unit, and the existing soundwalls are noticeable along the northbound lanes.

Alternatives 1 and 2 through this area would keep some of the existing median planting, and most of the existing roadside shrubs would be removed. Vine planting, however, would be installed along the existing soundwall east of Salinas Street. The widened highway, combined with the smaller median planting and loss of roadside landscaping around the Salinas Street on- and off-ramps, would result in a reduction of visual quality. The visual quality evaluation shows that Alternatives 1 and 2 would result in a slightly below-average visual quality rating.

Alternative 3 would mainly widen to the inside, causing loss of median planting. Most of the existing roadside landscaping would remain in place, but Alternative 3 would not accommodate the planting of vines on the existing soundwall. Visual quality would be reduced, mostly because of the loss of median planting. In addition to the wider highway, the loss of median planting would increase the perceived visual scale of the highway and have an urbanizing effect on this section of the highway corridor. Views to the bird refuge would be opened up for the northbound lanes, but views of the chain-link fencing and the railroad track would also increase.

Throughout this area, because Alternatives 1 and 2 keep much of the median landscaping and provide vine planting on the existing soundwall, the visual scale of

the highway would be less than if Alternative 3 were built. As a result, Alternatives 1 and 2 would cause fewer visual impacts than Alternative 3 would.

Summary of Project Impacts

Implementation of the project would result in substantial visual changes throughout much of the highway corridor. Because of the length of the project and the virtually unlimited number of viewpoints from which the project would be seen, potential impacts are equally as varied and location specific. However, through analysis of the representative views (observer viewpoints) and extensive field review, information on the visual effects of the project was identified. Several potential impact "themes" became apparent, and common patterns of visual change were seen.

The main overall visual effect of the project, regardless of alternative, would be the increased urban character caused by the additional highway lanes, reduction of highway landscaping, and construction of proposed soundwalls at several locations. New landscaping proposed by the project, along with aesthetic treatments to walls, would reduce the urban appearance to some extent. In several areas, particularly through Montecito, the proposed vine-covered walls would not look dissimilar to the vine-covered fencing currently seen along the highway and throughout the community. But the inherent visual change associated with an increase in visual scale and additional hardscape would be unavoidable and noticeable. For some casual observers and people traveling through the area, the proposed scale of the highway would not be unexpected in the visual context of this freeway environment. Overall, viewer sensitivity and response to change are expected to be high, as indicated by the many local coastal planning policies on visual character and scenic view protection.

Proposed soundwalls would not only affect the visual character, but some of the walls would also affect scenic views, though at most proposed soundwall locations the existing landscaping and/or intervening development already block scenic views. In the Summerland area, views of the ocean would be blocked. The upper portions of the soundwalls proposed for that area would interrupt partial ocean views from viewpoints at lower hillside elevations neighborhoods to the north. As seen from U.S. 101, the proposed soundwalls would also limit much of the view to the community, including the commercial area along Lillie Avenue and the hillsides to the north.

Some degree of existing highway median planting is found throughout much of the project's length. At certain locations, particularly through the Padaro and the Montecito Assessment Units, the median planting includes mature and skyline trees

and dense shrubs. Along other sections of the highway corridor, the median planting is somewhat sparse and at times has a weedy appearance. In most instances, the median planting, even if sparse, adds to the vegetative character of the corridor and reduces views of the opposing lanes of the highway.

With all alternatives, the project would change the appearance of the median. Each of the alternatives would replace most of the existing metal barrier with concrete barrier. Depending on the specific location and alternative, new median planting may be included. Except in a few very wide median areas, new median planting would be limited to small and medium-sized shrubs. In the wider median areas, medium-sized trees would be planted. Even with Alternatives 1 and 3, which retain some of the median planting, the combination of new concrete barrier and reduced planting would result in a more urban appearance. At some of the weedy locations, the proposed barrier and planting would create a more unified look. In areas where the existing median planting is larger and well established, the new barrier and planting would affect the vegetated character and increase the visual scale of the highway.

Comparison of Project Alternatives

All of the project alternatives would reduce visual quality to some degree. The specific types of impacts depend on the visual value of the existing median planting and roadside landscaping and the effects the project would have on those elements relative to identified scenic resources seen in the area. At some locations, median planting provides more value; at other locations, roadside landscaping provides a greater visual benefit.

As seen from 15 of the 22 selected viewpoints, each of the three build alternatives would result in an equal amount of visual impact, though the impacts may be caused by different factors. Of the eight viewpoints not having equal impact ratings, Alternative 3 resulted in the greatest amount of visual impact for four viewpoints, and Alternative 2 resulted in the most visual impact for two viewpoints. Alternative 1 received the greatest amount of visual impact for one viewpoint. As seen from two viewpoints, Alternative 1 tied Alternate 3 as receiving the greatest amount of visual impact. See Table 2.22.

Table 2.22 Visual Impact Ratings for Each Project Alternative

Landscape Assessment Unit	Observer Viewpoint	Alternative 1 Impact Rating	Alternative 2 Impact Rating	Alternative 3 Impact Rating
Carpinteria City	1	-2.4	-2.7	-2.4
	2	+1.9	+2.1	+1.9
Carpinteria Salt Marsh	3	-2.6	-3.2	-2.6
	4	-2.5	-2.5	-2.5
Padaro	5	-2.5	-2.5	-2.6
	5A	-2.3	-2.2	-2.3
	6	-2.1	-2.1	-2.2
Summerland	7	-3.1	-3.1	-3.1
	8	-2.8	-2.8	-2.8
	9	-3.0	-3.0	-3.0
	10	-3.3	-3.3	-3.3
	11	-2.9	-2.9	-2.9
	12	-3.0	-3.0	-3.0
	13	-2.8	-2.8	-2.8
	14	-3.3	-3.3	-3.3
Montecito	15	-2.7	-2.7	-2.7
	16	-2.6	-2.6	-2.6
	17	-2.7	-2.7	-2.7
	18	-2.2	-2.2	-2.2
	19	-2.5	-2.5	-2.5
	20	-2.2	-2.2	-2.2
Santa Barbara	25	-2.0	-2.0	-2.1

Source: Visual Impact Assessment (November 2011) and Addendum (March 2014)

Comparison of Interchange Configurations

Each of the five Cabrillo Boulevard interchange configurations proposed by the project would reduce visual quality (see Table 2.23). Based on the views from the five selected viewpoints surrounding the interchange, the visual analysis ratings showed that:

- Configuration F Modified causes the greatest visual impact at four of the five viewing locations.
- Configurations M and M Modified cause the greatest visual impact at three of the five viewing locations.

- Configuration J causes the greatest visual impact at two of the five viewing locations.
- Configuration F causes the greatest visual impact at one of the five viewing locations.

Table 2.23 Visual Impact Ratings for Each Cabrillo Boulevard Interchange Configuration

Observer Viewpoint	Configuration F Impact Rating	Configuration F modified Impact Rating	Configuration J Impact Rating	Configuration M Impact Rating	Configuration M Modified Impact Rating
21	-2.4	-2.6	-2.4	-2.5	-2.5
22	-2.6	-3.0	-2.6	-3.0	-3.0
23	+2.4	+2.4	-2.5	-2.5	-2.5
24	-2.5	-2.5	-2.5	-2.5	-2.5
24A	-2.5	-2.6	-2.4	-2.5	-2.5

Observer Viewpoints 21 through 24A are within the Santa Barbara City Landscape Assessment Unit.
Source: Visual Impact Assessment (November 2011) and Addendum (March 2014)

Visual Impacts during Project Construction

Given the magnitude and length of the project, the funding strategy for Measure "A" dollars will require that the project be built in phases. The timing of the phased construction would depend on many factors, including available funding, where other nearby highway construction projects might be occurring, railroad involvement, utility relocation needs, and the Coastal Development Permit process. Construction work on the project would be divided and carried out in separate contracts along separate segments over a period of many years. Because construction of the entire project would not occur along the total length of the corridor all at one time, there is potential for work along the corridor to take approximately10 years.

Travelers going through the area on U.S. 101 would see construction occurring at some point along the way. But, at any given location within a community, visual impacts due to construction would be limited to a period of a few years.

Visual impacts would be related to construction vehicles and equipment and other elements at and near the project site. Temporary storage of construction materials would also be seen in the area. In addition, required safety devices such as orange cones, fencing and signage would affect views. Workers would be present and visible

throughout the construction phases. Views of stopped and slowed vehicles on the highway would also increase due to construction-related traffic delays. On certain local roadways, visibility of vehicular traffic may increase.

Additional vehicles, equipment, materials, safety devices and workers would not be unexpected visual elements seen at a construction site. But because of the overall duration of work and the great number of affected viewers, substantial visual impacts would result from the proposed construction activities.

Avoidance, Minimization, and/or Mitigation Measures

The following measures would reduce the project's visual impact as seen from U.S. 101 and the surrounding communities. The intent of the following measures is to mitigate the urbanizing effect of the project caused mainly by the additional highway lanes, reduction of highway landscaping, and construction of soundwalls.

The following minimization and mitigation measures, combined with proposed project features such as replacement landscaping and aesthetic treatments to walls, would lessen the adverse visual change to the corridor. However, because of the alteration of scale, increase of hard surface, and loss of vegetative character, substantial adverse visual impacts would remain.

- All soundwalls shall include aesthetic treatment such as texture and/or color to blend with the community character.
- To avoid blocking prime ocean views, it is recommended the following soundwalls not be built in Summerland:
    - Along northbound U.S. 101 from about 200 feet west of Greenwell Road to the Summerland Fire Station
    - Along northbound U.S. 101 about 0.2 mile east of Greenwell Road to approximately Greenwell Road
    - Along northbound U.S. 101 from the Evans Avenue undercrossing to the Evans Avenue northbound on-ramp
    - Along northbound U.S. 101 from the beginning of the Evans Avenue northbound on-ramp to about 50 feet west of the beginning of the Evans Avenue northbound on-ramp

- To balance the need for noise attenuation and maintaining partial ocean views, a clear panel should be used along the top portion (10 feet or more above the ground) of a proposed soundwall in Summerland at the following location:
    - Along northbound U.S. 101, from about 50 feet west of the beginning of the Evans Avenue northbound on-ramp to about 650 feet west of the beginning of the Evans Avenue northbound on-ramp
- All proposed concrete barriers shall include aesthetic treatment such as texture and/or color appropriate for the setting.
- Drainage structures visible from public areas shall be designed to visually blend in with the setting as much as possible.
- Changes to existing bridge structures shall reflect the visual character of the existing structures in terms of materials, color, style, and the existing human scale of the area.
- Open-style bridge railing shall be used on all new or modified bridge structures, except at locations where solid barriers are needed to provide added noise attenuation.
- If new traffic management system elements such as radar, cameras, and other equipment are added to the project, all visible components shall be located in the least obtrusive locations possible and colored to reduce visibility.
- Aesthetic treatments and design such as textured surfaces, architectural relief, and color application shall be incorporated into all new bridge structures.
- Any new signage would be located so that it minimizes view blockage of the Pacific Ocean to the greatest extent feasible, considering the necessary function of the sign.
- All new lighting shall minimize excess light and glare by careful placement of the poles, height and position of luminaires, and the use of shielded lenses where feasible.
- All areas where existing ramps and other paved surfaces are removed and where new landscaping is proposed shall be made suitable for planting.
- Existing trees and shrubs shall be preserved to the greatest extent possible.
- Existing healthy palm trees that would be affected by the project shall be transplanted to other areas within the project where feasible.

- Planting shall be included with all soundwalls to the greatest extent possible.
- Planting shall be included with all retaining walls to the greatest extent possible.
- New landscaping shall minimize view blockage of the Pacific Ocean.
- Plants with the potential of becoming skyline trees would be used as much as possible without blocking views of the Pacific Ocean.
- Existing Memorial Oaks would be preserved to the greatest extent feasible, respective of the selected project alternative.
- All new oak trees planted as part of the Memorial Oak tree mitigation measure shall be propagated from the existing Memorial Oak trees.
- All new non-oak planting near the Memorial Oaks shall be species that are easily differentiated from the Memorial Oaks, in terms of their visual character (form, size, color, and or texture).
- Concrete median barrier and new soundwalls in the immediate vicinity of the Memorial Oaks shall include aesthetic treatment unique to the Memorial Oaks area.
- The landscaping plan shall include historically successful plant species throughout the corridor.
- All aesthetic planting shall use larger-container-size plant material where appropriate. Trees shall be planted, at minimum, from 15-gallon containers.
- All permanent storm water treatment measures would be designed to visually fit with the ornamental or natural landscaped roadsides to the greatest extent feasible considering their intended function. Swales, ditches and basins should appear as natural as possible. Built structures would be architecturally treated, colored or hidden from view with planting.

2.1.7 Cultural Resources

Regulatory Setting

The term “cultural resources” as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include the following:

The National Historic Preservation Act of 1966, as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of the act requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations 800). On January 1, 2004, a Section 106 Programmatic Agreement between the Advisory Council, Federal Highway Administration, State Historic Preservation Officer, and Caltrans went into effect for Caltrans projects, both state and local, with Federal Highway Administration involvement. The Programmatic Agreement implements the Advisory Council's regulations, 36 Code of Federal Regulations 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The Federal Highway Administration's responsibilities under the Programmatic Agreement have been assigned to Caltrans as part of the Surface Transportation Project Delivery Pilot Program (23 Code of Federal Regulations 327) (July 1, 2007).

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties. (See Appendix B for specific information regarding Section 4(f))

Historical resources are considered under the California Environmental Quality Act, as well as California Public Resources Code Section 5024.1, which established the California Register of Historical Resources. Public Resources Code Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way. Public Resources Code Section 5024.1(e)(5) states that the California Register of Historical Resources includes local landmarks or historic properties designated under a county ordinance.

Affected Environment

A Historic Property Survey Report was completed for the project in October 2010. A Finding of Adverse Effect was completed in February 2011 and subsequently revised in September 2011.

Most of the current area of potential effects was previously examined as part of an earlier Caltrans District 5 project, commonly referred to as the "Santa Barbara Six-

Lane Project," that extended from post miles 1.1 to 12.7. Archaeological and architectural studies for this earlier project began in 1989 and surveyed many of the sites and historic-period resources included in the present project area. Additional fieldwork, either next to or within the limits of the current area of potential effects, was carried out in connection with the Linden Avenue and Casitas Pass Interchanges project and the Milpas Street to Hot Springs/Cabrillo project in 2000, and in connection with supplemental studies for the Linden Avenue and Casitas Pass Road Interchanges project in 2003.

To evaluate cultural resources, several technical studies were prepared. This section summarizes the information collected during the studies and documented in the Historic Property Survey Report and the Finding of Adverse Effect.

Area of Potential Effects

The area of potential effects is the area within which the proposed project has the potential to affect, either directly or indirectly, significant prehistoric or historic archaeological resources or historic-period (pre-1970) built-environment resources. The area of potential effects measures about 11 miles long, running northwest-southeast along the open coast of the Santa Barbara Channel from below Bailard Avenue in the City of Carpinteria (post mile 1.4) to Sycamore Creek in the City of Santa Barbara (post mile 12.3). The width of the area of potential effects varies between about 170 and 385 feet, except for a maximum of about 570 and 670 feet at Sheffield Drive and Cabrillo Boulevard, respectively. The vertical area of potential effects varies between the existing ground surface and a depth of 30 feet where structures would be replaced.

Archaeological Area of Potential Effects

The archaeological area of potential effects encompasses the anticipated ground-disturbing activities for all of the project alternatives and includes all construction areas, equipment staging and material storage areas, and easements. A buffer around the outer limits of these zones is also included within the archaeological area of potential effects to accommodate minor design changes.

Archaeological resource studies for the current project were designed to find previously recorded sites, survey the project area for previously undiscovered historic and prehistoric archaeological sites, and collect archival information. Due to the lapse of time (from 10 years to more than 20 years) since the earlier Santa Barbara Six-Lane and Linden-Casitas and Milpas to Hot Springs/Cabrillo cultural resource studies

were completed, Caltrans reviewed the earlier archaeological survey methods and findings and decided to do broader and more intensive surveys than were done earlier. Extended Phase I testing (limited excavations) was carried out to find the locations of prehistoric and historic archaeological deposits.

All prehistoric archaeological site records within 0.5 mile of the project area were obtained to look for regional patterns. Caltrans also developed a geoarchaeological sensitivity study to assess the potential for buried archaeological deposits within the survey area. The results of the geoarchaeological sensitivity study helped delineate the vertical area of potential effects and assisted with the development of a subsurface test excavation plan. Cultural resources studies included ongoing consultation with members of the local Chumash (Native American) communities on project findings, sacred lands, and special tribal concerns.

Historic Properties in the Archaeological Area of Potential Effects

Caltrans identified nine prehistoric archaeological resources within the current area of potential effects. Of these, Caltrans determined that one site—P-42-003943, commonly referred to as the Via Real Redeposited Midden—is eligible for listing in the National Register of Historic Places under Criterion D for its potential to answer important research questions on regional prehistory. The State Historic Preservation Officer concurred with this determination on April 7, 2011 (see Chapter 4 and Appendix D). The Via Real Redeposited Midden contains a rich mix of artifacts and subsistence remains. Artifacts include cobble/core tools, handstones, an obsidian core, and Monterey chert and quartzite debitage. Subsistence remains include shellfish, mammal bone and fish bone, including species obtained from local terrestrial, estuary, near-shore, and deep water habitats. Although the midden was moved onsite from its original location, it is not mixed with road fill or other non-archaeological sediments and appears to represent a single-component deposit, as evidenced by four radiocarbon dates, all corresponding to the latter half of the Early Period (between 4,010 and 3,155 years before present). No historic archaeological resources were identified within the area of potential effects.

Architectural Area of Potential Effects

The architectural area of potential effects includes not only the area delineated by the archaeological area of potential effects, but also parcels (or portions of parcels) occupied by historic-period (pre-1970) buildings and structures that have the potential to be affected either directly or indirectly by project activities. All of the historic-

period resources within the limits of the architectural area of potential effects were evaluated for eligibility for listing in the National Register of Historic Places.

Identification of historic properties involved review and study of pertinent literature, historic property listings, and appropriate inventories and databases, as well as research at local, regional, and state archives, including the Caltrans District 5 archives. Caltrans also performed intensive field surveys and consulted with the public, local government, and the historic preservation community (see Chapter 4). Caltrans revisited built-environment resources within the current area of potential effects that had previously been evaluated in 1989-91, 2000, and 2003, updating findings as appropriate. Caltrans also evaluated historic-period built-environment resources built between 1946 and 1969 that are within the limits of the current architectural area of potential effects but had not been studied before. Additional cultural resources studies targeted the potential for proposed soundwalls, retaining walls, and overcrossings to result in direct or indirect effects to historic properties due to loss of views or to construction-related, ground-borne vibration.

Historic Properties in the Architectural Area of Potential Effects

Caltrans identified 11 historic-period properties within the current architectural area of potential effects that have either been listed in or determined eligible for listing in the National Register of Historic Places. These historic properties include the following: 1) properties previously evaluated and determined eligible for listing in the National Register of Historic Places that were confirmed eligible as a result of the current study, without any changes to the earlier eligibility findings; 2) properties previously evaluated and determined eligible for listing in the National Register of Historic Places that were confirmed eligible as a result of the current study with modified eligibility findings; 3) properties previously determined not eligible for listing in the National Register of Historic Places that were reevaluated in the current study and determined eligible; and 4) properties evaluated for the first time as a result of the current study and determined eligible for listing in the National Register of Historic Places.

The State Historic Preservation Officer concurred with the revised and current eligibility determinations on January 26, 2011 (see Appendix D). The State Historic Preservation Officer was unable to agree or disagree with Caltrans' determination of eligibility under National Register Criterion C (architectural significance) for the Martin/Bushnell-Donnelly House, the Stuart and Laura Darling House, and the J. Warren Darling House in Summerland. To resolve the eligibility determination,

Caltrans accepted the State Historic Preservation Officer's offer to assume eligibility under Criterion C for the purposes of this project only. Final concurrence incorporating this condition was reached on February 16, 2011 (see Appendix D).

From east to west, the 11 historic properties are as follows:

- *Floyd J. Hickey House, 2492 Lillie Avenue, Summerland*—This residence was originally evaluated in 1991 and was determined eligible for listing in the National Register of Historic Places as a contributor to the "Summerland Residential Historic District." The evaluation also determined that the residence appeared to be individually eligible, at the local level of significance, under Criterion A for its association with Summerland's Spiritualist beginnings and the peak years of the community's oil and kelp industries, and under Criterion B for its association with Floyd J. Hickey, one of Summerland's earliest oil production promoters and entrepreneurs. The State Historic Preservation Officer concurred with this determination in January 25, 1993 during review associated with the Santa Barbara Six-Lane study.

  Research done in 2009, however, has resulted in a reevaluation of the property with slightly different conclusions. The "Summerland Residential Historic District," designated in 1991, was made up of four residential properties. Two of the four properties have been altered to such an extent that the district no longer has sufficient architectural integrity or cohesion to be eligible for listing. The Floyd-Hickey House is not eligible under Criterion A because it has not been shown that there are strong or direct associations with the Spiritualist colony, with the development of the Summerland oil industry, or with any other trend or event in Summerland's early history. The residence does remain individually eligible under Criterion B, and is also eligible under Criterion C for its architectural merits as an intact and early example of a Folk Victorian residence in Summerland.

- *Lillis-Sloan House, 2480 Lillie Avenue, Summerland*—This home was originally evaluated in 1991 and was determined eligible for listing in the National Register of Historic Places as a contributor to the "Summerland Residential Historic District." The evaluation also determined that the home appeared to be individually eligible, at the local level of significance, under Criterion A for its association with Summerland's Spiritualist beginnings and the peak years of the community's oil and kelp industries, and under Criterion

B for its association with John C. Lillis, one of Summerland's earliest oil production promoters and entrepreneurs. The State Historic Preservation Officer concurred with this determination on January 25, 1993 during review associated with the Santa Barbara Six-Lane study.

Research done in 2009, however, has resulted in a reevaluation of the property with slightly different conclusions. The "Summerland Residential Historic District," designated in 1991, was made up of four residential properties. Two of the four properties have been altered to such an extent that the district no longer has sufficient architectural integrity or cohesion to be eligible for listing. The Lillis-Sloan House is not eligible under Criterion A because it has not been shown that there are strong or direct associations with the Spiritualist colony, with the development of the Summerland oil industry, or with any other trend or event in Summerland's early history. The residence does remain individually eligible under Criterion B, and is also eligible under Criterion C for its architectural merits as an intact and early example of a Folk Victorian residence in Summerland.

- *Martin/Bushnell-Donnelly House, 2465 Banner Avenue, Summerland*—This home was evaluated for the first time in 2009 in connection with the current project. The property was determined eligible for listing in the National Register of Historic Places, at the local level of significance, under Criterion C for its architectural merits as an important and intact local example of Victorian architecture. Under the terms of the State Historic Preservation Officer's concurrence on February 16, 2011, the property is eligible under Criterion C for the purposes of the current project only.

- *Dwight and Hattie Kempton House, 2290 Varley Street, Summerland*—This home was evaluated for the first time in 2009 in connection with the current project. The property was determined eligible for listing in the National Register of Historic Places, at the local level of significance, under Criterion B for its association with Dwight Kempton, an important figure in the Summerland oil industry throughout the boom years, not only helping to trigger the rush to develop oil, but also directly contributing to the success of the industry and the growth of the local economy. The property served not only as his home, but also contained his professional office and is the known surviving property that best represents Kempton's achievements.

- *McIntyre House, 2274 Lillie Avenue, Summerland*—The McIntyre house was evaluated in 1991 and determined eligible for listing in the National Register of Historic Places under Criterion C for its architectural merits as a good representative of the vernacular cottage house type. The State Historic Preservation Officer concurred with this determination on January 25, 1993 during review associated with the Santa Barbara Six-Lane study.

- *J. Warren Darling House, 2236 Lillie Avenue, Summerland*—This house was evaluated for the first time in 2009 in connection with the current project. The property was determined eligible for listing in the National Register of Historic Places, at the local level of significance, under Criterion B for its association with J. Warren Darling, a machinist and blacksmith who, along with his brother Stuart Darling, played an important role in Summerland's early oil industry. The property was determined eligible also under Criterion C as an important local example of the Folk Victorian style. Under the terms of the State Historic Preservation Officer's concurrence on February 16, 2011, the property's eligibility under Criterion C is for the purposes of the current project only.

- *Stuart and Laura Darling House, 2225 Lillie Avenue, Summerland*—The Darling house was evaluated for the first time in 2009 and determined to be eligible for listing in the National Register of Historic Places, at the local level of significance, under Criterion B, for its association with Stuart Darling, a machinist and blacksmith who, along with his brother J. Warren Darling, played an important role in Summerland's early oil industry. The property was determined eligible also under Criterion C as an important local example of the Folk Victorian style.

- *George and Agnes Becker House, 108 Pierpont Avenue, Summerland*—This property, known as the former Big Yellow House Restaurant, was originally evaluated for listing in the National Register of Historic Places in 1991. It was determined eligible, at the local level of significance, under Criteria A, B, and C. The State Historic Preservation Officer concurred on January 25, 1993 during review associated with the Santa Barbara Six-Lane study.

  The property was reevaluated in 2009, however, and additional research was done. Eligibility under Criterion C, as a rare example of a Prairie-style residence in Summerland, was confirmed, but it was found that the earlier

rationale for local significance under Criterion A (association with Summerland's oil industry) and Criterion B (association with oil entrepreneur George F. Becker) needed to be revised. The home, though originally built in about 1900, was renovated between 1912 and 1914 to its current Prairie-style architecture. The residence's association with the oil industry did not occur therefore until after the industry was already in decline. Similarly, Becker's association with the oil industry occurred after the boom years, and his contributions to the local industry were not significant.

- *Ortega-Masini Adobe, 129 Sheffield Drive, Montecito*—In 1993, the adobe was determined eligible for listing in the National Register of Historic Places, at the local level of significance, under Criterion A for its association with early settlement in coastal Santa Barbara during the Mexican period, and under Criterion C as a rare Santa Barbara example of a Monterey-style, two-story adobe. The adobe was designated Santa Barbara County Landmark Number 31 in July 1992. The period of significance is the date of construction (circa 1820s).

- *Danielson-Katenkamp House, 1637 Posilipo Lane, Montecito*—In 1993, this historic property was determined eligible for listing in the National Register of Historic Places, at the local level of significance, under Criterion C as a finely crafted example of architect Arthur B. Benton's chalet style. The period of significance is 1912, the date of construction. The State Historic Preservation Officer concurred on January 25, 1993 during review associated with the Santa Barbara Six-Lane study.

- *Montecito Inn, 1295 Coast Village Road, Montecito*—In 1991, the Montecito Inn was evaluated for listing in the National Register of Historic Places. It was determined at that time that the Montecito Inn had been altered too extensively to be listed. The State Historic Preservation Officer concurred with this determination in 1993 (see Appendix D).

  In 2009, however, the Montecito Inn was reevaluated, additional research was done, and it was determined that the property retained sufficient integrity to be able to convey its historical significance. It was therefore determined eligible for listing in the National Register, at the local level of significance, under Criterion A for its associations with Santa Barbara area tourism and the hotel construction boom in the years immediately following the 1925 earthquake, as

well as with the trend of providing roadside accommodations tailored specifically to motoring tourists.

The Montecito Inn was also determined eligible for listing under Criterion C as an important work by master designer Edward L. Mayberry and as an early example of a type, period, and method of construction representing post-earthquake Spanish Revival commercial architecture in Montecito. The period of significance is 1928, the date of construction.

Properties in the Area of Potential Effects that are Not Eligible for the National Register of Historic Places and are Not Historical Resources for the Purposes of the California Environmental Quality Act

Caltrans identified 95 historic-period properties within the current area of potential effects that are not eligible for the National Register of Historic Places. These properties include the following: 1) properties previously evaluated and determined not eligible for listing in the National Register of Historic Places that were confirmed not eligible as a result of the current study, without any changes to the earlier eligibility findings; 2) properties previously evaluated and determined not eligible for listing in the National Register of Historic Places that were confirmed not eligible as a result of the current study, with modified eligibility findings; 3) properties previously determined eligible for listing in the National Register of Historic Places but reevaluated in the current study and determined to be not eligible; and 4) properties evaluated for the first time as a result of the current study and determined to be not eligible for listing in the National Register of Historic Places.

The State Historic Preservation Officer originally concurred on eligibility on January 25, 1993 during review associated with the Santa Barbara Six-Lane study. After reviewing the Historic Property Survey Report and updated information submitted by Caltrans, the State Historic Preservation Officer concurred on January 26, 2011 that four Summerland properties and one Montecito property previously determined eligible for listing in the National Register were no longer eligible (see Appendix D). The revised eligibility is a result either of extensive alterations that caused a loss of architectural integrity or additional research that arrived at different conclusions about the properties' significance.

From east to west, these five ineligible properties are as follows:

- *Summerland Residential Historic District, 2480, 2484, 2492, and 2496 Lillie Avenue, Summerland*—This historic district comprising four properties was originally evaluated in 1991 and determined eligible for listing in the National Register of Historic Places. The district, reevaluated in 2009 as part of the current project, was determined to lack sufficient integrity and cohesion to remain a historic district. Two of the four properties (2480 and 2492 Lillie Avenue, Summerland), however, were determined to retain their National Register eligibility as individual properties. The other two properties (2496 and 2484 Lillie Avenue, Summerland) are not eligible even as individual properties, as discussed below.

- *Andrew M. Opple House, 2496 Lillie Avenue, Summerland*—This residence was originally evaluated in 1991 and determined to be eligible for listing in the National Register of Historic Places as a contributing element of the Summerland Residential Historic District. The district was reevaluated in 2009 as part of the current project and was determined to lack sufficient integrity and cohesion to remain a historic district. The house has been extensively altered and is no longer eligible for individual listing in the National Register of Historic Places.

- *Lewis-Beresford House, 2484 Lillie Avenue, Summerland*—This residence was originally evaluated in 1991 and determined to be eligible for listing in the National Register of Historic Places as a contributing element of the Summerland Residential Historic District. The district was reevaluated in 2009 as part of the current project and was determined to lack sufficient integrity and cohesion to remain a historic district. The house has been extensively altered and is not eligible for individual listing in the National Register of Historic Places.

- *Bethany (Summerland) Presbyterian Church, 2400 Lillie Avenue, Summerland*—The church was previously evaluated in 1991 and determined to be eligible for listing in the National Register of Historic Places, at the local level of significance, under Criterion A for its association with the development and settlement of Summerland from about 1905 to 1920. It was seen as a reflection of the tremendous surge in population brought about by the oil industry, and as the only non-residential structure surviving from the peak of Summerland's most important era. In 2009, a reevaluation of the church building found that the property had been substantially altered, had lost

architectural integrity, and no longer retained the ability to convey significance from Summerland's early period of settlement and development. The reevaluation concluded that the property is no longer eligible for listing in the National Register of Historic Places.

- *Jacob I. and Alice Eisenberg House, 135 La Vuelta Road, Montecito*—This house was originally evaluated in 1991 and determined eligible for listing in the National Register of Historic Places under Criterion B, at the local level of significance, for its association with Jacob I. Eisenberg whose civic-mindedness directly contributed to the improvement of Santa Barbara's quality of life. The residence has recently been replaced by new construction, resulting in a complete loss of its association with Eisenberg. It no longer retains its original integrity and is no longer eligible for listing in the National Register of Historic Places.

Properties in the Area of Potential Effect that are Not Eligible for the National Register of Historic Places but are Historical Resources for the Purposes of the California Environmental Quality Act

- *Summerland World War I Monument, Lillie Avenue Park, Summerland*– This resource was previously evaluated in 1993 and determined to be not eligible for listing in the National Register of Historic Places, lacking both significance and integrity. The resource was moved to its current location in 1998 and re-evaluated in 2009 in connection with the current project. The reevaluation confirmed that the resource is not eligible for the National Register; as a local county landmark, however, it was determined to be a historical resource for the purposes of the California Environmental Quality Act.

Environmental Consequences

Following concurrence from the State Historic Preservation Officer on the eligibility findings presented in the Historic Property Survey Report, Caltrans prepared a document assessing the potential for the project to cause adverse effects to historic properties within the area of potential effects. These historic properties include resources listed in or eligible for listing in the National Register of Historic Places and considered historical resources for the purposes of the California Environmental Quality Act. Caltrans concluded in a Finding of Adverse Effect (February 2011) that

the proposed project would have an adverse effect on the portion of the Via Real Redeposited Midden within the area of direct impact.

The Finding of Adverse Effect further concluded, however, that none of the proposed project's alternatives would have any direct or indirect effects on the National Register-eligible built-environment (architectural) resources. The proposed project would not alter any of the characteristics that make the historic-period built-environment resources eligible. Similarly, the Finding of Adverse Effect concluded that none of the proposed build alternatives would have any direct or indirect effects on the Summerland World War I Monument, which although not eligible for listing in the National Register of Historic Places, is identified as a historical resource for the purposes of the California Environmental Quality Act.

On March 3, 2011, Caltrans sent the proposed Finding of Adverse Effect to the State Historic Preservation Officer and to members of the Chumash community consultation group. Caltrans also mailed out copies of the Historic Property Survey Report, copies of correspondence with the State Historic Preservation Officer, and notification of the proposed Finding of Adverse Effect to the Santa Barbara County Historic Landmarks Advisory Commission and the City of Santa Barbara Historic Landmarks Commission. Letters were sent out on March 9, 2011 to all of the interested historic preservation groups and organizations previously contacted, notifying them of the proposed Finding of Adverse Effect for the project and including copies of the correspondence with the State Historic Preservation Officer. On April 7, 2011, the State Historic Preservation Officer concurred with the Finding of Adverse Effect. Copies of this concurrence were mailed on April 12, 2011, to the Chumash community and to all of the other interested parties. See Appendix D for details of State Historic Preservation Officer correspondence, and see Chapter 4 for details related to consultation with the Chumash.

A revised Finding of Adverse Effect (September 2011) reflected a change in the project description relative to the proposed soundwalls. The conclusions of the Finding of Adverse Effect, however, remained unchanged. The revised report and mapping were submitted to the State Historic Preservation Officer on October 3, 2011. On November 16, 2011, the State Historic Preservation Officer concurred with the revised Finding of Adverse Effect.

To resolve the project's adverse effects to the Via Real Redeposited Midden, Caltrans continued consultation with the State Historic Preservation Officer and the Chumash

community. On December 6, 2012, Caltrans prepared a Draft Memorandum of Agreement and Data Recovery Plan and submitted these documents concurrently to the State Historic Preservation Officer and the Chumash consultation group. Comments received by Caltrans were incorporated into the draft memorandums.

Subsequent project design revisions in the vicinity of the Via Real Redeposited Midden shifted Alternative 1 (the preferred alternative) toward the median in an effort to minimize potential impacts to the midden. Based on these design revisions, Caltrans revised the Draft Memorandum of Agreement, Treatment Plan, and Data Recovery Plan to address not only impacts to the Via Real Redeposited Midden, but also potential archaeological discoveries that might be made during construction. The revised Draft Memorandum of Agreement, Treatment Plan, and Data Recovery Plan were sent to the Chumash consultation group for further review. The agreement and plans were submitted to the State Historic Preservation Officer on May 2, 2013.

After additional consultation with the State Historic Preservation Officer May 28-30, 2013, Caltrans restructured the adverse effect resolution document as a Programmatic Agreement, with the Treatment and Data Recovery Plan attached. The Programmatic Agreement was signed by the State Historic Preservation Officer on June 20, 2013, and the Advisory Council on Historic Preservation acknowledged receipt of the fully executed Programmatic Agreement on December 24, 2013. As a result, any adverse effects will now be resolved by implementing the *Treatment and Data Recovery Plan for the South Coast 101 High Occupancy Vehicle Lanes Project, Santa Barbara County, California,* which is Attachment B of the June 20, 2013 *Programmatic Agreement between the California Department of Transportation and the California State Historic Preservation Officer Regarding the South Coast 101 HOV Lanes Project, U.S. Route 101, Santa Barbara County, California* (see Appendix D, State *Historic Preservation Officer Correspondence).*

Caltrans has conducted extensive studies to characterize the location, extent, and composition of the midden deposit. Background research documented previous construction activities within the project Area of Potential Effects to assess the likelihood of finding any original ground or areas that had not been previously disturbed. The current South Coast 101 HOV Lanes project is limited to the existing state right-of-way—all of which has been highly disturbed by prior construction of the existing mainline highway and structures, as well as by utilities installation. A thorough archaeological survey was made of the project area, and a detailed geoarchaeological model was developed to identify and test the most likely areas for

any buried archaeological deposits. These comprehensive studies suggest that the National Register-eligible portion of the site is not only located below the level of proposed Highway 101 construction but is also located outside the state right-of-way—and therefore outside the Area of Direct Impact.

Avoidance, Minimization, and/or Mitigation Measures

Although we do not anticipate impacts to the redeposited midden, Caltrans nevertheless deems it prudent to consider the remote possibility of discoveries during construction. The June 20, 2013 Programmatic Agreement includes the following stipulations in the unlikely event that archaeological resources are encountered during construction:

Treatment of Historic Properties

- Caltrans shall ensure that any adverse effects of the Undertaking [i.e., the South Coast 101 HOV Lanes project] on the Via Real Redeposited Midden (P-42-003943) and effects to any similar as yet unidentified properties discovered during construction are resolved by implementing the [June] 2013 *Treatment and Data Recovery Plan for the South Coast 101 HOV Lanes PlanProject, Santa Barbara County, California* (Treatment and Data Recovery Plan) that is Attachment B to the [Programmatic Agreement, see Appendix D, Volume II]. The Via Real Redeposited Midden (P-42-003943) is eligible for inclusion in the National Register of Historic Places under Criterion D. Data recovery is prescribed for archaeological deposits contributing to the National Register eligibility of the historic property Via Real Redeposited Midden (P-42-003943) within the Undertaking's construction area of direct impact.

- The location of the eligible portion of the Via Real Redeposited Midden (P-42003943) outside the [Area of Direct Impact] can be avoided during construction through the establishment and enforcement of an Environmentally Sensitive Area (ESA). The location shall be designated an [Environmentally Sensitive Area] during construction and protected with exclusionary fencing pursuant to Stipulation X.B.2.a.ii and Attachment 5 of the Programmatic Agreement. The Via Real Redeposited Midden (P-42-003943) area outside of the [Area of Direct Impact] shall be depicted on construction plans and will be designated an [Environmentally Sensitive Area] with no access allowed during construction. Additionally, the District 5 Environmental Construction Liaison will have a copy of the plan on file and maintain contact with the resident

engineer, construction contractor, and archaeologist on [Environmentally Sensitive Area] compliance.

- [This stipulation addresses procedures for amending the Data Recovery Plan and resolving disputes; see Appendix D (Volume II), State Historic Preservation Officer Correspondence, for complete text].

- Caltrans will not authorize the execution of any Undertaking activity that may adversely affect (36 CFR §800.16(l)) historic properties in the Undertaking's APE without implementing the procedures that the Data Recovery Plan prescribes.

Additional Programmatic Agreement stipulations relate to reporting requirements and to ongoing Native American consultation (see Appendix D, State Historic Preservation Officer Correspondence for complete text), and to the following:

Treatment of Human Remains of Native American Origin

The [Programmatic Agreement] parties agree that human remains and related items discovered during the implementation of the terms of the [Programmatic Agreement] and of the Undertaking will be treated in accordance with the requirements of §7050.5(b) of the California Health and Safety Code. If, pursuant to §7050.5(c) of the California Health and Safety Code, the county coroner/medical examiner determines that the human remains are or may be of Native American origin, then the discovery shall be treated in accordance with the provisions of §5097.98(a)-(d) of the California Public Resources Code. The discovery of human remains may constitute the discovery of a historic property, and as such, should be consulted upon pursuant to Stipulation VI in addition to the provisions of this stipulation.

Discoveries and Unanticipated Effects

If Caltrans determines during the implementation of the Data Recovery Plan or after construction of the Undertaking has commenced, that either the implementation of the Data Recovery Plan or the Undertaking will affect a previously unidentified property that may be eligible for the National Register, or affect a known historic property in an unanticipated manner, Caltrans shall address the discovery or unanticipated effect in accordance with 36 CFR §800.13(b). Caltrans at its discretion may hereunder and in accordance with 36 CFR §800.13(c) assume any discovered property to be eligible for inclusion in the National Register.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

Regulatory Setting

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 Code of Federal Regulation 650 Subpart A, which defines significant encroachments and risks for the base floodplain. An encroachment is any work done within the limits of the floodplain. A significant encroachment is one that could significantly interrupt a route required for emergency operations, pose a significant risk, or significantly affect natural and beneficial floodplain values. Risks are consequences of encroachments that could lead to flooding that would cause property loss or hazard to life.

Chapter 1 in section 60.3 of the 44 Code of Federal Regulation places requirements on development within Federal Emergency Management Agency base floodplains and regulatory floodways. Development is allowed in the floodplain only if it does not cause flood elevations to rise more than 1 foot. Development in a floodway is prohibited unless it would not result in any increase to base flood elevations.

To comply, the following must be analyzed:

- The 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 one 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

This section discusses findings in the Location Hydraulic Study and Floodplain Evaluation (July 2011) and the Addendum to the Location Hydraulic Study (December 10, 2012).

Five significant storms over the last 50 years have caused considerable damage throughout the area due to flooding, erosion and debris deposition. The two largest storms occurred in 1966 and 1969. The Santa Monica and Franklin creek channels were lined after these storms caused widespread flooding.

Within the 11-mile stretch of the project, the Federal Emergency Management Agency defines floodplains for Carpinteria, Franklin, Santa Monica, Arroyo Paredon, Garrapata, Toro, Romero (Picay), San Ysidro, Oak, Montecito and Sycamore creeks. In addition to the creeks, there is a floodplain defined for the Arroyo Paredon Overflow and an unnamed watershed at Cravens Lane. Since release of the draft environmental document, the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps were revised on December 4, 2012, modifying the floodway at Romero Creek.

Floodways are defined as the channel of a stream, plus any adjacent floodplain area, that must be kept free of encroachment so that 100-year floods can be carried without substantial floodway elevations. The Federal Emergency Management Agency defines floodways at U.S. 101 for Romero (Picay), San Ysidro, Oak, Montecito and Sycamore creeks.

Carpinteria Creek

Carpinteria Creek is at the southern end of the project limits in Carpinteria and crosses under U.S. 101 at the Carpinteria Creek Bridge. According to the Location Hydraulic Study prepared for the Linden and Casitas Pass Road Interchanges project, currently the bridge does not have the capacity to pass the volume of water associated with a 100-year storm. Under such conditions, the bridge would be overtopped and a portion of the flow would escape onto the highway. This bridge is proposed for replacement under the Linden Avenue and Casitas Pass Road Interchanges project. The final environmental document for that project was approved in July 2010. The project is planned to begin construction prior to construction of the South Coast 101 HOV Lanes project. The Location Hydraulic Study and the Water Quality Report prepared for the South Coast 101 HOV Lanes project assumes the bridge work will be completed before construction of the South Coast 101 HOV Lanes project begins.

The Linden Casitas bridge replacement is designed to allow the bridge to pass the 100-year flood.

Franklin and Santa Monica Creeks

In Carpinteria, the Franklin and Santa Monica creeks are flood control channels that were designed to pass the 100-year flow. The Federal Emergency Management Agency Flood Insurance Rate Map (see Appendix F) shows the100-year flow contained within its channel for both creeks, except for the flooding next to Franklin Creek caused by the overflow from Carpinteria Creek. The replacement of the U.S. 101 bridge at Carpinteria Creek, which is part of the Linden Avenue and Casitas Pass Road Interchange project, would eliminate this flooding, leaving the Franklin Creek floodplain entirely confined within its channel near U.S. 101.

Cravens Lane Watershed

The Federal Emergency Management Agency Flood Insurance Rate Map (see Appendix F) shows a floodplain that develops from an unnamed watershed in the vicinity of Cravens Lane near the north limit of the City of Carpinteria. There is no defined swale for the watershed, and the Federal Emergency Management Agency has no detailed study for it. Floodwaters sheet-flow through the neighborhood upstream of U.S. 101, then cross at a low point near Cravens Lane.

Arroyo Paredon Creek and Overflow

The 100-year flow for Arroyo Paredon Creek overtops its banks upstream of U.S. 101 at Foothill Road. The overflow takes a separate route from the main channel and does not return to it. The Federal Emergency Management Agency Flood Insurance Rate Map (see Appendix F) shows the 100-year floodplains for the main channel and its overflow. The floodplain for the main channel is about 1,000 feet wide at U.S. 101 and has defined base flood elevations. No detailed study was done for the overflow.

Toro and Garrapata Creeks

The floodplains for Toro and Garrapata creeks are both based on detailed studies by the Federal Emergency Management Agency. The Flood Insurance Rate Map for the creeks (see Appendix F) states that the 100-year flow for Garrapata Creek is contained in the culvert under U.S. 101 and shows a floodplain about 600 feet wide at the highway for Toro Creek.

Romero (Picay), San Ysidro and Oak Creeks

The Romero (Picay), San Ysidro and Oak creeks overtop their banks well upstream of U.S. 101, and their combined flows flood a large portion of the developed areas upstream and downstream of the highway. The Federal Emergency Management Agency performed detailed analyses that defined floodways for all three creeks. The Flood Insurance Rate Map (see Appendix F) shows the combined floodplain extending for about 0.5 mile along the highway from the Romero Creek bridge to Miramar Avenue. The floodway for Romero (Picay) Creek and the combined floodway for San Ysidro and Oak creeks are about 300 feet and 1,000 feet wide, respectively, at the highway. The revised Federal Emergency Management Agency Flood Insurance Rate Map (December 2012) modified the floodway at Romero Creek. The westerly limit of the revised floodway shifted to the east.

Montecito Creek

Montecito Creek overtops its banks upstream of U.S. 101 during a 100-year storm, flooding the neighborhood west and south of the main channel. A portion of the flow runs down Olive Mill Road to the ocean. The Federal Emergency Management Agency Flood Insurance Rate Map (see Appendix F) shows the floodplain extending along the highway from the Montecito Creek Bridge to Olive Mill Road. A floodway is defined at the highway near the bridge.

Sycamore Creek

The Federal Emergency Management Agency Flood Insurance Rate Map (see Appendix F) for Sycamore Creek shows the 100-year floodplain extending for half a mile along U.S.101. Most of the 100-year flow for Sycamore Creek escapes from the main channel before it reaches the highway. The escaped flow floods the neighborhood east of the creek and flows across the highway between Los Patos Way and the Sycamore Creek Bridge. A floodway is defined at U.S. 101 between Canada Street and the bridge.

Environmental Consequences

All build alternatives would include the following that could affect base flood flows:

- Replace bridge structures at Arroyo Paredon, Toro, Romero (Picay), Oak, and San Ysidro creeks.
- Widen bridge structures at Franklin and Santa Monica creeks.
- Rebuild the interchange at the Cabrillo Boulevard/Hot Springs Road interchange with the F Modified configuration. Configurations J, M and M

Modified would have changed the existing railroad elevation by about 4 feet for 0.67 mile within the limits of the Sycamore Creek floodplain. With elimination of the three interchange configurations that would have raised the elevation of the Union Pacific Railroad tracks, work is no longer proposed in the Sycamore Creek watershed or its floodplain.

- Build soundwalls within the floodplain limits for Santa Monica, Arroyo Paredon, Romero (Picay), San Ysidro, Oak, and Montecito creeks and an unnamed watershed at Cravens Lane.

Developments are allowed in the floodplain only if it does not cause flood elevations to rise more than 1 foot. Development in a floodway is prohibited unless it would not result in any increase to base flood elevations. The proposed improvements do not constitute a longitudinal encroachment on any of the identified floodplains. Locations where the project would encroach are noted below.

Franklin and Santa Monica Creeks

The bridges would be widened at Franklin and Santa Monica creeks. Both creeks are carried by flood control channels designed for their 100-year flows near U.S. 101. The 100-year floodplain for Santa Monica Creek is contained in its main channel. At Franklin Creek, the current floodplain extends beyond the main channel only due to overflow from Carpinteria Creek. That overflow will be addressed by the Linden Avenue and Casitas Pass Road Interchanges project, which will be built prior to the South Coast 101 HOV Lanes project. The floodplain for Franklin Creek would then be contained in its main channel as well. The proposed widened bridges would have a greater waterway area than the main creek channels and would not encroach on their base floodplains. The soundwalls proposed at Santa Monica Creek as part of the HOV project would be placed on the bridge and therefore would not encroach into the floodplain.

Cravens Lane Watershed

Two soundwalls (S210 and S210B) are proposed within the limits of the floodplain at the Cravens Lane watershed on the northbound side of U.S. 101. The western wall would encroach only a short distance into the floodplain and have no effect on base flood elevations. The eastern wall is staggered to convey flood flows and not raise base flood elevations.

Arroyo Paredon Creek

The project would replace the existing freeway bridges crossing Arroyo Paredon Creek. The design of a replacement bridge has changed since the draft environmental document was released as a result of coordination with the National Oceanic and Atmospheric Administration Fisheries relative to fish passage. There are two existing bridges for the creek at U.S. 101, one each for the southbound and northbound lanes. Each bridge is a one-span structure separated by a gap of about 40 feet. These two structures can accommodate about half the flow of a 25-year flood flow event. The proposed replacement bridge would be one structure that would have two spans and double the hydraulic capacity compared to the existing bridges. Due to adjacent development constraints, the 100-year flood flow cannot be accommodated at this location; therefore, the Santa Barbara County Flood Control Agency has agreed to conveyance of close to a 25-year flood flow. However, due to existing stream channel capacity restrictions, including smaller capacity bridges upstream and downstream of the U.S. 101 bridge, the channel cannot contain a 25-year flood flow either. Santa Barbara County Flood Control has no imminent plans to improve capacity at this creek; therefore, in order to prevent exacerbating the current flooding patterns with higher capacity flood flow passage of the new bridge, one of the proposed spans would be temporarily blocked off. This will allow the new bridge to maintain the existing capacity until future channel and bridge capacity improvements can be made by Santa Barbara County Flood Control, Santa Barbara County and Union Pacific Railroad. At that time, Caltrans would open the second span.

The project also proposes construction of a soundwall within the Arroyo Paredon Creek floodplain pending the results of the soundwall voting process and local permitting requirements. The soundwall would be designed so that flood flows would be passed using floodgates of a design similar to those near Salinas Street in Santa Barbara.

Toro and Garrapata Creeks

The project proposes to replace the bridge at Toro Creek. The bridge would be designed to pass the 100-year flow and would not raise base flood elevations. No work is being proposed at Garrapata Creek.

Romero (Picay), San Ysidro and Oak Creeks

The project proposes to replace the bridges at Romero (Picay), Oak, and San Ysidro creeks and build soundwalls on the north side of U.S. 101 within the limits of the combined floodplain and floodways for the creeks. The proposed bridges would

maintain the capacity of the existing creeks and not increase base flood elevations. The noise study recommended soundwalls at this location; however, because these walls would have raised the base flood elevations within both floodways, the walls were dropped from consideration. This decision came after the hydraulic engineer determined the soundwalls would raise base flood elevations within both floodways even when the maximum possible flood conveyance through the wall is provided for with floodgates (see Figure 2.28). It should be noted that the proposed soundwall to the west of the floodway has been extended to the revised floodway limit. The extended portion of the wall would incorporate floodgates to convey flood flows and would not raise base flood elevations.

Montecito Creek

The project proposes to build two soundwalls within the limits of the floodplain and floodway at Montecito Creek. The soundwalls would sit between the frontage road and U.S. 101 on the northbound and southbound sides of the highway. The walls would encroach on the floodplain. Both soundwalls have been extended 40 feet from what was originally proposed in the draft environmental document. Hydraulics modeling and field reviews of the area show, due to the local topography, most of the 100-year flow that escapes the main channel does not reach the highway at the soundwall locations. Both soundwalls would be designed to pass any flood flows that might reach them and would not increase base flood elevations.

Sycamore Creek

The project proposes to rebuild the Cabrillo Boulevard/Hot Springs Road interchange with the F Modified configuration. Interchange configurations J, M, and M Modified included raising the elevation of the Union Pacific Railroad tracks by as much as 4 feet within the limits of the Sycamore Creek floodplain from the Los Patos underpass to the low point in the railroad line next to Salinas Street. With elimination of the three interchange configurations that would have raised the elevation of the Union Pacific Railroad tracks, work is no longer proposed in the Sycamore Creek watershed or its floodplain.

The work proposed by this project would not create significant encroachments on the base floodplain at any location except for the combined floodplain for Romero (Picay), San Ysidro and Oak creeks. However, impacts of the proposed project would not be significant with implementation of the measures listed below.

Avoidance, Minimization, and/or Mitigation Measures

- Based on the hydraulic engineer's recommendation, portions of the proposed soundwalls crossing the Romero (Picay) Creek floodway and the combined floodway for San Ysidro and Oak creeks were dropped from consideration to avoid raising the base flood elevations. This decision was based on the hydraulic engineer's determination that soundwall modifications would not prevent a significant impact to flood flows expected within the floodway.
- Soundwalls within the combined floodplain for Romero, San Ysidro and Oak creeks, and the extended portion of the soundwall in the Romero Creek floodway, would incorporate floodgates to convey flood flows and would not raise base flood elevations.
- The eastern proposed soundwall at Cravens Lane would have floodgates or be staggered to convey flood flows. The wall would not raise base flood elevations.
- The soundwall in the Arroyo Paredon Creek floodplain would include flood passage measures to accommodate flood flows.
- Both soundwalls in the Montecito Creek floodplain would be designed to pass flood flows.

2.2.2 Water Quality and Storm Water Runoff

Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, the Federal Water Pollution Control Act was amended, making the discharge of pollutants to the waters of the United States from any point source unlawful, unless the discharge is in compliance with a National Pollutant Discharge Elimination System permit. The Federal Water Pollution Control Act was amended in 1977 and renamed the Clean Water Act. The Clean Water Act, as amended in 1987, directed that storm water discharges are point source discharges. The 1987 Clean Water Act amendment established a framework for regulating municipal and industrial storm water discharges under the National Pollutant Discharge Elimination System program. Important Clean Water Act sections are as follows:

- Sections 303 and 304 provide for water quality standards, criteria and guidelines.

- Section 401 requires an applicant for any federal project that proposes an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge would comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for the discharges (except for dredge or fill material) into waters of the United States. Regional Water Quality Control Boards administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers.

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

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

The California Porter-Cologne Act (1969) provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid or otherwise) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. The Porter-Cologne Act predates the Clean Water Act and regulates discharges to waters of the state. Waters of the state include more than just waters of the United States such as groundwater and surface waters not considered waters of the United States. The Porter-Cologne Act prohibits discharges of "waste" as defined, and this definition is broader than the Clean Water Act definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by waste discharge requirements and may be required even when the discharge is already permitted or exempt under the Clean Water Act.

The State Water Resources Control Board and Regional Water Quality Control Boards are responsible for establishing the water quality standards (objectives and beneficial uses) required by the Clean Water Act and regulating discharges to ensure that the objectives are met. Details on water quality standards in a project area are

contained in the applicable Regional Water Quality Control Boards Basin Plan. States designate beneficial uses for all water-body segments and then set criteria necessary to protect these uses. Consequently, water quality standards developed for particular water segments are based on the designated use and vary depending on such use.

In addition, each state identifies waters failing to meet standards for specific pollutants, which are state listed in accordance with Clean Water Act Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source controls, the Clean Water Act requires establishing Total Maximum Daily Loads, which determine allowable pollutant loads from all sources (point, non-point and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The State Water Resources Control Board administers water rights, water pollution control, and water quality functions throughout the state. Regional Water Quality Control Boards are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- **National Pollutant Discharge Elimination System Program**—

  Municipal Separate Storm Sewer Systems (MS4)

  Section 402(p) of the Clean Water Act requires the issuance of National Pollutant Discharge Elimination System permits for five categories of storm water discharges, including municipal separate storm sewer systems (MS4s). The U.S. Environmental Protection Agency defines an MS4 as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water.” The State Water Resources Control Board has identified Caltrans as an owner/operator of municipal separate storm sewer systems under federal regulations. The Caltrans Municipal Separate Storm Sewer Systems (MS4) permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The State Water Resources Control Board or the Regional Water Resources Control Board issues National Pollutant

Discharge Elimination System permits for five years. Permit requirements remain active until a new permit has been adopted.

The Caltrans Municipal Separate Storm Sewer Systems permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012 and became effective on July 1, 2013. The proposed project will adhere to the requirements found in the previous Municipal Separate Storm Sewer Systems permit (Order No. 99-DWQ-06). The updated permit applies to projects that did not complete the Project Initiation Document before July 1, 2013. The MS4 permit contains three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below).
2. Caltrans must use a year-round program in all parts of the state to effectively control storm water and non-storm water discharges.
3. Caltrans storm water discharges must meet water quality standards through the use of permanent and temporary (construction) best management practices, to the maximum extent practicable, and other measures as the State Water Resources Control Board determines necessary to meet water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The Statewide Storm Water Management Plan assigns responsibilities within Caltrans for storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The Statewide Storm Water Management Plan describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of best management practices. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest Statewide Storm Water Management Plan to address storm water runoff.

Construction General Permit

The Construction General Permit (Order No. 2009-009-DWQ, as amended by 2010-0014-DWG), adopted on November 16, 2010, became effective on February 14, 2011. The permit regulates storm water discharges from construction sites that result in a disturbed soil area of 1 acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least 1 acre must comply with the provisions of the Construction General Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the Regional Water Quality Control Board. Operators of regulated construction sites are required to develop storm water pollution prevention plans; implement sediment, erosion, and pollution prevention control measures; and obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases and are based on potential erosion and transport to receiving waters. Requirements apply according to the risk level. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan. In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan is necessary for projects with disturbed soil areas less than 1 acre.

Section 401 Permitting

Under Section 401 of the Clean Water Act, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are Clean Water Act Section 404 permits issued by the U.S. Army Corps of Engineers. The 401 permit certifications are obtained from the appropriate Regional Water Quality Control Board, depending on the project

location, and are required before the U.S. Army Corps of Engineers issues a 404 permit.

In some cases, the Regional Water Quality Control Board may have specific concerns with discharges associated with a project. As a result, the Regional Water Quality Control Board may issue a set of requirements known as Waste Discharge Requirements under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. Waste Discharge Requirements can be issued to address both permanent and temporary discharges of a project.

Affected Environment

The following Water Quality Assessments were prepared for the project: Water Quality Assessment Report (Amended) - January 31, 2012 and Addendum to Water Quality Assessment Report - September 2013.

Surface Water

The project sits within the South Coast Hydrologic Unit that is made up of small coastal watersheds originating in the southern Los Padres National Forest and draining to the Santa Barbara coast (see Figure 2-17).

For geomorphological purposes, waters of the United States delineated in this project fall into three general categories: human-made drainage features, highly altered creek channels, and partially altered creek channels.

Human-made Drainage Features

These include roadside drainage ditches and associated culverts. More than half of the constructed drainage features that would be impacted are concrete lined. These lined channels provide storm water control benefits, but do not provide significant groundwater recharge or wildlife services.

Highly Altered Channels

Channelization (concrete-lined bed and/or banks) is common to watersheds in the area, as many creeks in the project area flow through urbanized floodplains. Within the state right-of-way, Franklin and Santa Monica Creeks consist of open concrete box channels and Garrapata Creek is completely contained in a culvert. These altered channels provide storm water control benefits, but do not provide significant biological diversity, groundwater recharge, or wildlife habitat. Franklin and Santa

Monica creeks are contained in concrete box channels as they flow through intensive multi-use agriculture in the form of greenhouses and nurseries, residential areas, and light commercial development. The lowest reaches of several of these creeks flow through county and state park campgrounds.

Partially Altered Channels

These creeks that cross the route contain areas of natural substrates. Channel banks typically consist of concrete walls, and in most cases there are county or railroad bridge structures and modified channel conditions immediately up and/or downstream. These natural-bottom creek channel sections provide storm water control, groundwater recharge, biological diversity, and wildlife habitat. Partially altered creeks within the project limits include Carpinteria Creek, Arroyo Paredon Creek, Toro Canyon Creek, Greenwell Creek, Romero (Picay) Creek, San Ysidro Creek, Oak Creek, Montecito Creek, and Sycamore Creek.

Groundwater

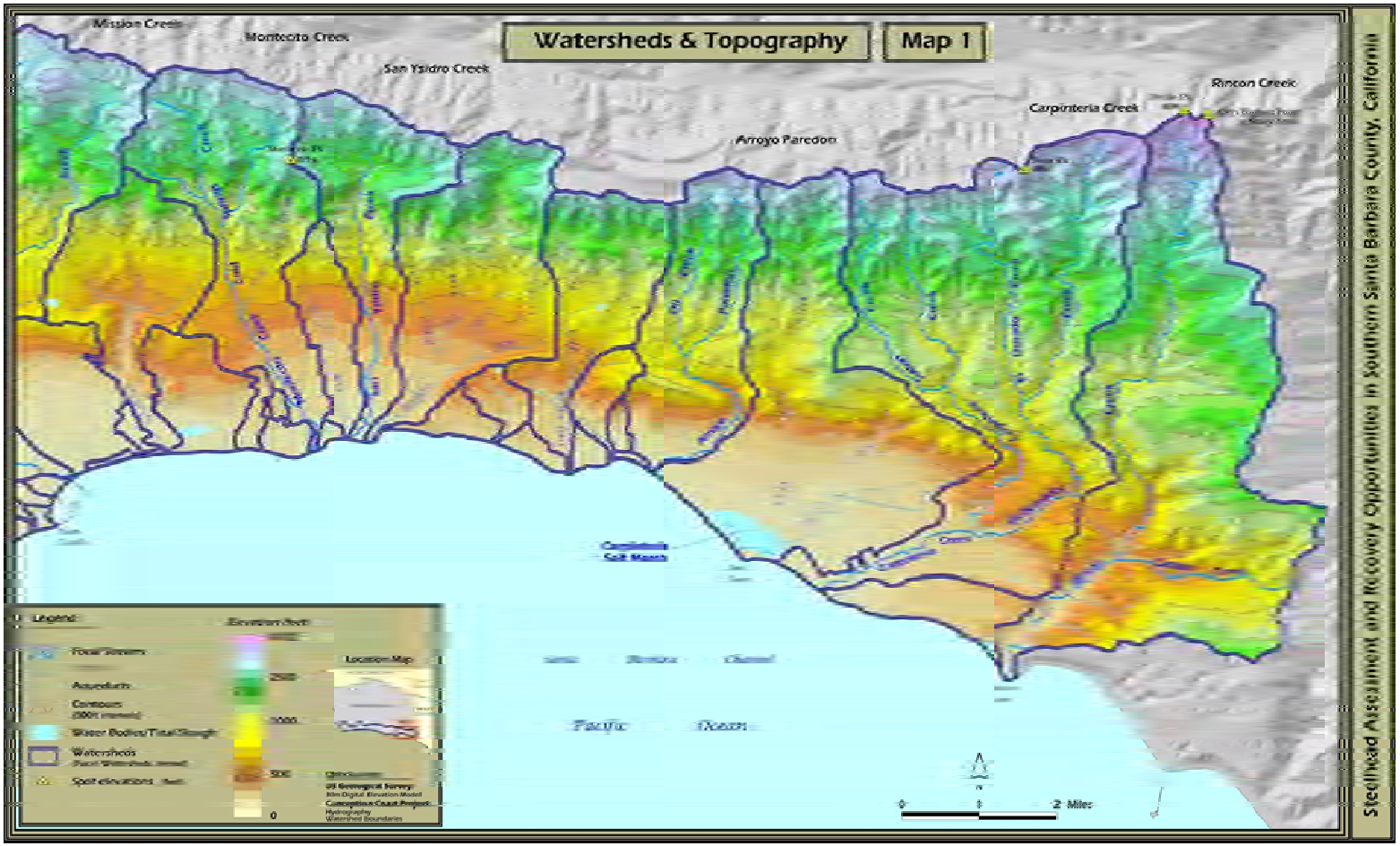
Groundwater throughout the project area is generally high (2-18 feet below the ground surface) and may contain agricultural chemicals, including fertilizers, herbicides and pesticides. Arroyo Paredon Creek is just north of the city of Carpinteria and flows through rural residential and greenhouse areas. The groundwater in this watershed is known to have extremely elevated levels of nitrates.

Watersheds

For the purposes of this discussion, the South Coast Hydrologic Unit is further divided into the hydrologic sub-areas of Carpinteria, Montecito, and Santa Barbara (see Figure 2-18). The Santa Barbara County Flood Control District performs regular maintenance in most if not all of the creeks in the project limits.

Carpinteria Hydrologic Sub-area

Substantial alteration of the hydrology has already occurred in the Carpinteria hydrologic sub-area due to drainage of farmlands, addition of impervious surface, concrete lining of Franklin and Santa Monica creeks, changes made to the Carpinteria Marsh, and installations of debris basins in the upper watershed areas.



Stoecker, M.W. and Conception Coast Project (2002). Conception Coast Project, Santa Barbara, California.

Figure 2-18 South Coast Hydrologic Unit

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Carpinteria Creek—Carpinteria Creek drains a watershed of about 15 square miles and has two major tributaries: upper Carpinteria Creek and Gobernador Creek. The peak elevation in the watershed is 4,690 feet. Land uses in the upper watershed are mainly rural residential and orchards. Below Highway 192, Carpinteria Creek passes through agricultural and urban areas before it empties into the ocean at Carpinteria State Beach. Floodwaters have flowed down U.S. 101 to Franklin Creek.

The water quality is considered impaired (303[d] listed for pathogens) due to urban and agricultural runoff. E. coli, fecal coliform, and sodium have been measured routinely at this location (see Table 2.24).

The Linden Avenue and Casitas Pass Road Interchanges project includes the following listed improvements to Carpinteria Creek:

- Build a new bridge that would improve the flood capacity of the channel.
- Relocate the bike path to the north side of the creek (only the on-grade low water bike/pedestrian crossing, located in the stream, would be removed as part of this project).
- Remove any of the Arundo (giant reed grass) that may inhibit floodwater flow.
- Enhance the water quality and geomorphologic function of Carpinteria Creek. The Linden and Casitas Pass project would include construction of several permanent storm water treatment best management plans in this watershed at Carpinteria Creek and the Bailard interchange.

Alternative 1 (the preferred alternative) for the South Coast 101 HOV Lanes project does not include work in Carpinteria Creek. The Carpinteria Creek bridge is proposed for replacement under the Linden Avenue and Casitas Pass Road Interchanges project. The final environmental document for that project was approved in July 2010. The project is planned to begin construction prior to the South Coast 101 HOV Lanes project. The Location Hydraulic Study and the Water Quality Report prepared for the South Coast 101 HOV Lanes project assumes the bridge work will be completed before construction of the South Coast 101 HOV Lanes project begins. The Linden Casitas bridge replacement is designed to allow the bridge to pass the 100-year flood.

Table 2.24 303(d) Listed Water Bodies HSA 315.34 (2010 List)

Name	Pollutant
Sycamore Creek (outside of project limits)	Chloride, Fecal Coliform, Sodium
Pacific Ocean at East Beach (Mouth of Sycamore Creek)	Enterococcus
Pacific Ocean at Hammonds Beach (Mouth of Montecito Creek)	Fecal Coliform, Total Coliform
Romero Creek	pH
Toro Canyon Creek	Fecal Coliform
Arroyo Paredon	Boron, Chloride, Diazanon, Fecal Coliform, Nitrate, Sodium, Unknown Toxicity
Santa Monica Creek	Fecal Coliform, pH
El Estero (Carpinteria) Marsh	Nutrients, Organic Enrichment (Low Dissolved Oxygen), Priority Organics
Franklin Creek	Chlorpyrifos, E. Coli, Fecal Coliform, Nitrate, Sodium, pH
Carpinteria Creek	Chlorpyrifos, E. Coli, Fecal Coliform, Low Dissolved Oxygen, Sodium
Pacific Ocean at Carpinteria State Beach (Carpinteria Creek mouth, Santa Barbara County)	Fecal Coliform

Pacific Ocean—Most of the creeks in the project limits ultimately drain to the Pacific Ocean. There will be minimum impacts to this water body because the proposed project has few impacts to the creeks within the project limits.

Franklin Creek—The watershed is about 4 square miles and has a peak elevation of 1,746 feet. The creek was channelized and concrete lined during the late 1960s to mid-1970s as a response to flooding that occurred in that period. Franklin Creek empties into the 230-acre Carpinteria Salt Marsh, an important coastal wetland. The water quality of Franklin Creek and Carpinteria Salt Marsh are degraded. Franklin Creek is on the 303(d) list of impaired waters for E. coli, fecal coliform, nitrate, sodium, and pH (see Table 2.24).

Riparian shade canopy is important to maintain cool water temperatures for “cold” beneficial uses of Franklin Creek. Most beneficial uses are affected to some degree at all sites monitored by the Central Coast Ambient Monitoring Program.

The concrete lining of Franklin Creek is considered a fish passage barrier. Tidewater gobies are present in the Carpinteria Salt Marsh. The Carpinteria Creeks Preservation

Program includes a proposed restoration goal that will remove the concrete lining from the creek and restore a limited riparian corridor.

Santa Monica Creek—Santa Monica Creek drains a watershed of 3.8 square miles and is less affected by groundwater and nursery discharges. This drainage originates in the steep slopes of the Santa Ynez Mountains before it is channelized to flow through the urban areas of Carpinteria. This creek was also lined in the 1970s. This watershed empties into the Carpinteria marsh, which is one of the few remaining estuaries and coastal wetland habitats in the southern part of the state. This watershed is heavily influenced by agricultural (mainly greenhouses and nurseries) as well as groundwater discharges.

This creek does not have annual year-round flows in the lower watershed, although in wetter years the lower watershed does maintain a small low-flow channel. The elevated coliform and pH levels are problematic for multiple beneficial uses in this watershed. Santa Monica Creek is listed on the 303(d) list of impaired waters for elevated fecal coliform and pH levels (refer to Table 2.24).

Arroyo Paredon Creek—The upper watershed is mostly made up of Los Padres National Forest land. Arroyo Paredon flows from the southern face of the Santa Ynez Mountains to the ocean just northwest of Carpinteria, draining a 4.7-square-mile watershed. After crossing Highway 192, adjacent land use is mainly agriculture, nurseries, urban areas, and greenhouses with several access roads and trails along the banks. During the summer months, the creek generally dries up except for flow supported by the spring that keeps the creek wet from the coastline up to a seasonal lagoon about 300 feet upstream of the Via Real crossing. The bridge on Arroyo Paredon Creek at Via Real is susceptible to plugging causing significant flooding of the adjacent agricultural areas as well as Via Real and U.S. 101.

This waterway has a natural stream bottom and is known to support steelhead trout and tidewater gobies. The creek features an intact riparian canopy (though not within the Caltrans right-of-way at U.S. 101 where there are concrete-lined vertical banks), while the creek channel is covered in fine sediment deposits overlying cobbles and boulders. Recent high flood flows have left debris entangled in the upstream access road bridge railing. Federal Emergency Management Agency maps also indicate that floodwaters back up against U.S. 101 and flood across the northbound and southbound lanes.

Arroyo Paredon is on the 303(d) list of impaired waters for fecal coliform, nitrate, and several other pollutants (refer to Table 2.24).

Montecito Hydrologic Sub-area (HSA 315.34)

In the Montecito hydrologic sub-area, there is evidence indicating all beneficial uses are impaired in various watersheds. Garrapata, Toro, Romero (Picay), San Ysidro, and Montecito creeks are in the lower watersheds near U.S. 101.

Garrapata Creek—This creek flows along the edge of the polo fields before entering a culvert under U.S. 101. During floods, Garrapata overtops its small banks and floods to Toro Creek well upstream of U.S. 101. This is a relatively small creek with no fish. Within the study limits, Garrapata Creek provides very little riparian or intact natural wildlife habitat.

Toro Creek—Toro Creek flows from the Santa Ynez Mountains to the ocean at Loon Point. Toro Creek drains a roughly 3.7-square-mile area. The upper watershed is mostly within forested areas of the Los Padres National Forest. The lower reaches of this watershed are channelized, and the creek flows through rural residential and some urban areas on the outskirts of Montecito. The hydrology of Toro and Garrapata creeks is very complex (maps from different sources—Federal Emergency Management Agency versus U.S. Geological Survey—show the creeks interacting differently). This assessment uses the Federal Emergency Management Agency assumptions and hydrology because that is the regulatory standard addressed.

Toro Creek flows under five parallel bridges within county, state, and Union Pacific Railroad rights-of-way. The oldest bridge is an arch with climbing gear mounted on its surface. In the vicinity of the arch bridge, the creek channel is concrete lined in a way that would likely be considered a fish passage barrier. The channel bed and bank are lined from downstream of Union Pacific Railroad to upstream of the U.S. 101 southbound lanes. There is a 4-foot-drop structure between them. The undersides of some of the bridges are mud smeared and have trapped debris from recent flood flows. There is also debris on top of the Via Real Bridge. The creek overtopped Via Real and U.S. 101 in 1971 (see Figure 2-19).

Central Coast Ambient Monitoring Program-monitoring data collected in lower Toro Creek (at Via Real) show that water quality is affected by fecal coliform, algal growth, and salts. In the summer months, dissolved oxygen is typically depressed as the creek begins to dry up. Toro Creek is currently on the 2010 303(d) list of impaired waters for fecal coliform (see Table 2.24).

Figure 2-19 Toro Creek Flooding, Circa 1971

Greenwell Creek—Greenwell Creek currently flows under U.S. 101 at about post mile 7.7 through a 72-inch corrugated metal pipe culvert that is next to the southbound lanes. A scour pool has formed at the culvert outlet, which measures about 12 feet deep.

Montecito Area Proper

All four of the following creeks in Montecito Area Proper have concrete-lined banks or beds or both in some areas within their lower reaches. All but San Ysidro Creek are fully lined rectangular concrete flumes for several hundred feet near their outlets at the beach.

All but Oak Creek appear to have undergone significant channel realignments. All but Montecito Creek have multiple parallel (or at least closely spaced) crossings within the transportation corridor composed of county roads, U.S. 101 and the Union Pacific Railroad.

Romero (Picay) Creek—Headwaters for Romero Creek are in the Los Padres National Forest and flow to the ocean west of Summerland at Fernald Point. Romero (Picay) Creek drains about a 6-square-mile watershed. Like other creeks in this area, Romero Creek is channelized in the lower reaches as it flows through the urbanized areas of Montecito and the Birnam Wood Golf Club. However, natural substrate is still present. Data collected by the Central Coast Ambient Monitoring Program located at North Jameson Lane shows that elevated pH and sodium levels are persistent in the lower watershed. Fecal coliform and some high levels of in-stream algal conditions indicate that additional problems may exist at this site. Romero Creek is on the updated 2010 303(d) list of impaired waters for pH levels (see Table 2.24). This creek is considered critical habitat for southern steelhead trout (see the Regional Water Quality Control Board Basin Plan).

San Ysidro Creek—San Ysidro Creek originates in the Los Padres National Forest and flows through the urban areas of Montecito and some orchards to the ocean west of Fernald Point. Although past monitoring data did not show that any beneficial use was clearly impaired, there is evidence that all beneficial uses may be somewhat impaired. For example, fecal coliform in one sample from this site measured 4,900 “most probable number” of bacteria per 100 milliliters. However, limited data is available for this site as the stream bed typically dries up in April or May and remains dry until November. San Ysidro Creek is not on the 2010 303(d) list of impaired waters. San Ysidro Creek is considered critical habitat for the southern steelhead trout as listed in the Regional Water Quality Control Board Basin Plan.

Oak Creek—Oak Creek consists of about 2.7 stream miles that originate from the steep southern face of the Santa Ynez Mountains and then flows south where it enters the Pacific Ocean near Montecito. Past surveys of the creek have found that it routinely goes dry in the late spring to early summer months, indicating an absence of steelhead trout. The channel of this creek consists of a cobble and sandy bottom with concrete-lined vertical banks in the lower reaches near U.S. 101. Near the study area, wetlands and native vegetation are not present. The little vegetation that is present is found next to the creek and is limited to exotic species (castor bean and figwort). There are no existing 303 (d) listings for this water body.

Montecito Creek—Montecito Creek originates in the Los Padres National Forest areas and flows through Montecito to the ocean. Montecito Creek drains a 6.1-square-mile area and is channelized in the lower reaches, but maintains its boulder and cobble substrate at Jameson Lane. In the summer months, this creek is typically dry. Like many of the creeks throughout this corridor, Montecito Creek has a debris basin off Mountain Drive upstream of the bridge at U.S. 101. At this point, the creek enters a concrete-lined channel. Montecito Creek through this region is relatively steep, with large boulders and step-pools. Surrounding land uses consist of large estates, trails, and landscapes. The riparian corridor is mostly intact, with large sycamore, bay, alder, willow, and ash trees.

Available data show that water quality was generally good. However, high pH levels are of concern for several beneficial uses. Elevated coliform levels have occurred during rains. As this creek goes dry, algae create large mats that may be a concern for aquatic life and aesthetic uses. Montecito Creek is not on the 2010 303(d) list of impaired waters. Montecito Creek is considered critical habitat for the southern steelhead trout as listed in the Regional Water Quality Control Board Basin Plan.

Santa Barbara Hydrologic Sub-area (HSA 315.32)

Sycamore Creek—Sycamore Creek, the smallest of three Santa Barbara city watersheds, originates in the foothills of the Santa Ynez Mountains and drains a 3.3-square-mile watershed. Upstream, Sycamore Creek is characterized by a relatively deep channel with well-vegetated banks. The lower creek reaches are fairly flat, and the channel is mostly unvegetated with weedy species dominating creek banks. The creek bed consists of boulders, cobbles, and silt. During most years, the lower portion of Sycamore Creek dries up from about Cacique Street on downstream. At U.S. 101, Caltrans recently replaced the box culvert at Sycamore Creek with a bridge, allowing natural creek bottom to be restored at this location. As listed in the Regional Water Quality Control Board Basin Plan, Sycamore Creek is considered critical habitat for southern steelhead trout.

The Central Coast Ambient Monitoring Program monitored a site at Punta Gorda Street near U.S. 101 in Santa Barbara. At this site, water quality is impaired by fecal coliform levels, having more than 50 percent of samples exceed 400 MPN/100mL and two samples exceed 4000 MPN/100mL. Central Coast Ambient Monitoring Program staff found human feces on the banks of this urban channel on multiple occasions, and it was noted that furniture, appliances, and litter were frequently dumped into the channel at this location. High pH levels contribute to partial impairment of several beneficial uses in this creek. In addition, low dissolved oxygen, algal growth in summer months and high levels of sodium and chloride are problematic for aquatic life and agricultural uses.

Hydromodification and Geomorphology

Hydromodification is generally defined as changes in channel form associated with alterations in flow and sediment due to past or proposed future land-use alteration. Although most stream channels naturally change over time, activities such as road building, land development, and farming can directly (through bank stabilization) or indirectly (such as changing storm water discharge velocities, volumes, and location) alter stream channels. The study of stream channel changes over time is referred to as "fluvial geomorphology."

The geomorphology of streams in or near the project area was studied by reviewing historic aerial photographs, hydrology information, past land development projects, agricultural practices, and past highway project records. When stream channels are altered by human activity, there is potential for water quality impacts and associated degradation of identified beneficial uses. One project goal avoids changing stream geomorphologic processes, keeping the project as hydraulically invisible as possible. When a highway interferes with a meandering stream, inhibits the flow of floodwaters, and/or changes the hydrograph of the stream, the project is not invisible to the watershed. Therefore, bridges that fully span the active stream channel are preferred, as opposed to culverts, where substantial flows are anticipated. Full-span structures would minimally influence stream meandering and flood flows.

Although there are bridges that fully span the active stream channel, this is not entirely true for many of the creeks in the project area that are constricted and lined to a large extent upstream and downstream of bridge structures near U.S. 101. When a creek is fairly consistent in size and roughness within a reach, regardless of the ideal size and roughness that nature intended, it could turn out to be detrimental, geomorphologically speaking, to change the conditions at one spot location such as in highway construction.

The efforts of the Santa Barbara County Flood Control and Water Conservation District are closely associated with conditions of runoff and sedimentation within the project area. As the result of urbanization, flood control work is vital to the protection of lives and property. However, it is urbanization, especially in the areas of the creeks, which causes many of the problems faced by the Flood Control District. The natural creek beds have been altered and narrowed to allow for development. Instead of rainwater percolating down to recharge aquifers, it runs off impervious surfaces into the creeks. During unusually heavy rains, floods can damage buildings and walls located too close to the creek banks. A major task in recent years has been the dredging of sediment and debris,

and extensive vegetation clearing from several creeks in the project area. Without the removal of these materials, the potential for flooding increases.

Environmental Consequences

Possible Highway Pollutants Affecting Water Quality

Based on highway storm water runoff data collected by the Caltrans Storm Water Research and Monitoring Program, typical pollutants from California highways include heavy metals, sediment, and litter. As traffic increases, the amount of pollutants originating from cars and trucks (tire and brake lining wear, litter, and spills during vehicle accidents) is also expected to increase. All constituents and parameters in nearby surface water bodies found to be elevated or exceeding published water quality standards are potential concerns for the proposed project.

Since the project would incorporate permanent design best management practices and treatment best management practices to minimize the direct discharge of highway storm water to adjacent waterways, the amount of pollutants discharged to surface waters from the proposed project area should be lower in certain areas than the existing highway where there are currently no treatment best management practices in place.

Alternative 1 (the preferred alternative) would increase impervious surfaces by less than 50 percent of the existing coverage. Still, the goal is that 100 percent of all the water quality volume, or water quality flow, from all impervious surfaces would be treated. Due to available treatment areas, however, not all treatment would be incorporated where new impervious areas are built: site constraints include high ground water levels in certain locations, slow percolating soils, terrain, and lack of available space. Therefore, the project could have more treatment best management practices in one watershed than in another. For example, at the Bailard interchange, no widening would occur, yet drainage improvements would treat water flowing into Carpinteria Creek.

Permanent Impacts

A water quality impact analysis assessed short-term and long-term water quality impacts from construction activities. Impacts were assessed by looking at beneficial uses, 303(d) impairments, water quality monitoring data for highway facilities, and increases in impervious surfaces. The analysis also evaluated potential impacts caused by hydromodification of the stream channels.

For geomorphological purposes, waters of the United States in this project fall into three general categories: human-made drainage features, highly altered creek channels, and partially altered creek channels.

Human-made Drainage Features

These include roadside drainage ditches and associated culverts. More than half of the constructed drainage features that would be affected are concrete lined. These lined channels provide storm water control benefits, but do not provide significant groundwater recharge or wildlife services.

Highly Altered Creek Channels

Channelization (concrete-lined bed and/or banks) is common to watersheds in the area, as many creeks in the project area flow through urbanized floodplains. Within the state right-of-way, Franklin and Santa Monica Creeks consist of open concrete box channels and Garrapata Creek is completely contained in a culvert. These altered channels provide storm water control benefits, but do not provide significant biological diversity, groundwater recharge, or wildlife habitat.

Franklin Creek

Franklin Creek is confined to a concrete-box channel with the channel lining extending about 1,000 feet downstream of the highway bridge. Because no permanent structures would be placed in the channel, the creek shape or substrate would not be permanently affected.

Santa Monica Creek

Santa Monica Creek is confined to a concrete-box channel within and next to the project limits. About 1,000 feet downstream of the U.S. 101 bridge, Santa Monica Creek crosses under the Union Pacific Railroad bridge and drains into the Carpinteria Salt Marsh. Because no permanent structures would be placed in the channel, the creek shape or substrate would not be permanently affected.

Garrapata Creek

Garrapata Creek enters the highway culvert north of Via Real on the north side of the highway and comes out directly south of the highway. Most of the drainage is in a culvert beneath U.S. 101. Because the build alternative would avoid Garrapata Creek, no impacts are anticipated.

Partially Altered Creek Channels

These creeks contain areas of natural substrates. Their channel banks typically consist of concrete walls and, in most cases, there are county or railroad bridge structures and modified channel conditions immediately up- and/or downstream. These natural-bottom creek channel sections provide storm water control, groundwater recharge, biological diversity, and wildlife habitat.

Carpinteria Creek

Work would occur at Carpinteria Creek as part of the Linden and Casitas Interchanges project. Because no work is planned in the bed or banks of the creek, no impacts would occur. The Linden and Casitas Interchange project would be completed prior to the South Coast 101 HOV Lanes project.

Arroyo Paredon Creek

The project would replace the existing freeway bridges crossing Arroyo Paredon Creek. The design of a replacement bridge has changed since the draft environmental document was released as a result of coordination with the National Oceanic and Atmospheric Administration Fisheries relative to fish passage. There are two existing bridges for the creek at U.S. 101, one each for the southbound and northbound lanes. Each bridge is a one-span structure separated by a gap of about 40 feet. These two structures can accommodate about half the flow of a 25-year storm event. The proposed replacement bridge is one structure that would have two spans and double the hydraulic capacity compared to the existing bridges. Due to adjacent development constraints, the 100-year flow cannot be accommodated at this location; therefore, the Santa Barbara County Flood Control Agency has agreed to conveyance of close to a 25-year flood flow. However, due to existing stream channel capacity restrictions, including smaller capacity bridges upstream and downstream of the U.S. 101 bridge, the channel cannot contain a 25-year flow either. Santa Barbara County Flood Control has no imminent plans to improve capacity at this creek; therefore, to prevent exacerbating the current flooding patterns with higher capacity flood flow passage of the new bridge, one of the proposed spans would be temporarily blocked off. This will allow the new bridge to maintain the existing capacity until future channel and bridge capacity improvements can be made by Santa Barbara County Flood Control, Santa Barbara County and Union Pacific Railroad. At that time, Caltrans would open the second span.

Because the new span would be 3 feet wider than the existing bridge, the proposed project would result in a minor channel widening. Vertical concrete walls (abutments) currently line the channel banks. The creek bed consists of cobble and silt. The new bridge would also have vertical concrete walls and a cobble and silt-substrate streambed. The wider channel would gain 0.012 acre of natural creek bed.

Toro Canyon Creek

Toro Canyon Creek consists mostly of a concrete-lined channel that conveys water beneath U.S. 101. The natural-bottom channel transitions to a concrete-lined channel between northbound and southbound U.S. 101 and remains concrete lined through the remainder of the state right-of-way. The channel bed and banks consist of natural cobbles and soil to the north of the northbound highway bridge. The northbound and southbound bridges would be replaced with a single structure. The new structure would enclose the open channel between the two bridges. Up to 0.105 acre of concrete streambed lining would be removed within the state right-of-way to restore the creek bottom.

Greenwell Creek

Greenwell Creek currently flows under U.S. 101 in a corrugated pipe culvert. The culvert invert (flow line of the culvert or inside bottom) would be repaired, possibly resulting in temporary impacts along 20 linear feet of creek bed at the north end. Next to the southbound lanes of U.S. 101, the culvert outlet is about 12 feet above a plunge pool. Water then flows along a disturbed open channel culvert before draining into the Pacific Ocean. The channel consists of a natural earthen bottom. To help prevent further erosion and dissipate flow, the remains of concrete-sack check-dams occur at varying intervals downstream of the pool. Rock-slope protection would be used to line the basin and side slopes immediately downstream of the culvert outlet. Bioengineering techniques such as brush-layering with willows would be used to stabilize the banks downstream.

Romero Creek

The Romero Creek channel is a natural-bottom drainage that conveys water beneath U.S. 101. The channel substrate consists of cobbles and boulders. Banks are vertical gabions (earth-and-rock-filled cages) and concrete walls from the county bridge inlet to the railroad bridge outlet downstream of the highway. Romero Creek is channelized where it flows through the urban areas of Montecito. To handle a wider channel, the proposed Romero Creek Bridge would have a longer span than the existing structure, resulting in a gain of 0.13 acre of unlined creek bed. The creek bed would remain a natural bottom. Banks would be concrete walls that support the bridge deck. The longer bridge span at

Romero Creek would be partially blocked to maintain its current flow capacity until constraints upstream and downstream of U.S. 101 are improved.

San Ysidro Creek

San Ysidro Creek is a moderate-sized drainage consisting of vertical concrete banks and a natural bottom (mostly cobble) that conveys water beneath U.S. 101 and drains to the Pacific Ocean west of Fernald Point. Upstream, the creek is highly channelized with concrete-sack walls. Downstream of the highway bridge, unlined channel banks extend about 300 feet to the Union Pacific Railroad bridge. The proposed San Ysidro Creek Bridge would have a longer span than the existing bridge. The longer bridge span would accommodate a wider channel, resulting in a gain of 0.11 acre of unlined creek bed. The creek bed and banks would continue to be a natural bottom, with concrete walls that support the bridge deck. The longer span at San Ysidro Creek would be partially blocked to maintain its current capacity until constraints upstream and downstream of U.S. 101 are improved.

Oak Creek

Oak Creek is a small drainage that crosses under U.S. 101 at post mile 9.66. The channel consists of vertical concrete banks and a natural bottom (mostly cobble) that conveys water beneath U.S. 101, draining to the Pacific Ocean. The proposed Oak Creek Bridge would have a longer span than the existing span. The longer bridge span would handle a wider channel, resulting in a gain of 0.03 acre of unlined creek bed. The creek bed and banks would continue to be a natural bottom, with concrete walls that support the bridge deck. The longer span at Oak Creek would be partially blocked to maintain its current capacity until constraints upstream and downstream of U.S. 101 are improved.

Montecito Creek

No work is planned in the bed or on the banks of Montecito Creek.

Potential Benefits

While the project would have permanent impacts to water quality, the project would also provide certain benefits at some creek locations. Removal of the concrete channel lining in Toro Canyon Creek would allow restoration of up to 0.105 acre of creek bottom. The longer bridge spans at Arroyo Paredon Creek would result in a gain of about 0.012 acre of natural creek bed. Restored and expanded channels would increase filtration capacity and groundwater recharge in these creeks.

At Greenwell Creek, impacts to other waters of the United States would be offset by the enhancement of 0.145 acre of the creek south of U.S. 101. Concrete-sack revetment (sloping structures placed on banks to absorb the energy of incoming water) and other fill material would be removed from the channel bed. Bioengineering techniques incorporating arroyo willows and other native plants would be applied in and above rock slope protection along creek banks to reduce erosion and enhance riparian habitat available for wildlife.

Hydromodification

By encouraging the storage of storm water within the project footprint and encouraging sheet flow of storm water runoff, hydromodification may be minimized or prevented. Again, the design goal for the project is to infiltrate 100 percent of the water quality flow/water quality volume based on the 85th percentile 24-hour storm. This would reduce the hydromodification impacts to less than significant.

Note that water quality flow refers to flow-based permanent storm water treatment best management practices (BMPs) such as bio-filtration (strips/swales). Water quality volume refers to volumetric-based treatment best management practices such as media filters, infiltration trenches/ponds, and multi-chambered treatment trains (three treatment mechanisms in three different chambers, typically used for treating storm water at critical source areas with limited space, such as parking areas).

Impacts to water quality could occur over months or years following construction of the project. The main causes of these impacts would be increased storm water runoff rates and volumes; increased storm water pollutant loads; changes in riparian and wetland areas; erosion; and spreading of invasive plant species that could adversely affect riparian areas.

To the maximum extent practical, the proposed highway realignment would be constructed to be as hydraulically disconnected from the watersheds it crosses as possible. However, there are several potential ways a highway can permanently affect water quality if not designed to minimize and mitigate for these potential impacts.

- Highway Pollutants: Potential pollutants include those listed in Table 2.25.

Table 2.25 Transportation Infrastructure Operation Pollutant Sources and Pollutants (Permanent Impacts)

Pollutant Source	Pollutant
Motor Vehicles	Oil
	Grease
	Petroleum
	Coolants
	Nitrite
	Metals
Highway Maintenance	Asphalt
	Sediment
	Mineralized Organic Matter
	Thermoplastics
	Treated Wood
	Tree/Shrub Clippings
Landscaping	Aluminum Sulfate
	Sulfur-Elemental
	Fertilizers—Inorganic
	Fertilizers—Organic
	Natural Earth (Sand Gravel and Topsoil)
	Herbicide
	Pesticide
	Lime
Illegal Dumping	Trash
	Oil/Grease
Spills	Includes Hazardous and Non-Hazardous Chemicals

Source: Caltrans 2003a.

- Erosion/Sediment: Wherever concentrated flow from the highway surface cannot be adequately controlled, erosion may occur. Erosion from concentrated flow can cause gullies, alter creek geomorphology, change the hydrology of wetlands, and discharge sediment above background levels to waterways. The project area, when disturbed, is expected to have a moderate to severe erosion hazard potential.

- Shade Canopy: Riparian vegetation within and next to creeks in the project limits is routinely cleared as part of the Santa Barbara County Flood Control District Annual Maintenance Plan. Maintenance, in combination with channel modifications such as concrete and/or sack-crete lined walls, results in limited opportunity for riparian communities to become established within the state right-of-way. At most creek crossings in the project area, riparian shade canopy at the U.S. 101 bridge sites is minimal. An exception is San Ysidro Creek, which supports a mature riparian canopy downstream of the U.S. 101 bridge. At San Ysidro Creek, the large sycamore trees to the south of the bridge will be retained, preserving the major portion of riparian shade canopy within the state right-of-way.
- Groundwater Hydrology: During construction, there can be a short-term change in groundwater flow paths, lowering of the groundwater table (de-watering), change in surface water flow rates and volumes, and domestic water uses (stream diversions and wells). These all can significantly influence groundwater hydrology. Due to elevated levels of pollutants, groundwater at certain locations would need to be tested, if de-watering is needed, to determine how it can be disposed of. For example, out of all of the samples taken so far, none meets drinking water standards, a beneficial use of all surface water bodies. Groundwater may be used to irrigate and control dust during construction of the project.
- Impervious Surface (pavement): Alternative 1 (the preferred alternative) would add 42 acres of impervious surface to the project area. Combined with the existing impervious surface area of 95 acres, there would be a post-construction total of 137 acres of impervious surface. The additional impervious surface coverage would potentially increase the volume and velocity of storm water flow to downstream water bodies. The project would be designed to meet post-construction runoff requirements in the Construction General Permit and the Caltrans National Pollutant Discharge Elimination System Permit as applicable. (Note: Alternative 1 (the preferred alternative) adds an overall total of 42 acres of impervious surface. This total amount is different than what is indicated in Table 2.51 because the 42 acres apply to the entire project, while Table 2.51 considers impervious surface for large watersheds only.)
- Bridge Replacement and Culvert Extensions: To accommodate the widened highway, certain culverts and bridges would require extensions or replacements. Culvert extensions can exacerbate scouring of creek beds at both the downstream and upstream ends. Localized scouring of the waterways may also be worsened by

localized increases in impervious surfaces that result is greater water volume and flow rates.

Installation of larger culverts, flared end sections and deep-rooted vegetation are common ways of preventing scour. As a last resort, rip rap may be placed at the culvert inlets and outlets. Changes to a stream's geomorphology caused by scouring could cause significant sedimentation (bank and bed erosion) and damage riparian vegetation. Willow and riparian plantings are being incorporated as part of the revegetation plans.

Bridge replacement could result in significant changes to a particular creek's geomorphology. In general, this project presents an opportunity to improve the geomorphology at each replaced bridge. Bridges at Arroyo Paredon, Toro Canyon, Romero (Picay), San Ysidro, and Oak creeks would be designed to pass floodwaters and allow unimpeded flow of the creek. Bridges would be designed to match upstream and downstream channel conditions based on discussions with the National Oceanic and Atmospheric Administration (see Appendix H for the Biological Opinion).

While four of the bridges (at Toro, Romero, San Ysidro and Oak creeks) would be able to pass the 100-year flood flows, the proposed U.S. 101 bridge at Arroyo Paredon Creek would pass close to a 25-year flow. The North Jameson Lane bridges at Romero, San Ysidro, and Oak creeks, immediately upstream of U.S. 101, were rebuilt in 2007 by the County of Santa Barbara. The bridges are designed to pass the 100-year flow and have much larger spans than the original county-built bridges or the highway bridges downstream. Gabions (earth-and-rock-filled cages) have been installed under these bridges to maintain their original capacity. The proposed U.S. 101 bridges at Romero (Picay), San Ysidro, and Oak creeks would match the ultimate capacity of the North Jameson Lane bridges. Following construction, however, the U.S. 101 bridges would temporarily be partially blocked to maintain their current flow capacity. One of the spans for the proposed Arroyo Paredon Bridge would also be blocked to maintain its current capacity. The bridges would be opened up to their full span when the stream channel and bridge capacities are improved up and downstream.

- Invasive Species: Invasive species that spread along waterways and wetlands can affect the beneficial uses of these waterways by changing the water quantity or quality in the vicinity of the invasive species. Invasive species are also known to

cause ecological fragmentation along riparian corridors. With Executive Order 13112 (Prevention and Control of Invasive Species), specific non-native species would be removed or controlled as determined necessary for any immediate disturbance within localized work areas as part of this project (see Section 2.3.5).

Avoidance, Minimization, and/or Mitigation Measures

Permanent Design Measures

- **Riparian Shade Canopy**—Revegetation along affected creeks would be designed to optimize shade canopy where feasible and not conflict with current flood control practices.

- **Permanent Storm Water Treatment Best Management Practices—**Because this project proposes to add more than 1 acre of new impervious surfaces permanent storm water treatment best management practices will be incorporated into this project to the maximum extent practicable. Treatment best management practice techniques would concentrate on the use of biofiltration swales (stable grass-lined ditches) to convey surface runoff, and biofiltration strips to intercept overland flow. Currently, infiltration devices are not proposed as part of the project due to high groundwater levels in most locations. If site specific locations indicate low groundwater and soils are determined to be appropriate for infiltration, infiltration devices would then be evaluated for installation.

    - All existing vegetated locations to remain along the project limits would be evaluated for viability as biostrips and documented to quantify effectiveness of reductions of particulate runoff. In addition, the following locations would be used for constructing new biostrips and bioswales to intercept runoff. If subsurface conditions are appropriate, these same locations would be used additionally for infiltration purposes. Preliminary locations are shown in Table 2.26.

Table 2.26 Preliminary Locations for Biostrips and Bioswales

Biostrip	Bioswale	Treatment Begin (post mile)	Treatment End (post mile)	Treatment Location	Impervious Tributary Area (Acres)	Tributary Watershed	Water Quality Flow from Impervious Area (cfs)	Tributary Begin	Tributary End	Tributary Shed
	X	1.60	1.70	Southbound	8.19	Carpinteria Creek	2.023	1.27	1.74	NB & SB
	X	2.30	2.40	Northbound	9.94	Carpinteria Creek	2.455	1.74	2.44	NB & SB
X		3.31	3.48	Southbound	1.07	Franklin Creek	0.264	3.31	3.48	SB
X		3.31	3.53	Northbound	1.39	Franklin Creek	0.343	3.31	3.53	NB
X		3.55	3.60	Southbound	0.32	Franklin Creek	0.079	3.55	3.60	SB
X		3.66	3.76	Southbound	0.63	Santa Monica Creek	0.156	3.66	3.76	SB
X		3.68	3.92	Northbound	1.63	Santa Monica Creek	0.403	3.68	3.92	NB
X		3.77	3.94	Southbound	1.07	Salt Marsh	0.264	3.77	3.94	SB
X		3.95	4.28	Northbound	2.24	Salt Marsh	0.553	3.95	4.28	NB
X		4.32	4.62	Northbound	2.04	Salt Marsh	0.504	4.32	4.62	NB
X		4.18	4.33	Southbound	0.95	Salt Marsh	0.235	4.18	4.33	SB
X		4.70	5.10	Northbound	2.72	Salt Marsh	0.561	4.70	5.10	NB
X		5.71	6.24	Southbound	3.34	Pacific Ocean	0.825	5.71	6.24	SB
X		5.96	6.24	Northbound	1.90	Pacific Ocean	0.469	5.96	6.24	NB
	X	6.70	6.80	Northbound	2.27	Toro Creek	0.561	6.9	7.26	NB
X		6.91	7.10	Southbound	1.20	Toro Creek	0.296	6.91	7.10	SB
X		7.05	7.22	Southbound	1.07	Toro Creek	0.264	7.05	7.22	SB
X		7.26	7.46	Southbound	1.26	Pacific Ocean	0.311	7.26	7.46	SB
X		7.50	7.73	Southbound	1.45	Greenwell Creek	0.358	7.50	7.73	SB
					Total 44.68 acres					

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Bridge(s)—For all creeks requiring replacement or widening of existing bridges (replace bridge structures at Arroyo Paredon, Toro Canyon, Romero (Picay), Oak, and San Ysidro creeks, widen bridge structures at Franklin and Santa Monica creeks), new bridges would be designed to maintain or reduce the existing water velocity under the bridge. The Toro Canyon Creek Bridge would be designed to handle the 100-year flood. At Romero, San Ysidro and Oak creeks, the 100-year flow is not carried by the channel or the bridges upstream and downstream of the highway. Santa Barbara County Flood Control has plans to improve the capacity of the channel and bridges from North Jameson Lane to the ocean at these creeks. These three U.S. 101 bridges would be designed to pass the 100-year flow, but would be blocked to match current capacities within the creek channel until the capacity upstream and downstream has been improved. Due to nearby constraints at Arroyo Paredon Creek, the 100-year flow cannot be handled. The county has no imminent plans to improve capacity at this creek. Consequently, the bridge would be designed to pass the maximum flow possible, which is close to a 25-year flow. The proposed bridge would have one of its two spans blocked to maintain existing conditions until capacity improvements are made upstream and downstream.

- **Hydrology—**Storm water runoff from the highway would be managed to maintain sheet flow to adjacent grasslands and wetlands, to the maximum extent feasible. The concentration of storm water flow would be minimized where feasible. Dikes and the concrete lining of drainage swales would be eliminated if feasible after considering the necessary function of each facility.
- **Litter—**During construction, litter on the highway would be removed periodically as part of regular maintenance procedures.
- **Culverts—**The size and alignment of culverts, for all areas requiring culvert installation, will be designed to minimize influencing the hydrology of the project site to the maximum extent practicable.
- **Riparian Corridors—**The project will be designed to minimize impacts to riparian areas, preserve channel length, and preserve shade canopy. Where impacts to riparian areas are unavoidable, mitigation onsite or offsite will be proposed.
- **Wetlands—**For wetlands that cannot be avoided, mitigation wetlands would be created onsite or offsite to ensure no net loss of wetlands. See Section 2.3.2 (Wetlands and Other Waters) for more details.

- **Design Best Management Practices—**Storm water best management practices would be selected and designed during the design phase of this project. Best management practices would be selected to minimize pollutant discharges to surface waters, minimize storm water discharge rates and volumes, and recharge groundwater. A formal storm water drainage plan would be developed after the project enters the design phase.
- **Invasive Plants—**All invasive plants that could adversely affect water quality and associated beneficial uses would be removed from specific work areas within creek channels and prevented from spreading, to the extent feasible. Invasive vegetation may also be removed from restoration and mitigation areas.

Also see Section 2.4 (Construction Impacts) for minimization measures listed under temporary water quality impacts.

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 young 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

A Preliminary Geotechnical Report was completed for the full project in September 2009. Preliminary geotechnical studies associated with the various structures proposed for the project were also done. A final Geotechnical Report will be completed during the project design phase.

The project area is in the Transverse Ranges Geomorphic Province of California, which is characterized by east-west trending mountain ranges, faults, and folds. The project lies within the Santa Barbara Fold, which is between the mountains and the ocean from east

of Carpinteria to west of Goleta. Active folding has deformed the late Pleistocene to Holocene-aged marine terraces, terrace deposits, and alluvial fans. The local topographic features in the area are believed to be the result of these tectonic forces.

Rocks surrounding the Carpinteria Valley are composed of the Quaternary-aged Casitas and Santa Barbara formations and the Tertiary-aged Monterey, Rincon, Sespe, and Coldwater Sandstone formations. Surface deposits within the valley consist of Holocene-aged stream channel, floodplain, and alluvial fan deposits of gravels, sands, and silt.

Groundwater

Regional groundwater in the project area is high. Test borings for the structures in the project area indicate that groundwater is present within 2 feet of the ground surface near some of the creek crossings to about 30 feet below ground surface at a few of the local road overcrossings. Groundwater elevations do vary over time and depend on factors such as seasonal precipitation, irrigation, and land use. A more detailed assessment of the existing groundwater conditions in the project area would be performed during the design phase of the project.

Seismicity

The project lies in a seismically active region of California. Two faults have the greatest potential to affect the project: the More Ranch-Mission Ridge-Arroyo Parida-Santa Ana Fault (these were originally identified separately, but have now been lumped together as one fault) and the Mesa-Rincon Creek Fault.

The More Ranch-Mission Ridge-Arroyo Parida-Santa Ana Fault lies north of U.S. 101 in the project area, with the closest distance being 0.84 mile at post mile R6.0 and the farthest being 2.27 miles at post mile 2.0. The maximum credible moment magnitude for an earthquake on this fault is 7.5 (a logarithmic scale of 1 to 10, a successor to the Richter scale).

The Mesa-Rincon Creek Fault lies about 0.98 mile to the north of U.S. 101 at post mile 2.0. It crosses the highway close to post mile 4.36, dips as far as 1.7 miles south of the highway alignment near post mile 8.6, and crosses the highway again near post mile 13.8. The maximum credible moment magnitude for an earthquake on this fault is 7.0.

Liquefaction

Liquefaction is the sudden loss of soil strength from a rapid increase in soil-pore water pressure resulting from seismic ground-shaking. Potential for liquefaction depends on factors including soil type and density, depth to groundwater, and the intensity of the

seismic shaking. Loose soils with minimal cohesion such as sands and gravel soils can become saturated by a high water table. These soils are prone to liquefy during earthquake activity. Embankments built on liquefiable soils may settle during a seismic event. Structures may settle or overturn if the soils beneath them liquefy.

Liquefaction hazards can be addressed by constructing structures on deep foundations or by using ground improvement techniques.

Corrosion

Soils and groundwater may be corrosive to metallic foundation elements and drainage structures. Representative soil and groundwater samples would be tested for corrosion potential as part of the geotechnical investigation for the project. If the soils and/or groundwater are found to be corrosive, protective measures would be undertaken to ensure an adequate service life for the highway. Based solely on close proximity (within 1,000 feet) to the Pacific Ocean, segments of the project area are considered corrosive.

Environmental Consequences

Potential seismic hazards may arise from three sources: surface fault rupture, ground shaking, and liquefaction.

Retaining walls, soundwalls, and bridge structures are part of the project for all build alternatives. Caltrans requires a fault rupture evaluation if a bridge is within an Alquist-Priolo Earthquake Fault Zone or within 1,000 feet of an un-zoned fault younger than 15,000 years old. If there is the potential for surface rupture, the bridge either has to be designed to handle the anticipated maximum displacement or, where possible, the structure may be relocated to avoid the area of potential displacement. Liquefiable soils (shake loosened water-soaked soils) are of particular concern with respect to structure foundations. In general, if a bridge site is found to have liquefiable soils, deep foundations would be required. Liquefiable soils can also compromise slope stability. If the foundation soils of a tall embankment are found to be liquefiable, some form of ground improvement may be necessary.

- Liquefaction—Potential may be high in the project limits because this area contains groundwater at shallow depths, is underlain by unconsolidated or poorly consolidated alluvial soils, and there is a likelihood for strong ground-shaking due to nearby potentially active earthquake faults in the area.

- Slopes—Newly constructed cut and fill created as part of the project could increase potential for erosion due to erodible materials that may underlie certain areas of the project.

Avoidance, Minimization, and/or Mitigation Measures

- Slopes—All new cut slopes would be excavated at a ratio of 2 to 1 or flatter whenever feasible. Any affected existing paved top-of-cut ditches would be replaced in kind. Top-of-cut ditches are used to minimize the potential for erosion by intercepting offsite drainage that would otherwise flow down the slope face. No new cut slopes are proposed that would intercept any large offsite areas draining toward the slopes.
- Embankments—New embankments and widened embankments would be built with slopes of 2 to 1 or flatter if feasible. Steeper slopes could be considered if the embankments are built of select materials that meet the geotechnical unit specifications. The embankment material, regardless of slope steepness, must also meet the landscape architecture unit criteria for erosion control.
- The project design would incorporate Caltrans standards and construction methods to minimize potential risks associated with strong ground shaking and potential liquefaction hazards.

2.2.4 Paleontology

Regulatory Setting

Paleontology is the study of life in past geologic time based on fossil plants and animals. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects (Antiquities Act of 1906 [16 U.S. Code 431-433], Federal-Aid Highway Act of 1956 [23 U.S. Code 305]). Under California law, paleontological resources are protected by the California Environmental Quality Act.

Affected Environment

Scientifically sensitive paleontological resources are geologic deposits or identified sites containing individual fossils or assemblages of fossils that are unique or unusual, diagnostically or stratigraphically important and add to the existing body of knowledge.

An initial paleontology survey was completed for this project in February 2009. This survey determined there was potential high sensitivity for paleontological resources in the

project area. Subsequently, a Paleontology Evaluation Report was prepared in April 2011 and updated in September 2011.

The Paleontology Evaluation Report documents three geologic units that lie within or next to the project limits that contain paleontological resources (see Table 2.27).

Table 2.27 Soil Excavation with the Potential to Encounter Paleontological Resources within Sensitive Geologic Units

Structure/ Feature Type	Geologic Unit and Age	Sensitivity	Known Fossil Type
Soundwall	Marine Terrace Deposits (Qmt) Middle to Upper Pleistocene	High	Coral–*Balanophyllia elegans* Mammoth–*Archidiskodon imperator*
Retaining Wall	*Casitas Formation (Qca) Santa Barbara Formation (Qsb)	High	*Mollusks, bryozoans, and foraminifera*
Cut	Qmt–Marine Terrace Deposits. Middle to Upper Pleistocene	High	Coral–*Balanophyllia elegans* Mammoth–*Archidiskodon imperator*
Interchange at Cabrillo Boulevard/Hot Springs Road	Qmt–Marine Terrace Deposits. Middle to Upper Pleistocene	High	Coral–*Balanophyllia elegans* Mammoth–*Archidiskodon imperator*
Soundwall	Tr–**Rincon Formation, Lower Miocene	High	Rodentia–*Cricetidea Chondrichthyes Elasmobranchii*

** The Casitas Formation typically does not contain sensitive fossil resources but has been known to have facies (inter-fingering), including clastic remnants of the Santa Barbara and Sespe Formation that have known sensitive fossil resources.*
*** The Rincon Formation is not present in surface exposures within the project limits, yet is in close proximity to the other formations in the table and may be impacted by project excavation.*

Two of the units are Quaternary: Marine-terrace deposits (Qmt) and the Casitas Formation (Qca). The third geologic unit, known as the Rincon Formation (Tr), is Miocene in age.

The two Quaternary geologic units within the project limits and bisected by U.S. 101 are known to have sensitive paleontological resources. The upper Pleistocene Marine-terrace deposits (Qmt) in the basal sections (<=1m thick) has produced 102 species of mollusks and a rare species of fossil coral. Also, presence of a late Pleistocene mammoth (Archidiskodon imperator) jawbone in alluvium within marine terrace deposits near the western edge of the City of Goleta was also documented. This location is outside the

proposed project limits, but the probability of encountering sensitive fossil resources like those above within the project limits is high.

The Casitas Formation typically does not contain sensitive fossil resources, but has been known to inter-finger with the Santa Barbara Formation (Qsb) that has known sensitive fossil resources. The Santa Barbara Formation contains diverse marine invertebrate assemblages of mollusks, bryozoans, and foraminifers concentrated in multiple stratigraphic intervals, ranging in thickness from less than 1 meter to several tens of meters, distributed throughout all but the uppermost parts of the unit.

The Miocene Rincon Formation is right next to the project limits, along Via Real Road, north of U.S. 101, between post miles 7.7 and 8.1. This formation is known to contain sensitive vertebrate and invertebrate fossils, including rodents and fish.

Environmental Consequences

The uppermost few feet of sediment in the project area is mostly covered by younger alluvial and fluvial deposits and is unlikely to contain fossils with scientific significance. But deeper excavation for proposed walls and structures are expected to encounter formations that contain scientifically significant fossils. U.S. 101 through the project limits bisects a number of Quaternary units, including the middle to upper Pleistocene sedimentary rocks of the Marine-terrace deposits and the Santa Barbara Formation within the Casitas Formation, which contain sensitive paleontological resources that could be exposed during construction excavation. Maps showing Potential Paleontological Sensitive Areas are shown in Appendix G, Volume II of this document.

The Miocene Rincon Formation, which also contains sensitive paleontological resources, is next to the project limits. This formation is not exposed at the surface within the project limits, but adequate data are not available on the vertical extent and orientation of the formation. Therefore, a possibility exists for exposing fossils associated with the Rincon Formation during construction excavation.

Ground-disturbing construction activities such as excavation have the potential to encounter scientifically significant paleontological resources. This could result in the destruction of unique and valuable scientific specimens and data.

Avoidance, Minimization, and/or Mitigation Measures

The proposed build alternatives could have the potential to adversely affect paleontological resources that cannot be avoided. The proposed build alternatives are all constrained by the existing right-of-way and the fact that geologic formations of concern

are laterally extensive. As a result, impacts to paleontological resources cannot be avoided or effectively minimized. However, mitigation would reduce impacts and could actually result in the discovery of fossils that would not have been exposed without construction and, therefore, would not have been available for study. Mitigation for the proposed build alternatives would include proper paleontological monitoring, salvage, and data recovery.

Due to the possibility of encountering scientifically sensitive specimens during excavation into middle to upper Pleistocene sedimentary rocks of the Marine-terrace deposits, and inter-fingerings of the Santa Barbara Formation into the Casitas Formation, paleontological mitigation in the form of monitoring, salvage, and data recovery is indicated where excavation would disturb in-situ deposits of these strata. The uppermost few feet of sediment in the project area is mostly covered by younger alluvial and fluvial fan deposits and is less likely to yield significant fossil remains, but deeper excavation for the proposed walls and structures has a chance of encountering fossils. Because the Rincon Formation is next to proposed excavation sites, mitigation in the form of monitoring, salvage, and data recovery may also be necessary in this formation.

Based on field reviews and the paleontological literature available, it does not appear that full-time monitoring would be required at the proposed excavation sites within the project. It is anticipated that only minor monitoring and spot checks would be necessary where soil disturbance would occur. However, the actual extent of monitoring would be dictated by the design details of the selected alternative and be determined during the Plans, Specifications and Estimate design phase by a qualified Principal Paleontologist (who holds an M.S. or Ph.D. in paleontology or geology, and is familiar with paleontological procedures and techniques).

Prior to submittal of design plans for the Coastal Development Permit process, a qualified Principal Paleontologist (who holds an M.S. or Ph.D. in paleontology or geology, and is familiar with paleontological procedures and techniques) must be retained to review the plans. The Principal Paleontologist would review the construction plans with proposed excavation sites and the Paleontology Evaluation Report to determine which, if any, project components would involve earth-moving activities at depths sufficient to warrant development of a Paleontological Mitigation Plan (PMP) consistent with Caltrans' Standard Environmental Reference (SER). The Principal Paleontologist would review the construction schedule to develop the monitoring schedule and compile accompanying costs. A nonstandard special provision to address paleontological resources would also be incorporated into the construction contract to notify the construction contractor to

cooperate with the paleontological monitoring and salvage activities. Paleontological resources should also be discussed at the pre-bid meeting.

Based on currently available information, the specific mitigation measures contemplated for possible incorporation into this project's Paleontological Mitigation Plan if it becomes necessary are included in Section 2.4, Construction Impacts (Paleontology).

2.2.5 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 and Health Act (OSHA)
- 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 following reports were prepared for the proposed project:

- An Initial Site Assessment (ISA) – June 2009
- Asbestos and Lead-containing Paint Survey Report – February 2010
- Preliminary Site Investigation Report – June 2010
- Addendum to the Initial Site Assessment – June 2010
- Site Investigation Report – Geophysical Survey and Potholing – April 2011
- Underground Storage Tank Removal Report – May 2012

The Initial Site Assessment evaluated 40 properties and several routine construction issues within the existing highway corridor that could have the potential to affect the project. These properties are typically sites with known or suspected soil and/or groundwater contamination due to leaks from underground fuel storage tanks. Of the 40 properties, 16 properties were classified as high and medium risk for potential impacts. The remaining properties were considered a low risk to the project and were not studied any further.

An addendum to the Initial Site Assessment was prepared in June 2010 to reevaluate the risk to the project by the adjacent medium- and high-risk properties based on revisions to planned construction activities and further refinement of the areas of construction. This evaluation reduced four properties from a high/medium risk to a low risk.

A Preliminary Site Investigation was prepared in June 2010. The purpose and scope further analyzed areas within the highway right-of-way near the remaining 12 properties classified as high and medium risk for potential impacts. Soil and groundwater were sampled near these 12 locations for gasoline, diesel, and motor oil in areas to be excavated during construction (see Table 2.28 and Figure 2-20). This testing determined

that the contaminant levels were lower than expected at 11 properties. As a result they were reclassified from a high/medium risk to a low risk.

The remaining property (number 12) was a location within the Caltrans right-of-way where an abandoned underground storage tank was found. Caltrans obtained an underground storage tank removal permit from the County of Santa Barbara Fire Prevention Division. In May 2012, the 1,000-gallon oil underground storage tank was removed with oversight by the County of Santa Barbara Fire Prevention Division and the Carpinteria-Summerland Fire Protection District. The County of Santa Barbara Fire Prevention Division issued a No Further Action-required letter in June 2012.

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Figure 2-20 Preliminary Site Investigation—Potential Contamination Locations

Table 2.28 Risk Potential for Contamination

Map Id No.	Location/Address	ISA Risk of Potential Contamination	Potential Chemicals of Concern	Preliminary Site Investigation Activities and Results	PSI Risk of Potential Contamination After Testing
1	Former Shell Service Station 1000 Coast Village Road, Montecito	High	* Former service station with reported petroleum hydrocarbon releases to soil and groundwater.	Collected soil samples upgradient of facility (boring NB1); groundwater was not encountered. Soil samples contained petroleum hydrocarbons at concentrations below the FPD Investigation Level and CAM 17 metal concentrations within typical background concentration ranges.	Low
2	Chevron Station 1085 Coast Village Road, Montecito	High	Active service station with reported petroleum hydrocarbon releases to soil and groundwater.	Collected soil samples downgradient of facility (boring NB5); groundwater was not encountered. Soil samples contained petroleum hydrocarbons at concentrations below the FPD Investigation Level and CAM 17 metal concentrations within typical background concentration ranges.	Low
3	Carpinteria Fire Station No. 2 2375 Lillie Avenue, Montecito	Medium	Potential for petroleum hydrocarbon release from past (UST) operation.	Collected soil and grab-groundwater samples adjacent to property (boring NB10). Soil samples were non-detect for petroleum hydrocarbons and VOCs; CAM 17 metal concentrations within typical background concentration ranges. Grab-groundwater sample was non-detect for petroleum hydrocarbons and VOCs; CAM 17 metal concentrations above FPD Investigation Levels. Groundwater encountered during construction may require treatment to reduce sediment content and metal concentrations prior to discharge.	Low
4	Gallup & Stribling 3450 Via Real, Carpinteria	Medium	Former fueling facility with reported petroleum hydrocarbon releases to soil from facility operations.	Collected soil and grab-groundwater samples adjacent to property (boring NB11). Soil samples contained petroleum hydrocarbons at concentrations below the FPD Investigation Level and CAM 17 metal concentrations within typical background concentration ranges. Grab-groundwater sample was non-detect for petroleum hydrocarbons and VOCs; CAM 17 metal concentrations above FPD Investigation Levels. Groundwater encountered during construction may require treatment to reduce sediment content and metal concentrations prior to discharge.	Low
5	S.B. Harley-Davidson 3501-3508 Via Real, Carpinteria	Medium	Automotive repair facility with potential petroleum hydrocarbon release from facility operations.	Collected soil and grab-groundwater samples adjacent to properties (boring NB12). Soil samples contained petroleum hydrocarbons at concentrations below the FPD Investigation Level and CAM 17 metal concentrations within typical background	Low

Map Id No.	Location/Address	ISA Risk of Potential Contamination	Potential Chemicals of Concern	Preliminary Site Investigation Activities and Results	PSI Risk of Potential Contamination After Testing
				concentration ranges. Grab-groundwater sample contained toluene below FPD Investigation Level and was non-detect for VOCs; CAM 17 metal concentrations above FPD Investigation Levels. Groundwater encountered during construction may require treatment to reduce sediment content and metal concentrations prior to discharge.	
6	Corvette Shop 3651 Via Real, Carpinteria	Medium	Apparent former gas station and automotive repair/service facility with potential petroleum hydrocarbons.	Same as above	Low
7	McCormix Corporation 3663 Via Real, Carpinteria	Medium	Active service station with reported petroleum hydrocarbon releases to soil and groundwater.	Same as above	Low
8	Sandyland Nursery 3890 Via Real, Carpinteria	Medium	Historical gasoline and diesel USTs; generator of pesticide rinse water and unspecified oil containing waste. Potential for petroleum hydrocarbon and pesticide release from facility operations.	Collected soil and grab-groundwater samples adjacent to property (boring NB17). Soil samples contained petroleum hydrocarbons at concentrations below the FPD Investigation Level, VOCs were non-detect, and CAM 17 metal concentrations within typical background concentration ranges. Grab-groundwater sample was non-detect for petroleum hydrocarbons and VOCs; CAM 17 metal concentrations above FPD Investigation Levels. Groundwater encountered during construction may require treatment to reduce sediment content and metal concentrations prior to discharge.	Low
9	Ocean Breeze Int'l 3910 Via Real, Carpinteria	Medium	Potential for petroleum hydrocarbon release from historical operation of gasoline and diesel USTs.	Collected soil and grab-groundwater samples adjacent to property (boring NB18). Soil samples contained petroleum hydrocarbons at concentrations below the FPD Investigation Level, VOCs were non-detect, and CAM 17 metal concentrations within typical background concentration ranges. Grab-groundwater sample was non-detect for petroleum hydrocarbons and VOCs; CAM 17 metal concentrations above FPD Investigation Levels. Groundwater encountered during construction may require treatment to reduce sediment content and metal concentrations prior to discharge.	Low
10	Chevron Station 9-3005 4290 Via Real, Carpinteria	High	Active service station with reported petroleum hydrocarbon releases to soil and groundwater.	Collected soil and grab-groundwater samples adjacent to property (boring NB19). Soil samples contained petroleum hydrocarbons at concentrations below the FPD Investigation Level, VOCs were non-detect, and CAM 17 metal concentrations within	Low

Map Id No.	Location/Address	ISA Risk of Potential Contamination	Potential Chemicals of Concern	Preliminary Site Investigation Activities and Results	PSI Risk of Potential Contamination After Testing
				typical background concentration ranges. Grab-groundwater sample contained MTBE below FPD Investigation Level and was non-detect for VOCs; CAM 17 metal concentrations above FPD Investigation Levels. Groundwater encountered during construction may require treatment to reduce sediment content and metal and MTBE concentrations prior to discharge.	
11	Union Oil (aka Tosco, Conoco, Unocal, 7-11, etc.) Service Station 4401 Via Real, Carpinteria	High	Active service station with reported releases of TPHg, VOCs, and fuel oxygenates to soil and groundwater.	Collected soil and grab-groundwater samples adjacent to property (borings NB21 and SB21). Soil samples contained petroleum hydrocarbons at concentrations below the FPD Investigation Level, VOCs were non-detect, and CAM 17 metal concentrations within typical background concentration ranges. Grab-groundwater sample(s) contained MTBE (at NB-21) equal to FPD Investigation Level and were non-detect for VOCs; CAM 17 metal concentrations above FPD Investigation Levels. Groundwater encountered during construction may require treatment to reduce sediment content and metal and MTBE concentrations prior to discharge.	Low
12	Iron Oil Tank and Historic Service Station "Oil and Gas" *** Southwest corner of State Highway (Lillie Avenue) and Beighle (Valencia Road)	Formerly High	**Historical service station with potential for USTs or petroleum hydrocarbon releases from UST operations. Note: Tank was removed in May 2012; this site is no longer a risk to the project.	Performed geophysical survey which indicated the potential presence of an approximately 2,000-gallon UST greater than three feet below ground surface. Collected soil samples within Caltrans ROW at location of former facility (boring NB27); groundwater was not encountered. Soil sample contained petroleum hydrocarbons at concentrations above the FPD Investigation Level and CAM 17 metal concentrations within typical background concentration ranges.	Formerly Medium changed to None after the tank was removed in May 2012

Notes: ESA – Environmental Study Area
LUST – Leaking UST
HIST UST – Historical UST
TPH –total petroleum hydrocarbons
FPD Investigation Levels – Fire Protection Division - LUFT and SMU Guidance Document
UST – Underground Storage Tank
ADL – Aerially Deposited Lead
VOCs – volatile organic compounds
HOV – High-occupancy vehicle
ROW – Right-of-way
NA – Not Applicable
MTBE – methy tert-butyl ether
TPHg – total petroleum hydrocarbons as gasoline

*Collect soil and groundwater samples to evaluate options for soil reuse or disposal, and management of water generated from de-watering activities due to potential petroleum hydrocarbon, VOC, and metals impacts.

** Conduct a geophysical survey to evaluate the presence of potential USTs and subsurface features resulting from operations at the historical service station within the SR-101 ROW.

An Asbestos and Lead-containing Paint Survey was performed to determine if asbestos-containing materials or lead-containing paint would be encountered during construction of the project. A Geophysical Survey and Potholing Site Investigation Report were performed to see whether oil wells exist within the areas to be excavated for the project. Additional construction issues associated with working in the highway corridor were also analyzed, including thermoplastic traffic striping and reuse or disposal of soil contaminated with lead from auto emissions.

Environmental Consequences

Historically, the Summerland area was the site for oil exploration and oil production. Many known and possibly many unknown wells exist in the Summerland vicinity of the project area. The Geophysical Survey and Potholing Site Investigation included a search for oil wells. None were found. As a result, the investigation determined that no known oil wells conflict with planned project improvements.

The Preliminary Site Investigation sampling showed that areas of known and suspected contamination from 11 of the 12 sites either do not extend into the highway right-of-way or are not likely to be encountered during the construction project in concentrations that warrant concern. The Preliminary Site Investigation concluded that no additional sampling was warranted at these locations and that 11 of the 12 high-medium-risk sites could be dismissed as a low risk to the project (see Table 2.28 and Figure 2-19). The twelfth site was an abandoned underground storage tank. The site was eliminated as a risk when the underground tank was removed in May 2012.

Aerially Deposited Lead

Previous sampling in the project area has determined that lead is present in concentrations that typically require the top 1 to 2 feet of soil to be disposed of as a hazardous waste if soil is excavated for the project. This is the accumulation of lead from vehicle exhaust, released when leaded gasoline was still in use. The project is being developed with this consideration. Once specific excavation limits are established during the design phase, soil sampling will be performed to characterize the soil to be excavated.

Asbestos-containing Materials

The Asbestos and Lead-containing Paint Survey documented that asbestos-containing materials were found on the following structures: Cabrillo Boulevard undercrossing, Evans Avenue undercrossing, South Padaro Lane undercrossing, and the Santa Monica Creek Bridge. These same materials are assumed to be present on the Arroyo

Parida Creek Bridge. Chrysotile asbestos was detected in the concrete drainpipe inserts on the Cabrillo Boulevard undercrossing.

Several other structures also contain asbestos sheet packing used in barrier rail systems. These structures include the Evans Avenue undercrossing, South Padaro Lane undercrossing, Arroyo Parida Creek Bridge, and Santa Monica Creek Bridge. The Asbestos and Lead-containing Paint Survey recommends that a licensed registered contractor with the California Occupational Safety and Health Administration for asbestos-related work perform the removal of such materials. The contractor would have to comply with the rules and regulations of the Santa Barbara County Air Pollution Control District and file a notification as required by the National Elimination System for Hazardous Air Pollutants before demolishing any of these structures.

Avoidance, Minimization, and/or Mitigation Measures

Once specific excavation limits are established during the design phase of the project, soil sampling would determine lead concentrations from automobile emissions to characterize the soil to be excavated for this project. Typically, excavated lead-contaminated soil must be hauled to a Class I disposal facility to be disposed of as a California hazardous waste, which results in increased roadway excavation costs. The Department of Toxic Substances Control issued a variance from state hazardous waste control law that allows Caltrans to reuse this lead-contaminated soil within the state highway corridor in accordance with the conditions of the variance. The aerially deposited lead contaminated soil may be used in the construction of new on-ramps and off-ramps or for the widening of fill sections.

In June 2009, the Department of Toxic Substances Control adopted a Negative Declaration under the California Environmental Quality Act documenting that the proposed actions and use of the variance for the reuse of aerially deposited lead contained soils within the state right-of-way would not present a significant threat to human health or the environment. Public notice was provided and public meetings were held. The U.S. 101 corridor was identified in the Negative Declaration as an area where the variance could be used.

Consistent with Policy HAZ-S-1 from the Summerland Community Plan, if any abandoned oil wells are discovered, abandonment-removal procedures from the State Department of Conservation and the Division of Oil and Gas must be followed.

Thermoplastic stripe is routinely removed as part of highway reconstruction. Caltrans would include special provisions in the construction contract that require these materials be removed in accordance with all applicable laws and regulations.

Before demolishing any asbestos-containing structures, the contractor would comply with all applicable Santa Barbara County Air Pollution Control District regulations. Any asbestos removal would be done by following all applicable laws and regulations. In addition, as stated in the National Elimination System for Hazardous Air Pollutants, a notification would be filed.

2.2.6 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 quantity 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). See Table 2.29.

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 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 in California is concerned with how well the region is meeting the standards set for carbon monoxide, nitrogen dioxide, ozone, and particulate matter (see Table 2.29). 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 Santa Barbara County

Association of Governments for Santa Barbara County 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 project-level analysis.

Conformity at the project level also requires "hot spot" analysis if an area is "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 nonattainment 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 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

An Air Quality Study Report was prepared for the project in November 2010. An addendum to the Air Quality Study Report was prepared February 2, 2012. A subsequent addendum was prepared April 22, 2013 to address the topic of entrained dust. The study area falls under the Santa Barbara County Air Pollution Control District's Clean Air Plan, approved in 2007.

Santa Barbara County's air quality is influenced by both local topography and meteorological conditions.

Topography

The project sits on a coastal terrace on the south-facing coast of southern Santa Barbara County. The area is bound to the west and south by the Pacific Ocean and to the north by the Santa Ynez Mountains with elevations up to 4,600 feet. The distance

from the highway to the crest of the Santa Ynez Mountains Range is about 4.5 miles. Farther north are the San Rafael Mountains with elevations up to 6,800 feet.

Meteorology

Surface and upper-level wind flow varies both seasonally and geographically in the county, and inversion conditions common to the area can affect the vertical mixing and dispersion of pollutants. The prevailing wind flow patterns in the county are not necessarily those that cause high ozone values. In fact, high ozone values are often associated with atypical wind flow patterns.

Semi-permanent high pressure lying off the Pacific Coast leads to limited rainfall (around 18 inches per year), with warm, dry summers and relatively damp winters. Maximum summer temperatures average about 70 degrees Fahrenheit near the coast and in the high 80s to 90s inland. During winter, average minimum temperatures range from the 40s along the coast to the 30s inland. Additionally, cool humid marine air causes frequent fog and low clouds along the coast, generally during the night and morning hours in the late spring and early summer. The fog and low clouds can persist for several days until being broken up by a change in the weather pattern.

The sea breeze (from sea to land) is typically from the southwest in the southern portion of the county. During summer, these winds are stronger and persist later into the night. At night, the sea breeze weakens and is replaced by light land breezes (from land to sea). The alternation of the land-sea breeze cycle can sometimes produce a "sloshing" effect, where pollutants are swept offshore at night and subsequently carried back onshore during the day. This effect is worse during periods when wind speeds are low.

Santa Barbara County experiences a variety of wind patterns. East of Point Conception eddies flow in a counter-clockwise direction and cause highly variable winds along the southern coastal strip. Warm, dry Santa Ana winds blow from the high inland desert and descend down the slopes of the mountain range. During Santa Ana conditions, pollutants emitted in Santa Barbara, Ventura County, and the South Coast Air Basin (the Los Angeles region) are moved out to sea. These pollutants can then be moved back onshore into Santa Barbara County in what is called a "post-Santa Ana condition." The effects of the post-Santa Ana condition can be experienced throughout the county. Not all post-Santa Ana conditions, however, lead to high pollutant concentrations in Santa Barbara County.

Upper-level winds are generally from the north or northwest throughout the year, but occurrences of southerly and easterly winds do occur in winter, especially during the morning. Upper-level winds from the south and east are infrequent during the summer. When these winds do occur during summer, they are usually associated with periods of high ozone levels. Surface and upper-level winds can move pollutants that originate in other areas into the county.

Surface temperature inversions (0 to 500 feet) are most frequent during the winter, and subsidence inversions (1,000 to 2,000 feet) are most frequent during the summer. Inversions are an atmospheric condition in which the air temperature rises with increasing altitude. Inversions hold surface air down and prevent the dispersion of pollutants. They act as a cap to the pollutants that are emitted below or within them, and consequently ozone concentrations are often higher directly below the base of higher inversions than they are at the earth's surface.

A subsidence inversion is very common during summer along the California coast and is one of the main causes of "air stagnation" (high, stability-restricted air movement). Air stagnation frequently causes poor air quality. Therefore, it is reasonable to expect a higher frequency of pollution in the southern portion of the county where light winds are frequently observed, as opposed to the northern part of the county where the prevailing winds are usually strong and persistent.

Environmental Consequences

The Federal Highway Administration and Environmental Protection Agency issued final air quality conformity guidelines in December 1993. The conformity guidelines list certain categories of projects that are exempt from local and regional air quality analysis because they have little if any potential to degrade air quality. Examples of these projects include safety improvement programs, pavement resurfacing and/or rehabilitation, and operational improvements that relieve congestion. These kinds of projects are exempt from the requirement that an air quality conformity determination be made according to Title 40 Code of Federal Regulations Section 93.126.

Since the Santa Barbara County Air Pollution Control District is in attainment for all National Ambient Air Quality Standards, the project is exempt from project-level emission analysis at the federal level. Additionally, since the project has been initiated as a congestion relief/operational improvement, it is not expected to increase local concentrations of air pollutants; therefore it is consistent with the state air quality goals of the air district.

Regional Air Quality Conformity

The project is in an attainment/unclassified area for all current federal air quality standards (see Tables 2.29 and 2.30). Therefore, conformity requirements do not apply.

Table 2.29 Air Quality Table

Pollutant	Averaging Time	State Standard	Federal Standard	Health and Atmospheric Effects	Typical Sources
Ozone (O_3)[a]	1 hour 8 hours	0.09 ppm 0.070 ppm	–[b] 0.075 ppm	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. 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	35 ppm 9 ppm –	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 (PM10)[a]	24 hours Annual	50 µg/m^3 20 µg/m^3	150 µg/m^3 –	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and death. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of PM10.	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 (PM2.5)[a]	24 hours Annual	– 12 µg/m^3	35 µg/m^3 15 µg/m^3	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 PM2.5-size range. Many aerosol and solid compounds are part of PM2.5.	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	0.18 ppm 0.030 ppm	– 0.053 ppm	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 –	– 0.5 ppm 0.14 ppm 0.030 ppm	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 –	– 1.5 µg/m^3	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also considered a toxic air contaminant.	Primary: lead-based industrial process like batter production and smelters. Past: lead paint, leaded gasoline. Moderate to high levels of aerially deposited lead from gasoline may still be in soils along major roads and can be a problem if large amounts of soil are disturbed.

Sources: California Air Resources Board Ambient Air Quality Standards chart, February 16, 2010

Table 2.30 Federal and State Attainment Status

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards [1]		Federal Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.075 ppm (147 µg/m³)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter (PM2.5)	24 Hour	No Separate State Standard		35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	15.0 µg/m³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	—
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	Gas Phase Chemiluminescence	53 ppb (100 µg/m³) (see footnote 8)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m³)		100 ppb (188 µg/m³) (see footnote 8)	None	
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm (105 µg/m³)	Ultraviolet Fluorescence	—	—	Ultraviolet Flouresecence; Spectrophotometry (Pararosaniline Method)[9]
	3 Hour	—		—	0.5 ppm (1300 µg/m³) (see footnote 9)	
	1 Hour	0.25 ppm (655 µg/m³)		75 ppb (196 µg/m³) (see footnote 9)	—	
Lead[10]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average[11]	—		0.15 µg/m³		
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			
See footnotes on next page ...						
For more information please call ARB-PIO at (916) 322-2990				California Air Resources Board (09/08/10)		

Source: http://www.arb.ca.gov/desig/adm/adm.htm - 2010 Standards

Footnotes for Table 2.30:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be NESHA California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration 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 µg/m3 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 U.S. EPA for further clarification and current federal 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 of gas.

4. Any equivalent procedure 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 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 EPA.

8. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010). Note that the (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, the U.S. EPA established a new 1-hour SO2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum of 0.14 ppm and the annual primary SO2 standard of 0.030 ppm, effective August 23, 2010. EPA also proposed a new automated Federal Reference Method (FRM) using ultraviolet technology, but will retain the older pararosaniline methods until the new FRM have adequately permeated State monitoring networks. The EPA also revoked both the existing 24-hour SO2 standard of 0.14 ppm and the annual primary SO2 standard of 0.030 ppm, effective August 23, 2010. The secondary SO2 standard was not revised at that time; however, the secondary standard is undergoing a separate review by EPA. Note that the new standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the new primary 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. National lead standard, rolling 3-month average: final rule signed October 15, 2008.

Ambient Air Quality

Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that the federal and state governments have established for various pollutants and monitoring data collected in the region. The following air quality data in Table 2.31 were collected from the Santa Barbara -700 East Canon Perdido Monitoring Station.

Table 2.31 Summary of Ambient Air Quality Monitoring Data in Comparison to National Ambient Air Quality Standards (NAAQS)

NAAQS/Monitoring Period	Number of Days Exceeding NAAQS		
Pollutant	**2008**	**2009**	**2010**
Ozone Max 1-hr/8-hr concentrations (ppm)	0.076/0.064	0.091/0.077	0.075/0.061
Number of days exceeding standards 1-hr/8-hr	0/0	0/1	0/0
PM2.5 max 24-hr concentration (µg/m3)	44.2	25.3	12.1
Number of days exceeding standard	1	0	0
National annual average	10.4	No data	No data
PM10 max 24-hr concentration (µg/m3)	No data available	No data available	No data available
Number of days exceeding standard	No data	No data	No data
National Annual Average	No data	No data	No data
CO max 8-hr concentrations (ppm)	1.69	1.57	1.07
Number of days exceeding 8-hr standards	0	0	0

Source: CARB website

Based on the data collected from the Santa Barbara-700 East Canon Perdido Monitoring Station (Table 2.30), the federal 8-hour standard has been exceeded one time in 2009, and the federal $PM_{2.5}$ standard has been exceeded one time in 2008. Insufficient or no data is available for PM_{10} federal standards. There have been no records indicating that carbon monoxide standards were exceeded.

The proposed South Coast 101 HOV Lanes project is consistent with and included in the Santa Barbara County Association of Governments-approved 2040 Regional Transportation Plan and Sustainable Communities Strategy. This plan was approved by the Federal Highway Administration in 2013. It is also included in the 2012 Metropolitan Transportation Plan amended into the Santa Barbara County Association of Governments-approved 2013 Federal Transportation Improvement Program. In addition, the project is consistent with the assumptions in the association's regional emissions analysis. These plans are deemed consistent with the applicable State Implementation Program that is the 2013 (draft) Clean Air Plan. Therefore, the project is consistent with the Clean Air Plan, which is the applicable State Implementation Plan for Santa Barbara County.

The project is scoped as an operational improvement/congestion relief action, which would help improve traffic circulation, a transportation control measure listed in the

Air District's Clean Air Plan. The project is not expected to have a significant adverse impact on long-term air quality. Long-term operational emissions associated with the proposed project are due mainly to the existing operation of motor vehicles in the project vicinity. The proposed project would improve highway circulation and reduce vehicle queuing during peak hour periods, thereby avoiding any significant adverse change in local or regional air quality caused by the project. Daily traffic volumes on U.S. 101, after completion of the project, would be about the same as under no-build conditions, but the overall system would function more efficiently.

The proposed project would improve circulation on local streets during peak periods because fewer drivers would seek out alternative routes in the corridor as they commonly do during severely congested conditions. When local trips are diverted from the highway system onto local streets, it creates additional low speed and idle emissions in closer proximity to sensitive air receptor locations and, as local streets begin to exceed their capacity, creates even more gridlock spread out over a much larger area. With the project built, these trips would be redirected back to the highway system, away from local streets. Therefore, there should be no significant adverse change in local or regional air quality caused by the project.

Table 2.32 compares expected highway performance between the build alternatives and the No-Build Alternative.

Table 2.32 Forecast Measure of Effectiveness Summary

Performance Measurement	No-Build 2040	Build 2040
Northbound morning average speed (miles per hour)	34	57
Southbound afternoon average speed (miles per hour)	48	59
Northbound morning peak hour average speed (miles per hour)	26.2	40.5
Southbound afternoon peak hour average speed (miles per hour)	39.8	52.2
Northbound morning peak hour average travel time (minutes)	48.5	29.3
Southbound afternoon peak hour average travel time (minutes)	34.7	24.5
Northbound morning hours of delay (vehicle hours)	9258	1492
Southbound afternoon hours of delay (vehicle hours)	3383	1122

Source: South Coast 101 HOV Lanes Traffic Study (Forecast Operations Report) prepared October 19, 2009 and amended December 9, 2011; also refer to Table 2.15 - Table 2.17.

Table 2.32 provides data only for morning and afternoon peak commute periods, when grid-lock and delay are at their worst. Off-peak emissions (assumed to be from 7:00 p.m. to 5:00 a.m.) are considered to be the same with either the build or no-build condition, because the highway, under normal operating conditions, would operate uncongested, freely flowing with minimal vehicle delays. As stated in the traffic analysis for the project, the percentage of trucks in the vehicle mix for analysis in the future years were assumed to be consistent with existing truck volumes.

The no-build condition sees a portion of total vehicle trips during the peak periods diverted onto local streets to avoid the congested highway. These diverted trips would be traveling at much lower speeds on local roads and have been added back into the overall emission inventory for the no-build condition.

Table 2.33 presents the emissions estimates for the existing and 2040 build condition versus no-build analysis under the above referenced assumptions using the Caltrans-approved air quality modeling program (CT-EMFAC). All estimates have been rounded to three decimal places.

Table 2.33 Pollutant Emission Estimates—Morning and Afternoon Peak

Pollutant	Existing 2009 (tons per year)	2040 No-Build (tons per year)	2040 Build (tons per year)	Project Difference (tons per year)
TOG	0.43429	0.190	0.194	0.004
SO_2	0.00579	0.011	0.011	0.000
Diesel PM	0.00846	0.007	0.009	0.002
$PM_{2.5}$	0.02469	0.040	0.042	0.001
PM_{10}	0.027	0.044	0.045	0.001
NO_X	1.0881	0.303	0.373	0.070
Formaldehyde	0.00825	0.003	0.004	0.001
CO_2	583.494	1052.468	1136.365	83.897
CO	6.3092	2.155	2.193	0.038
Butadiene	0.00204	0.001	0.001	0.000
Benzene	0.0103	0.004	0.004	0.000
Acrolein	0.00001	0.000	0.000	0.000
Acetylaldehyde	0.00209	0.001	0.001	0.000

Source: Air Quality Report for the South Coast 101 HOV Lanes project (November 2010)

Based on the project-specific peak-period analysis, the proposed project would have a negligible impact on air quality and would relieve a great deal of congestion on the existing through lanes of the highway while also improving low-speed and idling emissions. The slight increase in the 2040 build-condition emissions versus the 2040 no-build condition with respect to carbon dioxide is attributable to the addition of the HOV lanes, which allow higher traffic volumes on U.S. 101 (mostly from re-directed trips from the local street system) and improvement in average vehicle speeds. Optimum vehicle speeds for the combustion of fossil fuels and the subsequent release of emissions occurs at about 45 miles per hour. Carbon dioxide emission curves show an increase from that point as vehicles travel faster.

The closer a sensitive receptor is to the source of the emissions, the more the receptor is likely to be affected by those emissions. The greatest impacts generally occur to residents within 500 feet of the highway. Because the project would improve local circulation in the immediate area, allowing free-flowing movements with less vehicle backup and out-of-direction travel on local surface streets, the additional health risk posed by this project is considered to be negligible. The project would widen some overcrossings, but would not reconfigure intersections in the corridor, except at the interchanges of Cabrillo Boulevard/Hot Springs Road and Sheffield Drive.

Carbon Monoxide (CO) Analysis

Carbon monoxide is a low-speed emission that increases when vehicles idle for long periods of time, such as when waiting at traffic signals or in heavy congestion. The project would not create new intersections; it would reduce vehicle backups and idling times, and allow substantially higher speeds by relieving existing and projected congestion. Of the 15 air quality monitoring stations in Santa Barbara County, the Santa Barbara monitoring station is the only station close to the project. Using the carbon monoxide protocol (1997), developed by University of California, Davis for evaluating project level carbon monoxide impacts for transportation projects, it was determined that the proposed project is not required to conduct detailed emission modeling for carbon monoxide impacts per the process flowcharts. Therefore, impacts on carbon monoxide are expected to be negligible.

The four highest carbon monoxide readings at that station registered between 2.9 and 5.2 parts per million between January 2, 2008 and July 7, 2008. These measurements fall well below the federal and state concentration standards of 35 parts per million and 20 parts per million, respectively. Therefore, impacts from carbon monoxide are expected to be negligible.

Particulate Matter Analysis

Particulate matter emissions are generated by a wide variety of sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic and construction equipment, and secondary aerosols formed by reactions in the atmosphere. The National Ambient Air Quality Standards for particulate matter applies to two classes of particulates: particulate matter 2.5 microns or less in diameter ($PM_{2.5}$) and particulate matter 10 microns or less in diameter (PM_{10}). Because Santa Barbara County is considered nonattainment with respect to state PM_{10} standards, the project complies with PM_{10} control measures, as applicable, in the local PM_{10} air quality plan (Air District Clean Air Plan, 2007). Using the Caltrans-approved air quality modeling program software, the 2040 build condition shows a slight increase with respect to PM_{10} versus the 2040 no-build condition (see Table 2.33).

A road dust analysis was done after public comments were received on the draft environmental document. Road dust was calculated and compared for the project's build alternatives and the No-Build Alternative for 2018 and 2040. Quantities for road dust are added only to PM_{10} emissions because road dust is not considered a significant contributor to $PM_{2.5}$ emissions. Calculations for road dust contributions to PM_{10} emissions show that in 2040 the difference between the build alternatives and the No-Build Alternative would be an increase of 73.89 pounds per day. The difference between the existing conditions and the build alternatives in 2040 is calculated to be 625.49 pounds. The increases seen for PM_{10} emissions within the project limits are caused by the large percentage of vehicles entering the highway from the local roads they typically traveled to avoid the existing congestion conditions on the highway. Although there would be an increase of PM_{10} emissions on U.S. 101 within the project limits, the local roadways would experience an overall decrease in PM_{10} emissions.

Mobile Source Air Toxics

Mobile source air toxics (MSAT) are 21 compounds emitted from highway vehicles and non-road equipment that are known to cause or suspected of causing cancer or other serious health ailments. There are six main toxics, including diesel exhaust, benzene, and formaldehyde (see Table 2.34).

The Federal Highway Administration has developed a tier approach for analyzing mobile source air toxics. The Federal Highway Administration has identified three different categories of analysis that depend on specific project circumstances:

1. No analysis for projects with no potential for meaningful mobile source air toxics effects. This category is limited to projects that:
   a) Qualify as a categorical exclusion under 23 Code of Federal Regulations 771.117(c)
   b) Are exempt under the Clean Air Act conformity rule under 40 Code of Federal Regulations 93.126, or
   c) Have no meaningful impacts on traffic volumes or vehicle mix
2. Qualitative analysis for projects with low potential mobile source air toxics effects. Projects that do not meet category (1) or (3) criteria should be included in this category.
3. Quantitative analysis to differentiate alternatives for projects with higher potential mobile source air toxics effects.

Using the Federal Highway Administration Interim Guidance, the project falls under category (2), which means the project has a low potential for mobile source air toxic effects. Therefore, qualitative analysis is required.

Table 2.34 Typical Pollutant Emission Estimates Related to Mobile Source Air Toxics

Pollutant	Existing 2009 (tons/year)	2040 No-Build (tons/year)	2040 Build (tons/year)	Difference (tons/year)
Diesel PM	0.00846	0.007	0.009	0.002
Formaldehyde	0.00825	0.003	0.004	0.001
Butadiene	0.00204	0.001	0.001	0.000
Benzene	0.0103	0.004	0.004	0.000
Acrolein	0.00001	0.000	0.000	0.000
Acetylaldehyde	0.00209	0.001	0.001	0.000

Source: South Coast 101 HOV Lane Air Quality Report Addendum (February 2, 2012)

The South Coast 101 HOV Lanes project proposes to add capacity to the highway mainly by widening in the existing median of the highway. When the widening occurs in the median, the action would not move sources of air toxics (primarily diesel trucks) nearer to sensitive receptors, and should not increase the local burden of these pollutants. When outside widening is required, traffic would be moved about 12

feet closer to sensitive receptors next to the highway than the existing condition, which is not considered to be substantial change from present conditions.

Mobile source air toxics have the potential to affect sensitive receptors, specifically schools, medical centers and healthcare facilities, childcare facilities, parks, and playgrounds within a 500-foot radius of the edge of traveled way. The following sensitive receptors are within 500 feet of the proposed edge of traveled way:

- Dwight Murphy Park
- Santa Barbara Municipal Tennis Stadium
- Santa Barbara Zoo
- Andrée Clark Bird Refuge
- Montecito Golf Course
- Medical Facilities off Coast Village Road
- Lookout Park, Summerland
- Oceanview Park, Summerland
- Carpinteria Creek Park
- Summerland Elementary School
- Loon Point, near Summerland

For each build alternative, the amount of mobile source air toxics emitted would be proportional to the vehicle miles traveled, assuming that other variables, such as the mix of vehicle types, are the same for each alternative. The vehicle miles traveled estimated for each of the build alternatives is slightly higher than that for the no-build condition (see Table 2.33) because the additional capacity increases the efficiency of the freeway and attracts diverted or re-routed trips from elsewhere in the transportation network.

This increase in vehicle miles traveled would lead to higher mobile source air toxics emissions along the highway corridor, along with a corresponding decrease in mobile source air toxics emissions along the parallel routes. The emissions increase is offset somewhat by lower mobile source air toxics emission rates due to increased speeds (as documented by the Environmental Protection Agency's MOBILE 6.2 emissions model, emissions of all the priority mobile source air toxics except for diesel particulate matter decrease as speed increases). The extent to which these speed-

related emissions decreases might offset distance-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Because the estimated vehicle miles traveled under each of the build alternatives are the same, there would be no difference in overall mobile source air toxics emissions among the design alternatives. Also, regardless of the alternative chosen, emissions would 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 annual mobile source air toxics emissions by 72 percent between 1999 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover vehicle miles traveled growth rates, and local control measures. However, the magnitude of the reductions projected by the Environmental Protection Agency is so great (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 in nearly all cases.

The additional travel lanes contemplated as part of the proposed project build alternatives would have the effect of slightly moving some traffic closer to nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of mobile source air toxics could be higher under certain build alternatives than the no-build condition. However, the magnitude and the duration of these potential increases compared to the No-Build Alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific mobile source air toxics health impacts.

In summary, when a highway is widened, the localized level of mobile source air toxics emissions for the build alternatives could be higher relative to the no-build condition, but this is expected to be offset by increases in speeds and reductions in congestion (which are associated with lower mobile source air toxics emissions). Also, mobile source air toxics would be lower in other locations when traffic shifts away from them. However, on a regional basis, the Environmental Protection Agency's vehicle and fuel regulations, coupled with fleet turnover, would over time cause substantial reductions that, in almost all cases, would cause region wide mobile source air toxics levels to be significantly lower than today.

Naturally Occurring Asbestos

Santa Barbara County is among the counties listed as containing serpentine and ultramafic rock (Governor's Office of Planning and Research, October 26, 2000).

However, according to the *Geologic Map of the Carpinteria Quadrangle, Santa Barbara County, California* (Thomas Dibblee Jr., 1986), the nearest ultramafic rock occurrence is about 7 miles northeast of the project area on the north side of the Santa Ynez Mountain Range. Therefore, no impact from naturally occurring asbestos is anticipated during project construction.

Asbestos-Containing Materials

The Asbestos- and Lead-containing Paint Survey (see Section 2.25) documented that asbestos-containing materials were found on the following structures: Cabrillo Boulevard undercrossing, Evans Avenue undercrossing, South Padaro Lane undercrossing, and the Santa Monica Creek Bridge. These same materials are assumed to be present on the Arroyo Parida Creek Bridge. Chrysotile asbestos was detected in the concrete drainpipe inserts on the Cabrillo Boulevard undercrossing.

Several other structures also contain asbestos sheet packing used in barrier rail systems. These structures include the Evans Avenue undercrossing, South Padaro Lane undercrossing, Arroyo Parida Creek Bridge, and Santa Monica Creek Bridge. The Asbestos and Lead-containing Paint Survey recommends a licensed registered contractor with the California Occupational Safety and Health Administration for asbestos-related work perform the removal of such materials. The contractor would have to comply with the rules and regulations of the Santa Barbara County Air Pollution Control District and file a notification as required by the National Elimination System for Hazardous Air Pollutants before demolishing any of these structures.

Refer to Section 2.4 for further discussion related to air quality construction impacts.

Avoidance, Minimization, and/or Mitigation Measures

The following project design features would be used to minimize operational air emissions:

- The project would preserve mature vegetation as a means of minimizing adverse air quality impacts to the maximum degree feasible. The project would be designed to minimize removal of existing trees, especially mature trees.
- Project design would allow consideration for maximizing vegetative plantings throughout urban areas.
- The project would plant 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. Riparian planting would also be included to maintain shade along creek corridors.

- The project would seed slopes, drainage channels, and other disturbed areas with native and drought-tolerant shrubs, perennials and grasses.
- The project would incorporate recycling and waste diversion techniques by promoting the reuse of materials such as steel, road base, concrete, asphalt-concrete, etc. to the extent feasible (Deputy Directive 17 *Recycling Asphalt Concrete*).
- Measures would be included that propose to conserve energy and nonrenewable resources, include removing and reusing existing thrie-beam barrier, wherever possible. Also, when possible, guide signs within the project limits would be reset.

Climate Change

Climate change is analyzed in Chapter 3.

Neither the U.S. Environmental Protection Agency nor the Federal Highway Administration has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. As stated on the Federal Highway Administration's climate change website (http://www.fhwa.dot.gov/hep/climate/index.htm), climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will aid decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders on climate change, the issue is addressed in Chapter 3, the California Environmental Quality Act (CEQA) chapter of this environmental document and may be used to inform the National Environmental Policy Act (NEPA) decision. The four strategies set forth by the Federal Highway Administration to lessen climate change

impacts do correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours traveled.

2.2.7 Noise

Regulatory Setting

The National Environmental Policy Act of 1969 and the California Environmental Quality Act provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between 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 focuses on the National Environmental Policy Act—23 Code of Federal Regulations 772 noise analysis. See Chapter 3 of this document 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 the 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 (NAC) that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis. For example, the noise abatement criterion for residences (67 dBA) is lower than the noise abatement criterion for commercial areas (72 dBA).

Table 2.35 lists the noise abatement criteria used in the National Environmental Policy Act—23 Code of Federal Regulations 772 analysis. Figure 2-20 shows the noise levels of common activities.

Table 2.35 Activity Categories and Noise Abatement Criteria

Activity Category	Noise Abatement Criteria Hourly A-Weighted Noise Level, dBA $L_{eq}(h)$	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	Residence, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

In accordance with the Caltrans Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006, a noise impact occurs when the predicted noise level in the design year approaches or exceeds the Noise Abatement Criteria (NAC) specified in 23 Code of Federal Regulations 772, or a predicted noise level substantially exceeds the existing noise level. Approaching the noise abatement criteria is defined as coming within 1 dBA of the noise abatement criteria (see Table 2.35).

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 used in the project.

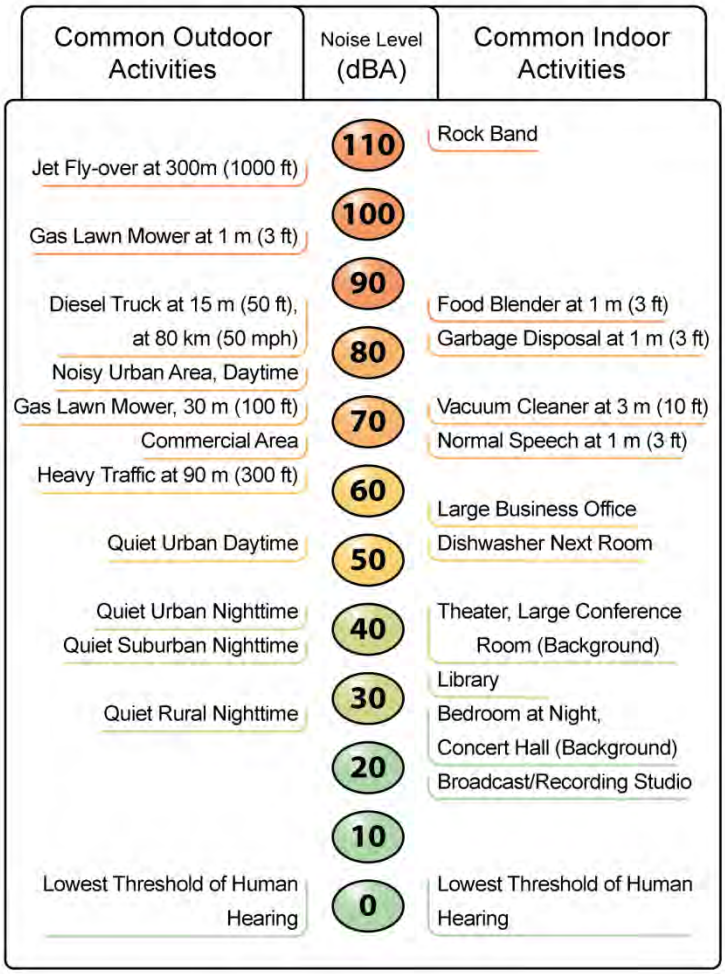

Figure 2-21 Typical Noise Levels

The 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 acoustical and engineering concern. A minimum 5-dBA 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 noise versus existing noise, environmental impacts of abatement, engineering constraints, public and local agencies input, newly built development versus development pre-dating 1978, and the cost per benefited residence.

Affected Environment

A Noise Study Report was completed for this project in March 2010. An addendum to the Noise Study Report was prepared in December 2010. A Noise Abatement Decision Report was completed in August 2011. After release of the draft environmental document, based on public comment, further studies were done. These findings are presented in an addendum to the Noise Study Report prepared in September 2013.

The highway corridor contains mainly residences with pockets of commercial, agricultural, and recreational uses. Except for Summerland, the terrain through the corridor is relatively flat. U.S. 101 through the project limits is currently two lanes in each direction. Traffic on U.S. 101 is the main source of noise through the corridor. Also, the railroad and local roadways such as Via Real and Jameson Lane contribute a substantial amount of noise to the ambient environment, especially during morning and afternoon commute hours.

Soundwalls stand on the northbound side of the freeway from post miles 6.5 to 6.7 and from post miles 11.8 to 12.3. On the southbound side of the freeway, only one soundwall exists from post miles 9.6 to 9.7. More soundwalls on the northbound side of the freeway (from post miles 2.7 to 3.0 and from post miles 3.1 to 3.3) are proposed for construction with the Linden Casitas project and are expected to be completed before this project.

The project corridor can be largely divided into six segments based on major local interchanges, similar or like topographies, and separate or unique neighborhoods. The following describes groups of neighborhoods in six segments.

East of Bailard Avenue to Carpinteria Creek—North of U.S. 101 are mobile homes and pockets of vacant or agricultural lots. The Rancho Granada Mobile Home Park and the San Roque Mobile Home Park (Activity Category B) are the only receptor locations with frequent outdoor use areas within these limits. An existing 5- to 6-foot-high private property wall provides some traffic noise reduction.

Franklin Creek to South Padaro Lane—North from Franklin Creek, the adjacent areas on both sides of the corridor are mainly residential, with single-family residences, mobile homes, townhouses, and apartments (Activity Category B). Some multi-family residential developments have masonry property walls, but most of the residential receptors are exposed to highway traffic noise without any form of

existing barrier. Motel 6, Sandy Reef Inn, and the Best Western Hotel sit within these limits along the corridor, but do not have frequent outdoor use areas directly facing the freeway and are not subject to the outdoor use threshold. As the highway approaches South Padaro Lane, the surrounding areas become more agricultural and commercial. Past Santa Monica Road, the Union Pacific Railroad track reaches U.S. 101 from the south and then runs parallel to it.

South Padro Lane to North Padaro Lane—Homes south of U.S. 101 are mainly beachfront homes, and there is dense vegetation between these homes and the highway. Trains blow their horns before approaching the at-grade crossing at South Padaro Lane. North of U.S. 101 is single-family homes and multi-family residences (Activity Category B) in an area known as "Serena Park." Caltrans recently built a soundwall ranging from 10 to 14 feet covering most of these residences. Other land uses along U.S. 101 in the area include the Santa Barbara Polo Club, vacant lots, commercial buildings, and a religious institution.

North Padaro Lane to Sheffield Drive—This area is known as Summerland. The Union Pacific Railroad track runs parallel to U.S. 101; there are at-grade crossings at Finney Street and Evans Avenue, and trains blow their horns as they approach the crossing. This creates a short-term spike in ambient noise at some residences near the crossing. Most of the first-row residences (Activity Category B) north of the highway have been converted into commercial use or appear to be in the process of conversion to a commercial use. Many of the second- or third-row houses (Activity Category B) north of U.S. 101 sit on the hillside, with a deck or a multi-level terraced backyard overlooking the ocean; these structural features can be considered as frequent outdoor use areas. There are beachfront homes south of U.S. 101, and most of these homes have no frequent outdoor use areas directly facing the freeway.

Other Activity Category B land uses include Summerland Elementary School, Lookout Park, and a basketball court. The Summerland Inn (Activity Category E) is also here, but does not have a frequent outdoor use area facing the freeway.

Sheffield Drive to San Ysidro Road/Eucalyptus Lane—The land use on both sides of U.S. 101 is mainly residential. The Union Pacific Railroad track runs parallel to the highway before diverging near Posilipo Lane. When trains approach the at-grade crossing at Posilipo Lane, they blow their horns. While most of the first-row (Activity Category B) homes north of U.S. 101 are directly exposed to freeway noise, residences south of U.S. 101 are buffered by heavy vegetation. The old Miramar

Hotel site sits south of U.S. 101 and east of Eucalyptus Lane. According to Santa Barbara County, this parcel is planned for a future hotel and resort development. An existing 12-foot-high soundwall stands on the right-of-way line just east of Posilipo Lane and south of U.S. 101.

San Ysidro Road/Eucalyptus Lane to Butterfly Lane—U.S. 101 is slightly depressed relative to the surrounding residences between Eucalyptus Lane and Olive Mill Road. The highway starts ascending past Olive Mill Road and stays elevated relative to the surrounding residences. The Montecito Inn is in this segment; it has a pool (Activity Category B). The Union Pacific Railroad track approaches U.S. 101 in this segment and runs parallel to it. The dominant land use north of U.S. 101 transitions to commercial past Olive Mill Road. A few residences south of U.S. 101 have 6- to 8-foot-high private property walls that provide some noise reduction; however, most of the residences next to the highway are exposed to the highway without any solid barrier.

Environmental Consequences

A Traffic Noise Analysis was done for 104 receptor sites. Each receptor site represents a group of sensitive noise receivers that share a like or similar orientation to the highway, topography, elevation, and so on. Receptor sites also represent numerous residents, commercial areas, and recreation/open space areas. Predictions for existing and future traffic noise levels on these receptors were made using the Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects. For this analysis, the noise descriptor used was L_{eq}, which is an A-weighted peak hour noise level in decibels and is also the basis for noise abatement criteria used by Caltrans and the Federal Highway Administration.

Each receptor was evaluated for abatement where future predicted noise levels would approach or exceed the noise abatement criteria (67 dBA for Activity Category B). Each noise barrier has been evaluated for feasibility based on achievable noise reduction (5 decibels or more). For each noise barrier found to be acoustically feasible, reasonable cost allowances were calculated. The reasonable cost allowance calculations at critical design receivers were based on the allowance calculation procedure identified in the protocol.

A design receiver is a location where a receptor(s) is affected and for which the absolute noise levels—build versus existing noise levels—or achievable noise reduction would be at a maximum when noise abatement is considered. Except where noted, all the build alternatives in the noise analysis identified the same number and location of noise barriers. Noise sensitive receptor sites in the project area and their existing and future predicted peak hour noise levels are presented in Table 2.36.

Table 2.36 Predicted Future Noise Levels and Noise Barrier Analysis

Receiver I.D.	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Existing Noise Level Leq(h), dBA[1,3]	State Route 101 South Coast HOV Future Worst Hour Noise Levels - Leq(h), dBA[1,6]																Reasonable and Feasible (Yes/No)
					Design Year Noise Level without Project Leq(h), dBA[1]	Inside Design Year Noise Level with Project Leq(h), dBA[1]	Outside Design Year Noise Level with Project Leq(h), dBA[1]	Impact Type[4]	Noise Prediction with Barrier												
									8 feet		10 feet		12 feet		14 feet		16 feet				
									Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside		
R 1 W	S90 R/W	MH	1	68 MOD	70	71	71	A/E	68	68	68	68	67 T	67 T	**66** R	**66** R	66	66		Yes
R 1A Z		--	--	73 M,ST1	75	76	76	N/A	--	--	--	--	--	--	--	--	--	--		
R 2 C,W		MH	5	70 MOD	72	72	73	A/E	71	71	69	69	67 T	68 T	**66** R,5	**67** R,5	66	66		
R 3 W	S98 R/W	MH	11	67 MOD	69	70	70	A/E	69	70	69	69	67 T	67 T	**65** R	66	65	**65** R		Yes
R 3A C,W		REC	1	69 MOD	71	72	72	A/E	70	70	69	69	67	67	**65** T,R	**65** T,R	64	64		
R 3B W		MH	6	67 MOD	69	70	70	A/E	69	69	67	67	66 T	66 T	**65** R	**65** R	65	64		
R 3C W		MH	2	62 MOD	64	65	65	NONE	64	64	63	63	63	62	62	62	61	61		
R 4 K1	S158 R/W & Shoulder	SFR	2	72 MOD	72	74	74	A/E	66	67	**64** T,R	**64** T,R	63	63	62	62	61	61		Yes
R 4A K1		SFR	2	66 M,LT1	68	70	70	A/E	65	65	**62** T,R	**62** T,R	61	61	61	61	60	60		
R 5 K1		SFR	12	70 MOD	72	73	73	A/E	66	66	**63** T,R	**64** T,R	62	62	61	61	61	61		
R 6 K1,C		SFR	4	71 M,ST3	72	74	74	A/E	65	66	64 T	64 T	**63** R,5	**63** R,5	62	62	61	61		
R 7		MFR	5	61 MOD	63	65	64	NONE	62	62	62	62	61	60	60	59	59	59		
R 7A		MFR	6	67	69	70	70	A/E	67	67	66	66	**64** T,R	**64** T,R	63	63	63	62		
R 8 G	--	MFR	16	63 M,ST2	64	65	65	NONE	--	--	--	--	--	--	--	--	--	--		
R 9 G		MFR	14	60 MOD	61	62	62	NONE	--	--	--	--	--	--	--	--	--	--		
R 10 W,H		MOT	--	70 MOD	71	73	73	N/A	--	--	--	--	--	--	--	--	--	--		
R 10 W		MOT	2	45 MOD/INT	46	48	48	NONE	--	--	--	--	--	--	--	--	--	--		
R 11 K2,W	S174 R/W	SFR	2	67 MOD	68	69	70	A/E	67 T	67 T	65	65	**64** R	**64** R	63	62	62	61		Yes
R 12 K2		SFR	6	71 M,ST4	72	74	74	A/E	67	67	64 T	64 T	**63** R,5	**63** R,5	62	62	61	61		
R 13 C		SFR	2	72 MOD	73	75	75	A/E	68	68	66 T	66 T	**64** R,5	**65** R,5	63	63	62	62		
R 13A N		SFR	3	69 MOD	71	72	72	A/E	67	67	65	65	**64** T,R	**65** T,R	63	63	63	63		
R 14 C	S182	SFR	1	63 MOD	65	66	65	A/E	64	--	63	--	62	--	62 T	--	**61** R	--		No

Notes:

Bold - Recommended Wall Height

1 - Leq(h) are A-weighted, peak hour noise levels in decibels.

2 - Land Use: SFR - single-family residence; MFR - multi-family residence; MH - mobile Home; MOT - motel/hotel; SCH - School; REC - recreational/park; REL - religious institution.

3 - M - Measured noise level; STxx or LTxx - measurement site number; INT - Interior; MOD - Modeled noise level using TNM.

4 - A/E = Approach or exceed NAC.; S = Substantial Increase (12 dBA or more)

5 - Barrier height needed to meet requirements at adjacent receptor(s).

6 - Traffic noise from the freeway only; other local noise sources are not included.

C - Critical design receiver.

R - The minimum height to meet feasibility requirements of Caltrans' Noise Abatement Criteria.

W - Existing private property wall or soundwall.

Z - Measurement or modeling purpose only: no outdoor use area.

K1 - A calibration factor of -3.5 dB is applied for this receptor and adjacent receptors with similar topographic features.

K2 - A calibration factor of -2.5 dB is applied for this receptor and adjacent receptors with similar topographic features.

* Retained for severe receptors

** Retained portion for severe receptors

*** Portions not reasonable

G - Garages providing traffic noise reduction.

T - Minimum height required to block the line-of-sight from the receptor to truck exhaust stacks.

H - Exterior modeling point for a motel: interior noise estimated using the modeled noise level at this point.

N - Non first row residences.

NN - Beachfront frequent outdoor use area.

Receiver I.D.	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Existing Noise Level Leq(h), dBA[1,3]	State Route 101 South Coast HOV Future Worst Hour Noise Levels - Leq(h), dBA[1,6]																Reasonable and Feasible (Yes/No)
					Design Year Noise Level without Project Leq(h), dBA[1]	Inside Design Year Noise Level with Project Leq(h), dBA[1]	Outside Design Year Noise Level with Project Leq(h), dBA[1]	Impact Type[4]	Noise Prediction with Barrier												
									8 feet		10 feet		12 feet		14 feet		16 feet				
									Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside		
R 15 C	S188 R/W	MOT	1	63 MOD	65	66	65	A/E	63	63	63	62	**61** T,R	61	61 D	60 D	60	59		No
R 17		REC	1	64 M,ST6	65	67	66	A/E	64	64	63	63	**62** T,R	62 T	63 D	63 D	62	62		
R 17A		MFR	4	69 MOD	70	72	71	A/E	68	67	67	67	**64** T,R	**65** T,R	63	63	62	62		
R 18 W		MFR	3	68 MOD	69	71	70	A/E	68	68	67	68	66 T	66 T	**65** R,5	**65** R	64	64		
R 18A W	S210 R/W	MFR	7	69 MOD	70	71	71	A/E	69	69	69	69	67 T	67 T	**66** R	**66** R	64	64		No**
R 19		MFR	4	72 MOD	73	74	74	A/E	68	69	**66** T,R	**66** T,R	64	65	64	64	63	63		
R 20 Z		--	--	72 M,ST7	73	75	75	N/A	--	--	--	--	--	--	--	--	--	--		
R 21 C		MH	14	74 MOD	75	76	76	A/E	70	71	**68** T,R	**69** T,R	67	67	66	66	65	66		
R 22 W		MFR	2	68 MOD	69	70	70	A/E	--	--	--	--	--	--	68	67	67	67		
R 23 C		SFR	9	76 MOD	77	78	78	A/E	70	70	**68** T,R	**68** T,R	66	66	65	65	64	64		
R 24	S181 R/W	MH	28	74 M,ST5	76	77	76	A/E	70	70	**67** T,R	**67** T,R	66	66	65	65	64	64		Yes
R 25		SFR	4	74 MOD	76	77	77	A/E	70	71	**68** T,R	**68** T,R	66	66	65	65	64	64		
R 26 W		MFR	8	70 MOD	72	73	73	A/E	70	71	**68** T,R	**68** T,R	67	67	66	66	65	65		
R 27 W		MFR	6	70 MOD	72	73	73	A/E	69	70	**67** T,R	**68** T,R	66	66	65	65	64	64		
R 28		SFR	3	66 MOD	67	67	67	A/E	64	64	63 T	63 T	**62** R	**62** R	62	61	61	61		
R 28A ***	S257 Shoulder	SFR	3	61 MOD	62	62	62	NONE	60	60	60 T	60 T	59	59	59	59	59	59		No
R 29 C		SFR	9	66 M,ST8	67	67	67	A/E	64	64	63 T	63 T	**61** R	**61** R	60	60	59	59		
R 29A ***		SFR	9	54 MOD	55	56	56	NONE	54	54	53 T	53 T	52	52	51	51	51	50		

Notes:

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							Design Year Noise Level without Project Leq(h), dBA[1]	Inside Design Year Noise Level with Project Leq(h), dBA[1]	Outside Design Year Noise Level with Project Leq(h), dBA[1]	Impact Type[4]	Noise Prediction with Barrier										
											8 feet		10 feet		12 feet		14 feet		16 feet		
											Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	
R	30		S281 R/W & Shoulder	SFR	17	68 MOD	69	70	70	A/E	65	65	63	64	**62** T,R	**62** T,R	61	61	60	60	Yes***
R	30A	***		SFR	17	56 MOD	57	58	58	NONE	56	56	55	55	54	54	53	52	52	51	
R	31	C		SFR	7	69 MOD	70	71	71	A/E	66	66	65	65	**63** T,R	**63** T,R	62	62	61	61	
R	31A	N		SFR	1	63 MOD	64	65	65	NONE	65	65	61	61	**59** 5	**59** 5	58	58	58	57	
R	31B	N		SFR	7	62 MOD	63	64	63	NONE	61	60	60	60	**58** 5	**58** 5	58	57	57	57	
R	31C	N		SFR	1	63 MOD	64	65	65	NONE	63	63	62	62	61	61	59	59	58	57	
R	32	K3,Z		--	--	67 M,ST9	68	68	68	N/A	--	--	--	--	--	--	--	--	--	--	
R	32A	K3		SFR	11	65 MOD	66	67	66	A/E	64	63	63	63	**62** T,R	**61** T,R	59	59	58	58	
R	32B	K3,N		SFR	2	59 MOD	60	62	61	NONE	59	59	58	58	**56** 5	**56** 5	55	54	54	53	
R	33	K4		SFR	12	64 MOD	65	66	66	A/E	62	62	61	61	**59** T,R	**59** T,R	58	58	57	57	
R	34	K4		SFR	6	64 MOD	66	66	66	A/E	63	63	62	62	**60** T,R	**60** T,R	59	59	58	58	
R	34A	K4,N		SFR	1	59 MOD	61	62	62	NONE	60	60	60	60	58	59	57	57	56	56	
R	35A	K4,N		SFR	2	59 MOD	60	62	61	NONE	59	59	59	59	**57** 5	57	56	55	55	55	
R	35			SFR	9	68 M,ST10	69	69	69	A/E	64	64	62	62	**61** T,R	**61** T,R	60	60	59	59	
R	36		--	SFR	3	63 MOD	64	65	65	NONE	--	--	--	--	--	--	--	--	--	--	
R	37			SFR	3	59 M,ST11	60	61	61	NONE	--	--	--	--	--	--	--	--	--	--	
R	38			SFR	2	59 MOD	61	62	62	NONE	--	--	--	--	--	--	--	--	--	--	
R	39A	C	S238	SFR	1	64 MOD	66	67	67	A/E	66	65	65	65	63	63	**62** T,R	**62** T,R	62	62	No
R	39B		--	SFR	1	61 MOD	64	64	63	NONE	--	--	--	--	--	--	--	--	--	--	

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									8 feet		10 feet		12 feet		14 feet		16 feet				
									Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside		
R 39		MFR	8	69 MOD	70	72	72	A/E	68	68	67	68	**66** R,5	**66** R,5	65	65	65	65		
R 39C Z		--	--	73 M,ST12	75	76	76	N/A	--	--	--	--	--	--	--	--	--	--		Yes
R 40 W		SFR	5	64 M,ST13	65	66	66	A/E	63	63	62	62	**60** T,R	**60** T,R	59	59	59	59		
R 41 C	S310	REL	1	71 MOD	72	74	74	A/E	69	69	67	67	**65** T,R	**65** T,R	64	64	63	63		
R 41A N	R/W	SFR	1	63 MOD	64	66	65	A/E	63	63	63	63	**61** R	61	60	60	60	59		
R 42		SFR	3	69 MOD	70	71	71	A/E	66	66	64 T	65	**63** R,5	**63** R,5	62	61	61	61		
R 42A W,N		SFR	1	64 MOD	65	66	66	A/E	64	64	63	63	62	62	62	62	62	62		
R 43 W		SFR	1	68 MOD	69	70	70	A/E	67	68	66	67	66	66	66	66	66	66		
R 43A K5,W	--	SFR	4	66 MOD	67	69	69	A/E	--	--	--	--	--	--	--	--	67	67		
R 44 K5,W		SFR	9	66 M,ST14	68	69	69	A/E	--	--	--	--	--	--	--	--	68	68		
R 45 C, W	S334	SFR	1	72 MOD	73	74	74	A/E	70	70	69	69	**68** T,R	**68** T,R	68	68	67	68		No
R 45A W	R/W	SFR	1	64 MOD	65	67	66	A/E	66	66	66	65	65	65	65	65	65	65		
R 46	--	SFR	1	71 MOD	72	74	73	A/E	73	73	73	73	73	73	73	73	73	72		
R 47A		SFR	2	65 MOD	66	68	68	A/E	65	64	64	64	63 T	62 T	**62** R,5	**62** R,5	62	61		
R 47		SFR	4	65 M,ST15	66	68	68	A/E	65	65	64	64	63	63	**62** T,R	**62** T,R	62	61		No
R 47B K6,N		SFR	3	57 MOD	58	60	60	NONE	60	59	59	58	58	58	58	58	58	57		
R 47C K6,N		SFR	3	59 MOD	60	62	62	NONE	61	61	61	61	60	59	58	58	58	57		
R 47D K6,N		SFR	3	56 M,ST15A	57	59	58	NONE	58	58	57	57	57	56	56	56	55	55		
R 48A	S374	SFR	3	67 MOD	68	70	70	A/E	68	68	67	66	66	65	**65** T,R	**64** T,R	64	64		
R 48	R/W	SFR	2	67 MOD	68	70	69	A/E	69	69	69	68	68	67	67	66	66	65		
R 48B		MFR	4	63 MOD	64	66	66	A/E	66	66	66	65	65	65	64	64	64	64		
R 48C K6,N		MFR	6	56 MOD	57	59	58	NONE	58	58	58	58	58	57	58	57	56	56		
R 49A C		REC	3	71 MOD	71	73	73	A/E	71	71	69	69	68	68	**66** T,R	**66** T,R	65	65		
R 49		REC	1	70 MOD	71	72	72	A/E	72	72	71	71	70	70	70	69	69	69		

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R 50		SFR	2	74 MOD	75	76	76	A/E	76	76	76	75 T	75	75	74	74	73 L		73 L		Yes
R 51		MOT	2	72 MOD	72	74	74	A/E	68	67	66 T	66 T	65	65	**64** R,5	64	63		**63** R,5		
R S1.1 N		SFR	1	69 MOD	70	72	71	A/E	71	71	71	71	71	70	70	70	70		70		
R S1.2 N		SFR	2	67 M,CS1	68	70	68	A/E	68	68	68	67	67	67	67	67	67		66		
R S1.3 N		SFR	2	62 MOD	63	65	64	NONE	63	63	62	62	62	62	61	61	60		60		
R S1.4 N		SFR	1	66 MOD	67	69	68	A/E	67	67	66	66	65	65	**64** R	64	63		**63** R		
R S1.5 KS1,N		SFR	3	63 MOD	63	65	65	NONE	65	65	65	64	65	64	64	64	64		64		
R S1.6 KS1,N		SFR	2	60 M,CS2	61	63	62	NONE	62	62	62	61	62	61	61	61	61		60		
R S1.7 KS1,N		MFR	4	61 MOD	61	64	63	NONE	62	62	62	61	61	61	61	60	60		60		
R S1.8 KS1,N		SFR	2	63 MOD	63	65	65	NONE	64	64	63	63	63	62	62	62	61		61		
R 52 C	S392 R/W	SFR	6	72 M,ST16	73	74	74	A/E	66 T	66 T	65	65	64	64	63	63	**62** R,5		**62** R,5		
R S2.1 **		SFR	1	66 MOD	67	69	68	A/E	66	66	65	65	65	65	64	64	**64** R		**63** R		
R S2.2 **		SFR	1	67 MOD	68	70	69	A/E	68	67	67	66	66	66	65	65	**64** R		**64** R		
R S2.3 **		SFR	2	63 M,CS3	64	66	65	A/E	65	65	64	64	64	64	63	63	63		62		
R S2.4 **		SFR	2	64 M,ST16A	65	67	67	A/E	65	65	64	64	63	63	63	62	**62** R		**62** R		
R S2.5 KS2,N		SFR	2	63 MOD	64	66	65	A/E	65	64	64	64	63	63	62	62	62		61		
R S2.6 KS2,N		SFR	2	64 MOD	64	66	66	A/E	65	65	64	64	64	63	63	63	62		62		
R S2.7 KS2,N		SFR	2	61 M,CS4	62	64	63	NONE	63	62	62	62	61	61	61	61	60		60		
R 53		SFR	2	70 MOD	70	72	72	A/E	66 T	66 T	65	65	64	64	63	63	**62** R,5		**62** R,5		
R S3.1 N		SFR	1	64 M,CS5	65	67	67	A/E	63	63	62	62	61	61	60	59	**59** R,5		**59** R,5		
R S3.2 N		SFR	1	66 MOD	66	68	68	A/E	66	66	65	65	65	64	64	63	**63** R		**63** R,5		
R S3.3 N		SFR	1	66 MOD	67	68	68	A/E	66	66	65	65	65	64	64	63	**63** R		**63** R,5		
R S3.4 N		SFR	3	60 MOD	61	62	62	NONE	61	61	60	60	59	59	59	59	58		58		
R S3.5 N		SFR	1	60 M,CS6	60	62	62	NONE	60	60	59	59	58	58	58	58	**57** 5		**57** 5		
R S3.6 N		SFR	2	61 MOD	62	64	63	NONE	62	62	62	62	61	61	61	60	60		60		
R S3.7 N		MFR	2	66 MOD	67	68	68	A/E	67	67	66	66	65	65	64	64	**63** R		**63** 5		

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R 55		MFR	7	67 MOD	68	69	69	A/E	66	66	65	65	63	63	62 T	62 T	**60** R,5	**60** R,5	
R 56 W		SFR	2	62 MOD	62	64	63	NONE	61	61	60	60	59	59	58	58	**58** 5	**58** 5	
R S4.1 N		SCH	3	66 M,ST17	66	68	68	A/E	66	65	65	65	64	64	63	63	**62** R,5	**62** R,5	
R S4.2 N		SFR	1	64 M,CS7	65	66	66	A/E	65	65	64	64	63	62	61	61	**60** R,5	**60** R,5	
R S4.3 N		SFR	1	64 MOD	65	66	65	A/E	64	64	63	63	62	62	61	61	**60** R,5	**60** 5	
R S4.4 N	S392	SFR	1	64 MOD	65	66	65	A/E	64	63	63	63	62	62	61	61	**60** R,5	**59** 5	
R S4.5 N	S392 R/W	MFR	3	65 MOD	66	67	67	A/E	66	66	65	65	65	65	64	64	63	63	
R S4.6 N		SFR	1	66 M,CS8	66	68	68	A/E	67	66	66	66	65	65	65	64	64	64	
R S4.7 N		MFR	4	65 MOD	66	67	67	A/E	66	66	65	65	64	64	64	64	63	63	
R S4.8 N		SFR	2	66 MOD	67	68	68	A/E	67	67	66	66	66	66	65	65	64	64	
R S4.9 N		MFR	2	66 MOD	67	68	68	A/E	67	67	66	66	66	66	65	65	64	**63** R	
R S4.10 N		SFR	1	65 M,CS10	66	67	67	A/E	66	66	65	65	65	65	63	63	**62** R	**62** R	
R 57		SFR	4	68 MOD	68	70	69	A/E	65	65	64	64	62 T	62 T	61	61	**60** R,5	**60** R,5	
R S5.1 N		SFR	6	63 M,CS9	64	65	64	NONE	63	63	62	62	61	61	60	60	**59** 5	**59** 5	Yes
R S5.2 KS3,N		SFR	2	66 MOD	67	67	67	A/E	64	64	63	63	62	62	61	61	**60** R,5	**60** R,5	
R S5.3 KS3,N		SFR	1	62 MOD	63	64	63	NONE	60	60	59	59	59	59	57	57	**56** 5	**56** 5	
R S5.4 KS3,N		SFR	4	53 M,CS11	54	55	55	NONE	53	52	52	52	50	50	50	49	**49** 5	**49** 5	
R S5.5 N	S414 Shoulder	MFR	5	66 MOD	67	68	68	A/E	67	66	66	66	65	65	64	64	**63** R	**63** R	
R S5.6 N		SFR	2	66 MOD	67	68	68	A/E	67	66	66	66	65	65	64	64	**63** R	**63** R	
R S5.7 KS4,N		SFR	2	62 MOD	63	64	64	NONE	63	63	63	63	62	62	62	62	61	61	
R S5.8 KS4,N		MFR	2	62 MOD	62	64	63	NONE	61	61	61	61	60	60	59	59	**58** 5	**58** 5	
R S5.9 KS4,N		SFR	2	63 M,CS12	64	65	64	NONE	61	61	61	60	60	60	59	58	**58** 5	**57** 5	
R S5.10 KS4,N		SFR	3	53 MOD	54	55	55	NONE	53	52	52	52	51	51	49	49	**48** 5	**48** 5	

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											8 feet		10 feet		12 feet		14 feet		16 feet			
											Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside		
R	58	C		SFR	4	72	M,ST20	73	74	73	A/E	68	67	66	66	64	64	63	63	**62** R,5	**62** R,5		
R	S6.1	N		MFR	4	72	MOD	73	74	73	A/E	71	71	70	70	69	69	68	68	**67** R,5	**67** R,5		
R	S6.2	N		SFR	2	70	MOD	71	72	72	A/E	70	70	69	69	68	68	67	67	**67** R,5	**66** R,5		
R	S6.3	N		SFR	2	69	M,CS13	69	71	70	A/E	69	69	69	68	68	68	67	66	**66** R	66		
R	S6.4	N		SFR	2	69	MOD	70	71	71	A/E	70	70	69	69	68	68	67	67	67	**66** R		
R	S6.5	N		SFR	1	67	MOD	68	69	69	A/E	68	68	68	67	67	67	66	66	65	65		
R	S6.6	N		MFR	3	60	MOD	61	62	62	NONE	61	61	61	60	60	60	59	59	59	58		
R	S6.7	N	S414	SFR	1	67	MOD	68	69	68	A/E	64	64	64	63	63	63	61	61	**60** R,5	**60** R,5		
R	S6.8	N	Shoulder	MFR	2	68	MOD	69	69	69	A/E	66	66	64	64	64	64	62	62	**61** R,5	**61** R,5		
R	S6.9	N		MFR	2	67	M,CS15	68	69	69	A/E	67	67	65	65	64	65	63	63	**62** R,5	**62** R,5		
R	S6.10	N		SFR	1	68	MOD	69	70	70	A/E	69	68	68	68	67	67	66	66	**65** R	**65** R		
R	S6.11	N		SFR	3	70	MOD	71	72	72	A/E	71	71	71	70	70	70	69	69	68	68		
R	S6.12	N		SFR	3	69	M,CS14	70	71	71	A/E	70	70	70	70	69	69	68	68	67	67		
R	S6.13	N		SFR	1	68	MOD	69	70	70	A/E	69	69	69	68	68	68	67	67	66	66		
R	S6.14	N		MFR	3	63	MOD	64	66	65	A/E	65	65	65	64	64	64	64	63	62	62		
R	S6.15	N		SFR	3	68	MOD	69	70	70	A/E	69	69	69	69	69	68	68	68	67	67		
R	58A			MFR	2	67	MOD	67	69	69	A/E	66	66	66	65	64	64	**62** R,5	**62** R,5	61	61		
R	59			MOT	1	70	MOD	71	72	72	N/A	68	68	67	67	65	64	**63**	63	62	62	Yes	
R	59		S424	MOT	1	50	MOD	51	52	52	A/E	48	48	47	47	45	44	**43** R,5	**43** R,5	42	42		
R	60	C	Shoulder	MH	7	74	MOD	74	75	75	A/E	74	74	73	72	71	71	**69** R	**69** R	67 L	67 L		
R	61			MH	1	73	MOD	74	75	75	A/E	75	74	74	73	73	72	71	71	**70** R,L	**69** R,L		
R	61A	N		MH	2	66	MOD	66	68	67	A/E	68	67	67	67	67	66	65	65	64 L	63 L		
R	61B			REC	1	63	MOD	64	65	65	NONE	64	64	64	64	63	63	62	62	61	61		
R	62	K7		SFR	3	54	MOD	55	56	56	NONE	--	--	--	--	--	--	--	--	--	--		
R	63	K7		SFR	3	58	M,ST18	59	61	61	NONE	--	--	--	--	--	--	--	--	--	--	No	
R	64		S405	SFR	5	58	MOD	59	60	60	NONE	--	--	--	--	--	--	--	--	--	--		
R	64A	Z	Shoulder	SFR	5	66	M,LT2	67	68	68	N/A	--	--	--	--	--	--	--	--	--	--		
R	65	C		SFR	2	66	MOD	66	68	68	A/E	64	64	**62** T,R	**63** T,R	62	62	62	62	61	61		
R	66	K8	--	REC	4	61	M,ST19	62	63	63	NONE	--	--	--	--	--	--	--	--	--	--		

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					Design Year Noise Level without Project Leq(h), dBA[1]	Inside Design Year Noise Level with Project Leq(h), dBA[1]	Outside Design Year Noise Level with Project Leq(h), dBA[1]	Impact Type[4]	Noise Prediction with Barrier												
									8 feet		10 feet		12 feet		14 feet		16 feet				
									Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside	Leq(h) - Inside	Leq(h) - Outside		
R 67 C	S446	SFR	1	66 MOD	68	69	69	A/E	64	64	63	63	**61** T,R	**61** T,R	60	61	60	60		No
R 68A		SFR	1	64 MOD	66	67	68	A/E	64	64	62	63	**60** T,R	**60** T,R	60	60	59	59		
R 68	S452 Shoulder	SFR	2	65 MOD	66	68	69	A/E	64	64	63	64	**61** T,R	**61** T,R	60	60	60	60		No
R 69		MFR	8	65 MOD	68	68	68	A/E	64	64	63	64	**61** T,R	**61** T,R	60	60	60	60		
R 70 C		SFR	3	67 MOD	68	69	70	A/E	65	65	63	64	**61** T,R	**62** T,R	61	61	60	60		
R 70A		SFR	2	71 MOD	73	73	73	A/E	67	67	66	66	**63** T,R	**63** T,R	62	62	61	61		
R 71	S464 Shoulder & R/W	SFR	3	74 M,ST21	75	76	76	A/E	69	69	66	66	**65** T,R	**65** T,R	64	64	63	63		No**
R 71A		SFR	1	70 MOD	72	74	73	A/E	68	68	66 T	67 T	**64** R,5	**64** R,5	63	63	62	62		
R 72 C		SFR	3	74 MOD	75	76	76	A/E	70	70	68	68	**66** T,R	**66** T,R	65	65	64	64		
R 73		SFR	4	75 MOD	76	77	76	A/E	70	70	**68** T,R	**67** T,R	67	67	66	66	66	65		
R 83	S488 R/W	SFR	1	69 MOD	71	72	72	A/E	68	68	**66** T,R	**66** T,R	65	65	64	64	64	63		
R 84 C		SFR	6	73 M,ST24	75	76	76	A/E	69	69	**67** T,R	**67** T,R	66	66	65	65	65	65		No**
R 85		SFR	9	70 MOD	72	73	73	A/E	67	67	**65** T,R	**65** T,R	64	64	63	63	62	62		
R 86		SFR	2	68 MOD	69	71	71	A/E	65	64	**64** T,R	**63** T,R	63	63	62	62	61	61		
R 86A		SFR	2	62 MOD	63	65	64	NONE	61	61	61	61	61	61	61	60	60	60		
R 74	S471 Shoulder	SFR	1	59 MOD	61	62	64	NONE	60	62	60	61	60	61	60	61	59	61		
R 74B		SFR	1	70 MOD	71	72	72	A/E	**66** T,R	68 T	65	**67** R	64	66	64	66	63	66		No
R 74A		SFR	2	63 MOD	64	65	67	NONE	62	64	62	**61** T,R	61	61	60	60	60	60		
R 75 C		SFR	5	71 MOD	72	73	72	A/E	67	67	66	66	**64** T,R	**64** T,R	63	63	62	62		
R 76 K2		SFR	4	64 M,ST22	65	66	66	A/E	61	61	61	61	**59** T,R	**59** T,R	57	57	57	57		
R 77		SFR	3	67 MOD	68	69	69	A/E	65	65	63	64	**61** T,R	**61** T,R	60	60	59	59		
R 77A		SFR	2	67 MOD	68	68	68	A/E	65	65	64	64	62 T	63 T	**62** R,5	**62** R,5	60	60		
R 78		SFR	2	63 MOD	65	66	66	A/E	65	65	63	63	62 T	62 T	**61** R	**61** R	61	60		
R 78A		SFR	1	62 MOD	63	64	64	NONE	64	64	63	63	63	63	62	62	62	62		
R 79 W	--	SFR	3	64 MOD	65	66	67	A/E	---	---	---	---	---	---	65	65	64	64		
R 80 W		SFR	1	68 M,ST23	69	70	70	A/E	---	---	---	---	---	---	69	69	69	68		

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R 81 C	S489 Private Property	SFR	1	73 MOD	74	74	74	A/E	70 T	70 T	69	69	**69** R,5	**69** R,5	69	69	68	68		
R 82		MFR	3	67 MOD	68	69	69	A/E	66	66	65 T	65 T	**64** R	**64** R	63	64	63	63		No
R 82A		MFR	2	67 MOD	68	68	68	A/E	66	66	66	66 T	65	65	65	65	65	65		
R 87B	S520 R/W	SFR	1	62 MOD	62	64	64	NONE	61	61	61	61	61	60	60	60	60	60		
R 87A		SFR	1	63 MOD	64	65	65	NONE	62	61	61	61	61	60	60	60	60	60		No**
R 87		SFR	1	66 M,ST26	66	68	68	A/E	63	63	**62** T,R	**62** T,R	61	61	60	60	60	59		
R 88 C		SFR	6	73 MOD	73	75	75	A/E	67	68	**65** T,R	**66** T,R	64	64	63	63	62	62		
R 89		SFR	4	74 MOD	74	75	75	A/E	68	69	**66** T,R	**67** T,R	65	65	64	64	63	63		
R 90		SFR	5	70 MOD	70	72	72	A/E	66	66	**64** T,R	**64** T,R	64	63	63	63	62	62		
R 90A		SFR	4	66 MOD	66	68	68	A/E	63	63	**62** T,R	**62** T,R	61	61	61	61	60	60		
R 91		SFR	2	60 MOD	61	62	62	NONE	59	58	58	58	58	58	58	57	57	57		
R 92	S519 R/W	SFR	4	63 MOD	64	66	65	A/E	62	62	62 T	62 T	62	61	**61** R	61	61	61		
R 92A		MFR	4	69 MOD	70	71	71	A/E	65	65	64	64	63 T	**62** T,R	**62** R,5	62	61	61		No**
R 93 C		SFR	5	73 MOD	73	75	75	A/E	68	68	66 T	66 T	**65** R,5	**65** R,5	64	64	63	63		
R 94		SFR	6	75 M,ST25	75	76	76	A/E	70	70	68	68	**67** T,R	**67** T,R	66	65	65	65		
R 95		SFR	3	72 MOD	73	74	74	A/E	64 T	66 T	**64** R,5	**64** R,5	63	63	62	62	61	62		
R 96A		SFR	4	65 MOD	65	67	67	A/E	61 T	61 T	**61** R,5	**61** R,5	60	60	60	60	59	59		
R 96		SFR	5	63 MOD	64	65	65	NONE	61	61	**60** 5	**60** 5	60	59	59	59	59	58		
R 97		SFR	3	63 M,LT3	64	66	65	A/E	64	63	62 T	61	**60** R	**59** 5	59	58	58	58		
R 97A		SFR	4	65 MOD	66	68	68	A/E	64	64	64	64	**63** T,R	64 T	63	**63** R	63	63		
R 97B		MFR	1	69 MOD	70	72	71	A/E	70	70	70	70	70	69	70	69	70	69		

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R 98 C	S535 R/W	SFR	1	73 MOD	74	76	76	A/E	68 T	66 T	67	65	**66** R,5	**64** R,5	66	62	65	62	No*
R 98A **		MFR	3	66 MOD	66	68	68	A/E	65 T	65 T	64	64	**63** R	**63** R	62	62	61	61	
R 99 W		MFR	2	68 M,ST27	69	70	70	A/E	67 T	67 T	65	66	**65** R,5	**65** R	63	63	62	62	
R 100A	S549 Shoulder	SFR	2	65 MOD	66	67	67	A/E	62	62	**62** T,R	**61** T,R	60	60	60	60	59	59	No
R 100		MFR	8	65 MOD	66	67	67	A/E	62	62	**61** T,R	**62** T,R	61	61	60	61	60	60	
R 101		SFR	2	65 MOD	66	67	67	A/E	62	63	**60** T,R	**60** T,R	60	60	59	59	58	58	
R 102		SFR	5	67 M,ST28	67	69	69	A/E	64	64	63	63	**61** T,R	**61** T,R	60	60	60	60	
R 103 C		SFR	6	69 MOD	69	70	71	A/E	65	66	64	65	**63** T,R	**63** T,R	62	62	62	62	
R 104	--	MOT	1	62 MOD	62	64	64	None	--	--	--	--	--	--	--	--	--	--	

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2 - Land Use: SFR - single-family residence; MFR - multi-family residence; MH - mobile Home; MOT - motel/hotel; SCH - School; REC - recreational/park; REL - religious institution.

3 - M - Measured noise level; STxx or LTxx - measurement site number; INT - Interior; MOD - Modeled noise level using TNM.

4 - A/E = Approach or exceed NAC.; S = Substantial Increase (12 dBA or more)

5 - Barrier height needed to meet requirements at adjacent receptor(s).

6 - Traffic noise from the freeway only; other local noise sources are not included.

C - Critical design receiver.

R - The minimum height to meet feasibility requirements of Caltrans' Noise Abatement Criteria.

W - Existing private property wall or soundwall.

Z - Measurement or modeling purpose only: no outdoor use area.

K1 - A calibration factor of -3.5 dB is applied for this receptor and adjacent receptors with similar topographic features.

K2 - A calibration factor of -2.5 dB is applied for this receptor and adjacent receptors with similar topographic features.

* Retained for severe receptors

** Retained portion for severe receptors

*** Portions not reasonable

G - Garages providing traffic noise reduction.

T - Minimum height required to block the line-of-sight from the receptor to truck exhaust stacks.

H - Exterior modeling point for a motel: interior noise estimated using the modeled noise level at this point.

N - Non first row residences.

NN - Beachfront frequent outdoor use area.

Receptor Group 1 (R1-R3C)

Measurements taken at Receptors R1through R3 along Via Real on the west side of U.S. 101 indicate that the existing noise level ranges between 62 and 73 decibels. The predicted future noise level at these receptor locations with the project is predicted to range between 65 and 76 decibels. Six mobile homes in Rancho Granada Mobile Home Park are represented by Receptors R1 and R2. Receptors R3 through R3B cover 17 mobile homes and a community pool in San Roque Mobile Home Park. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), the homes represented by Receptors R1 through R3B would be adversely affected by noise.

Receptor Group 2 (R4-R7A)

Receptors R4 through R7A represent 31 dwellings extending from the Nipomo Drive neighborhood to the proposed Dahlia Court Apartment complex. Receptors R4 through R6 include 20 single-family residences. Receptor R7 includes five multi-family residences in the proposed Dahlia Court Apartment complex, and Receptor R7A represents six multi-family residences. Measurements taken at these receptors indicate existing noise levels range between 61 and 72 decibels. The future noise level at these receptors with the project is predicted to range between 64 and 74 decibels. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), the homes represented by Receptors R4 through R7A would be adversely affected by noise.

Receptor Group 3 (R8-R10)

Receptors R8 through R10 sit on the south side of U.S. 101 along Carpinteria Avenue between Franklin Creek and Santa Ynez Avenue. Receptor R8 represents 16 multi-family residences. Receptors R9 and R10 represent 14 multi-family residences, two commercial lots, and a Best Western Motel, respectively. Measurements taken at Receptors R8 through R10 indicate existing noise levels at that location range from 60 to 70 decibels. The future noise levels at these receptors with the project are predicted to be between 62 and 73 decibels. Receptors R8 and R9 are below the noise abatement criterion of 67 decibels. Because the predicted future noise level of 65 decibels does not approach or exceed the noise abatement criterion of 67 decibels, Receptor R8 and R9 would not be adversely affected by noise levels. Receptor R10 would exceed the noise abatement criteria of 67 decibels; however, it does not have a frequent outdoor use area directly facing the freeway and is not subject to the outdoor use threshold. No additional abatement is required.

Receptor Group 4 (R11-R13A)

Receptors R11 through R13A sit on the north side of U.S. 101 between Santa Ynez Avenue and Santa Monica Road. Thirteen single-family residences along Cramer Circle represented by Receptors R11 through R13A indicate existing noise levels range between 67 and 72 decibels. The future noise levels at these receptors with the project are predicted to be between 69 and 75 decibels. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), the homes represented by Receptors R11 through R13A would be adversely affected by noise.

Receptor Group 5 (R14)

Receptor R14 sits on the north side of U.S. 101 near the corner of Via Real and Santa Monica Road. Measurements taken at this single-family residence indicate existing noise levels at 63 decibels. The highest future noise level at this receptor with the project is predicted to be 66 decibels for the inside widening option. Because the predicted future noise level (66 decibels) approaches the noise abatement criterion (67 decibels) for residential uses, this receptor would be adversely affected by noise.

Receptor Group 6 (R15 and R17)

Receptors R15 and R17 sit north of U.S. 101 and west of Santa Monica Road. Receptor 15 is a Motel 6 and Receptor R17 is the Motel 6 swimming pool. Measurements indicate existing noise levels between 63 and 64 decibels. The future noise levels at these receptors with the project are predicted to be between 65 and 67 decibels. Because the predicted future noise level approaches and meets the noise abatement criterion for residential uses (67 decibels), these receptors would be adversely affected by noise.

Receptor Group 7 (R17A-R21)

Receptors 17A through R21 sit north of U.S. 101 and along Via Real to just west of Cravens Lane. Receptors 17A through R21 represent 18 multi-family residences and 14 mobile homes of the Sandpiper Mobile Village. Measurements taken for these receptors indicate existing noise levels between 68 and 74 decibels. The future noise levels at these receptors with the project are predicted to be between 70 and 76 decibels. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), these receptors would be adversely affected by noise.

Receptor Group 8 (R22-R27)

Receptors R22 through R27 sit on the south side of U.S. 101 and north of Santa Ynez Road. Thirteen single-family residences, 16 multi-family residences, and 28 mobile homes of the Sea Breeze Mobile Home Park are represented by Receptors R23 through R27. The Camino Real Apartments are represented by Receptor R22. Measurements taken between Receptors R22 and R27 indicated existing noise levels between 68 and 76 decibels. The future noise levels at these receptors with the project are predicted to be between 70 and 78 decibels. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), these receptors would be adversely affected by noise.

Receptor Group 9 (R28-R29A)

Receptors R28 though R29A sit on the south side of U.S. 101 near the intersection of Santa Claus Lane and South Padaro Lane. These receptors represent 24 single-family homes. Measurements taken between these receptors indicated existing noise levels between 54 and 66 decibels. The future noise levels at these receptors, with the project, are predicted to be between 56 and 67 decibels. Receptors R28A and R29A would not approach the exterior noise abatement criterion of 67 dBA. However, the homes represented by Receptors R28 and R29 meet the predicted future noise-level abatement criterion (67 decibels) for residential uses. These receptors would be adversely affected by noise.

Receptor Group 10 (R30-R35)

Receptors R30 through R35 represent 93 single-family homes on the south side of U.S. 101 along Padaro Lane. Measurements taken at these receptors indicated existing noise levels between 56 and 69 decibels. The future noise levels at these receptors with the project are predicted to be between 58 and 71 decibels. Because the predicted future noise level approaches (66 decibels) and exceeds the noise abatement criterion for residential uses (67 decibels), the homes represented by Receptors R30, R31, R32, R32A, R34, and R35 would be adversely affected by noise.

Receptor Group 11 (R36-R38)

Receptors R36, R37 and R38 represent eight residences along Padaro Lane south of U.S. 101. Measurements taken at these receptors indicated existing noise levels between 59 and 63 decibels. Future noise levels at these receptors with the project are predicted to be between 61 and 65 decibels. Because the predicted future noise levels of 65 decibels do not meet or exceed the noise abatement criteria, these receptors would not be affected by noise levels. No additional abatement is required.

Receptor Group 12 (R39A)

Receptor 39A is north of U.S. 101 along Via Real and represents one single-family residence. Measurements taken at this receptor indicated the existing noise level at 61 decibels. Future noise levels at this location with the project are predicted to be 67 decibels. Because the predicted future noise level meets the noise abatement criterion for residential uses (67 decibels), Receptor 39A would be adversely affected by noise.

Receptor Group 13 (39B)

Receptor 39B is on the north side of U.S. 101 just east of Nidever Road and represents one single-family residence. Measurements taken at this receptor indicated the existing noise level at 61 decibels. Future noise levels at this location, with the project, are predicted to be 64 decibels. Because the predicted future noise levels of 64 decibels does not approach or exceed the noise abatement criteria, Receptor R64 would not be adversely affected by noise levels.

Receptor Group 14 (R39-R43)

Receptors R39 through R43 north of U.S. 101 near the Serena Park Area represent 11 single-family residences, eight multi-family residences, and one frontage unit of a religious institution along Via Real. Measurements taken at these receptors indicated the existing noise levels between 63 to 73 decibels. Future noise levels at this location, with the project, are predicted to be between 66 and 72 decibels. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), residents represented by Receptors R39 through R42 would be adversely affected by noise.

Receptor Group 15 (R43A-R44)

Receptors R43A and R44 north of U.S. 101 near the intersection of Via Real and Ocean View Avenue represent 13 single-family residences. Measurements taken between these receptors indicated existing noise levels at 66 decibels. The future noise levels at these receptors, with the project, are predicted to be 69 decibels. Receptors R43A and R44 would approach or exceed the exterior noise impact criterion of 67 dBA. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), the homes represented by Receptors R43A and R44 would be adversely affected by noise. However, these receptors have an existing 10- to 14-foot-high soundwall providing abatement. This area was modeled for a 16-foot-high soundwall, but would not achieve a 5-decibel reduction required by the protocol. Therefore, the soundwall is not feasible and would not be built.

Receptor Group 16 (R45-R45A)

Receptors R45 and 45A are north of U.S. 101 near the intersection of Via Real and Toro Canyon Road. These receptors represent two single-family residences. Measurements taken at these receptors indicate that the existing noise levels are between 64 and 72 decibels. The future noise levels at these receptors, with the project, are predicted to be 66 and 74 decibels. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), these two residences would be adversely affected by noise.

Receptor Group 17 (R46)

Receptor R46 is north of U.S. 101 just west of Toro Canyon Road and represents one single-family residence. Measurements taken at this receptor indicated an existing noise level of 71 decibels. Future noise levels at this location, with the project, are predicted to be 74 decibels. Because the predicted future noise level meets the noise abatement criterion for residential uses (67 decibels), this receptor would be adversely affected by noise. Because this receptor has an existing soundwall providing abatement, no additional abatement is required.

Receptor Group 18 (R47A-R49)

Receptors R47 through R49 are north of U.S. 101 near the Southern California Substation. These receptors represent 20 single-family residences, 10 multi-family residences, and four frontage units of Oceanview Park. Measurements taken at these receptors indicate that existing noise levels between 56 and 71 decibels. Future noise levels at these receptors, with the project, are predicted to be between 58 and 73 decibels. Because the predicted future noise level either approaches or meets the noise abatement criterion for residential uses (67 decibels), receptors R47A, R47, R48A, R48, R48B, R49A, and R49 would be adversely affected by noise.

Second-row residences represented by Receptors R47B through R47D and R48C would neither approach nor exceed the noise abatement criteria of 67 decibels, so no noise abatement would be required for these receptors.

Receptor Group 19 (R50-RS4.10)

Receptors R50 through R53 are north of U.S. 101 in the neighborhood of Summerland Elementary School. These receptors represent a basketball court, 10 single-family residences, and two frontage units of Inn of Summer Hill. Measurements taken at these receptors indicate existing noise levels between 70 and 74 decibels. Future noise levels at these receptors, with the project, are predicted to be

between 72 and 76 decibels. There are a few non-first-row residences on Varley Street and Banner Avenue where future predicted peak hour traffic noise levels would approach or exceed the noise abatement criteria of 67 decibels. Because the predicted future noise level approaches or meets the noise abatement criterion for residential uses (67 decibels), Receptors R50 through RS1.1, RS1.2, RS1.4, R52, RS2.1-RS2.3, RS2.4, RS2.5, RS2.6, R53, RS3.1, RS3.2, RS3.3, RS3.7, R55, and RS4.1-RS4.10 would be adversely affected by noise. Receptor locations noted by "RS" indicate a second visit to the project site area for more measurements.

Severely Affected Receptors—The future exterior peak hour noise levels at 2535 and 2549 Varley Street that are represented by Receptor R50 would exceed 75 dBA; thus, these two residences would be considered severely affected. Soundwall S392 at the right-of-way line would not provide the 5-decibel reduction for these two severely affected receptors. Noise reduction would not meet the feasibility criterion because of the receptor's high elevations relative to U.S. 101. Therefore, either a soundwall on private property or acoustical treatment would still be considered for these two severely affected residences.

Receptor Group 20 (R57-RS6.15)

Receptors R57 and R58 are north of U.S. 101 near the intersection of Evans Avenue and Ortega Hill Road. These receptors represent 18 single-family and 14 multi-family residences. Measurements taken at these receptors indicate that the existing noise levels at these locations range between 53 to 72 decibels. The future noise levels at these receptors, with the project, are predicted to be between 55 and 74 decibels. Because the predicted future noise level approaches or exceeds the noise abatement criterion for residential uses (67 decibels), these residences would be adversely affected by noise.

Receptor Group 21 (R58A-R61B)

Receptors R58A to 61B are north of U.S. 101 near the Summerland Inn. These receptors represent 10 mobile homes, one frontage unit of Summerland Inn, and two multi-family residences. Measurements taken at these receptors indicate that the existing noise levels at that location are between 50 to 74 decibels. The future noise levels with the project are predicted to be between 52 and 75 decibels. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), the residences would be adversely affected by noise.

Receptor Group 22 (R62-R65)

Receptors R62 to R65 are south of U.S. 101 just east of Lookout Park on Finney Street. These receptors represent seven single-family residences. Measurements taken at these receptors indicate existing noise levels are between 54 to 66 decibels. Future noise levels, with the project, are predicted to be between 56 and 68 decibels. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), five single-family residences represented by R64A and two single-family residences represented by Receptor R65 would be adversely affected by noise. However, since the five single-family residences represented by R64A have garages and no frequent outdoor use areas directly facing the highway, these residences would be below the noise abatement criterion of 67 decibels.

Receptor Group 23 (R66)

Receptor R66 is south of U.S. 101 in the Lookout Park at Evans Avenue. Measurements taken at this receptor indicate an existing noise level of 61 decibels. The future noise level at Receptor R66, with the project, is predicted to be 63 decibels. Because the predicted future noise level of 63 decibels does not meet or exceed the noise abatement criteria, Receptor R66 would not be adversely affected by noise levels. No additional abatement is required.

Receptor Group 24 (R67)

Receptor R67 is north of U.S. 101 near the Sheffield off-ramp and represents one single-family residence. Measurements taken at this receptor indicate an existing noise level of 66 decibels. Future noise level, with the project, is predicted to be 69 decibels. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), the single-family residence represented by Receptor R67 would be adversely affected by noise.

Receptor Group 25 (R68A-R70)

Receptors R68A though 70 are north of U.S. 101 between Sheffield Drive and Loureyro Road. These receptors represent six single-family residences and eight multi-family residences of Villa de Montecito Apartments. Measurements taken at these receptor locations indicate the existing noise levels to be between 64 to 67 decibels. The future noise levels with the project are predicted to be between 67 and 70 decibels. Because the predicted future noise level for Receptors R68A through R70 exceeds the noise abatement criterion for residential uses (67 decibels), these receptors would be adversely affected by noise.

Receptor Group 26 (R70A-R73)

Receptors R70A though 73 are north of U.S. 101 between Loureyro Road and La Vuelta Road. Thirteen single-family residences are represented by Receptors R70A through R73. Measurements taken at these receptor locations indicate the existing noise levels to be between 70 to 75 decibels. The future noise levels with the project are predicted to be between 73 and 77 decibels. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), the residences would be adversely affected by noise.

Receptor Group 27 (R83-R86A)

Receptors R83 to R86A are the north of U.S. 101 near the orange grove at San Ysidro Road along North Jameson Lane. Twenty single-family residences are represented by Receptors R83 through R86. Measurements taken at these receptor locations indicate the existing noise levels to be between 62 to 73 decibels. The future noise levels with the project are predicted to be between 65 and 76 decibels. Because the predicted future noise level, except for those receptors represented by R86A, exceeds the noise abatement criterion for residential uses (67 decibels), the residences would be adversely affected by noise.

Receptor Group 29 (R74-R80)

Receptors R74 though R80 are south of U.S. 101 along Fernald Point Lane. Twenty-five single-family residences are represented by Receptors R74 through R80. Measurements taken at these receptor locations indicate the existing noise levels to be between 59 to 71 decibels. The future noise levels with the project are predicted to be between 62 and 73 decibels. Because the predicted future noise level approaches or exceeds the noise abatement criterion for residential uses (67 decibels), the residences would be adversely affected by noise.

Receptor Group 30 (R81-R82A)

Receptors R81 to R82A are south of U.S. 101 and just west of Posilipo Lane. One single-family residence is represented by Receptor R81, and five multi-family units are represented by Receptors R82 and R82A. Measurements taken at these receptors indicate that the existing noise levels at these locations are between 67 and 73 decibels. The future noise levels at these receptors with the project are predicted to be between 68 and 74 decibels. Because the predicted future noise level exceeds the noise abatement criterion for residential uses (67 decibels), the residences would be adversely affected by noise.

Receptor Group 31 (R87B-R91)

Receptors R87B though R91 are north of U.S. 101 along North Jameson Lane from San Ysidro Road to Olive Mill Road. Twenty-four single-family residences are represented by Receptors R87B through R91. Measurements taken at these receptors indicate that the existing noise levels at these locations are between 60 and 74 decibels. The future noise levels at these receptors with the project are predicted to be between 62 and 75 decibels. Because the predicted future noise levels for Receptors R87, R88, R89, R90, and R90A exceed the noise abatement criterion for residential uses (67 decibels), the residences would be adversely affected by noise.

Receptor Group 32 (R92-R97B)

Receptors R92 through R 97B are south of U.S. 101 from Eucalyptus Lane to Olive Mill Road. Thirty-four single-family and five multi-family residences are represented by Receptors R92 through R97A. Measurements taken at these receptors indicate that the existing noise levels at these locations are between 63 and 75 decibels. The future noise levels at these receptors with the project are predicted to be between 65 and 76 decibels. Because the predicted future noise levels for all receptors, except for R96, approach or exceed the noise abatement criterion for residential uses (67 decibels), the residences would be adversely affected by noise.

Receptor Group 33 (R98-R99)

Receptors R98, R98A, and R99 are south of U.S. 101 and immediately west of Olive Mill Road. These receptors represent one single-family and five multi-family residential units. Measurements taken at these receptors indicate that the existing noise levels at these locations are between 66 and 73 decibels. The future noise levels at these receptors with the project are predicted to be between 68 and 76 decibels. Because the predicted future noise levels exceed the noise abatement criterion for residential uses (67 decibels), the residences would be adversely affected by noise.

Receptor Group 34 (R100A-R103)

Receptors R100A through R103 are south of U.S. 101 and west of Olive Mill Road to Butterfly Lane. Fifteen single-family and eight multi-family residences are represented by Receptors R100A through R103. Measurements taken at these receptors indicate that the existing noise levels at these locations are between 65 and 69 decibels. The future noise levels at these receptors with the project are predicted to be between 67 and 71 decibels. Because the predicted future noise levels exceed the noise abatement criterion for residential uses (67 decibels), the residences would be adversely affected by noise.

Receptor Group 35 (R104)

Receptor R104 is north of the U.S. 101 on Coast Village Road and west of Olive Mill Road and represents the Montecito Inn. Measurements taken at this receptor indicate the existing noise level at this location is 62 decibels. Future noise levels at this receptor with the project are predicted to be 64 decibels. Because the predicted future noise levels of 64 decibels do not approach or exceed the noise abatement criteria, the Montecito Inn would not be affected by noise levels. No additional abatement is required.

Soundwall Mapping

Figures 2-22 to 2-32 show the locations of proposed soundwalls. The figures also show whether or not the soundwalls are recommended for construction based on financial reasonableness or feasibility.

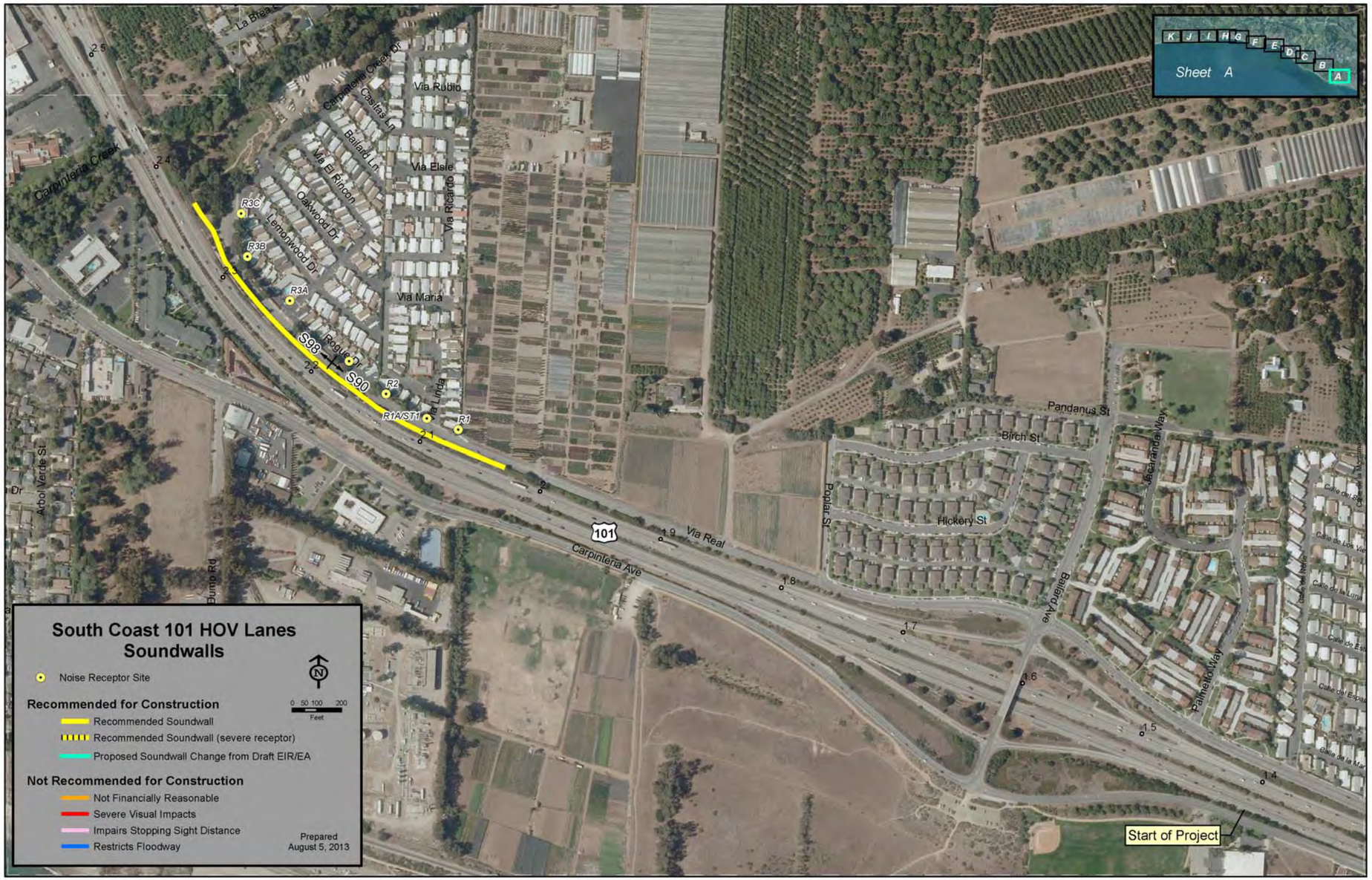

Figure 2-22 Proposed Soundwall Locations

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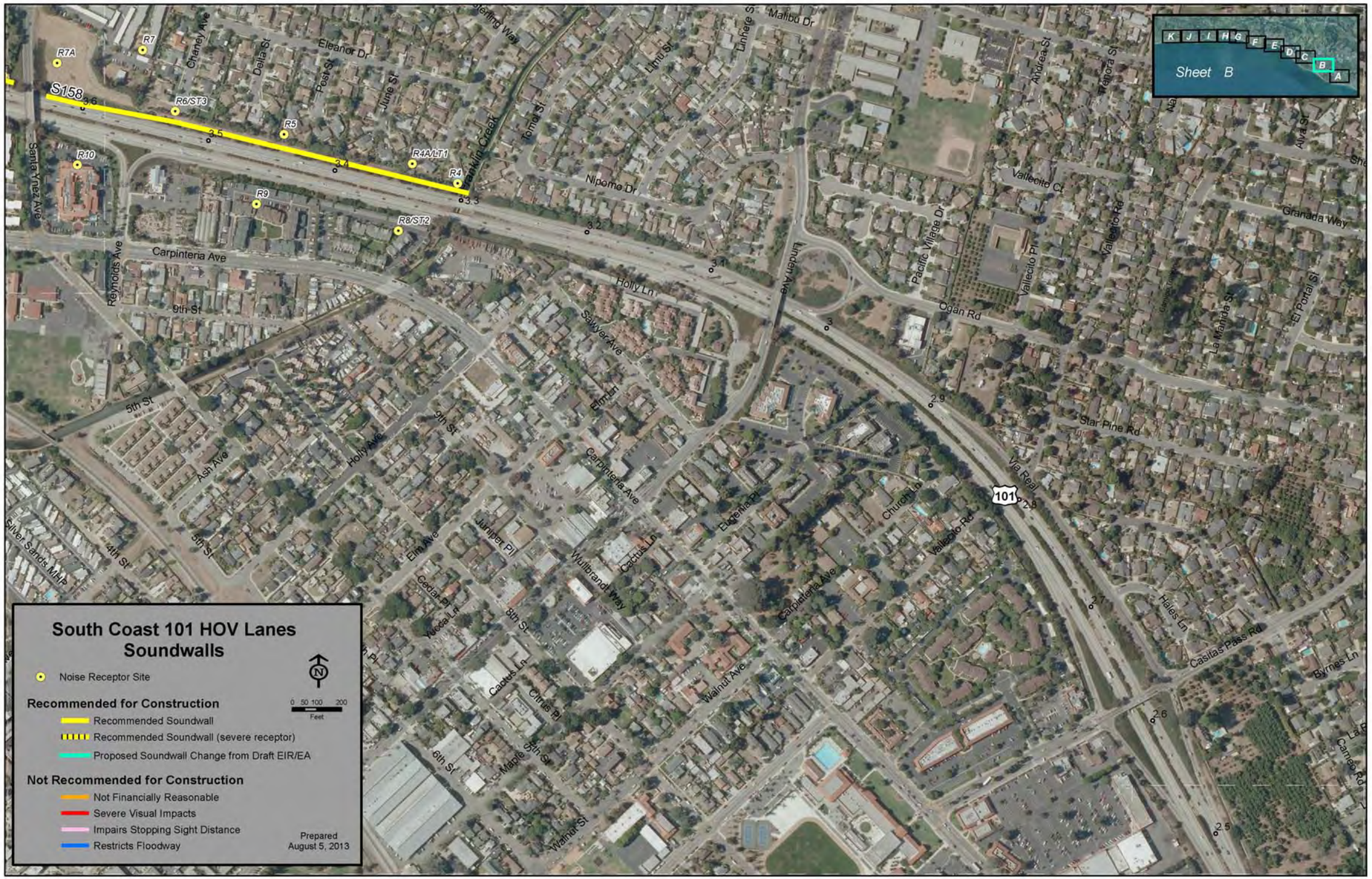

Figure 2-23 Proposed Soundwall Locations

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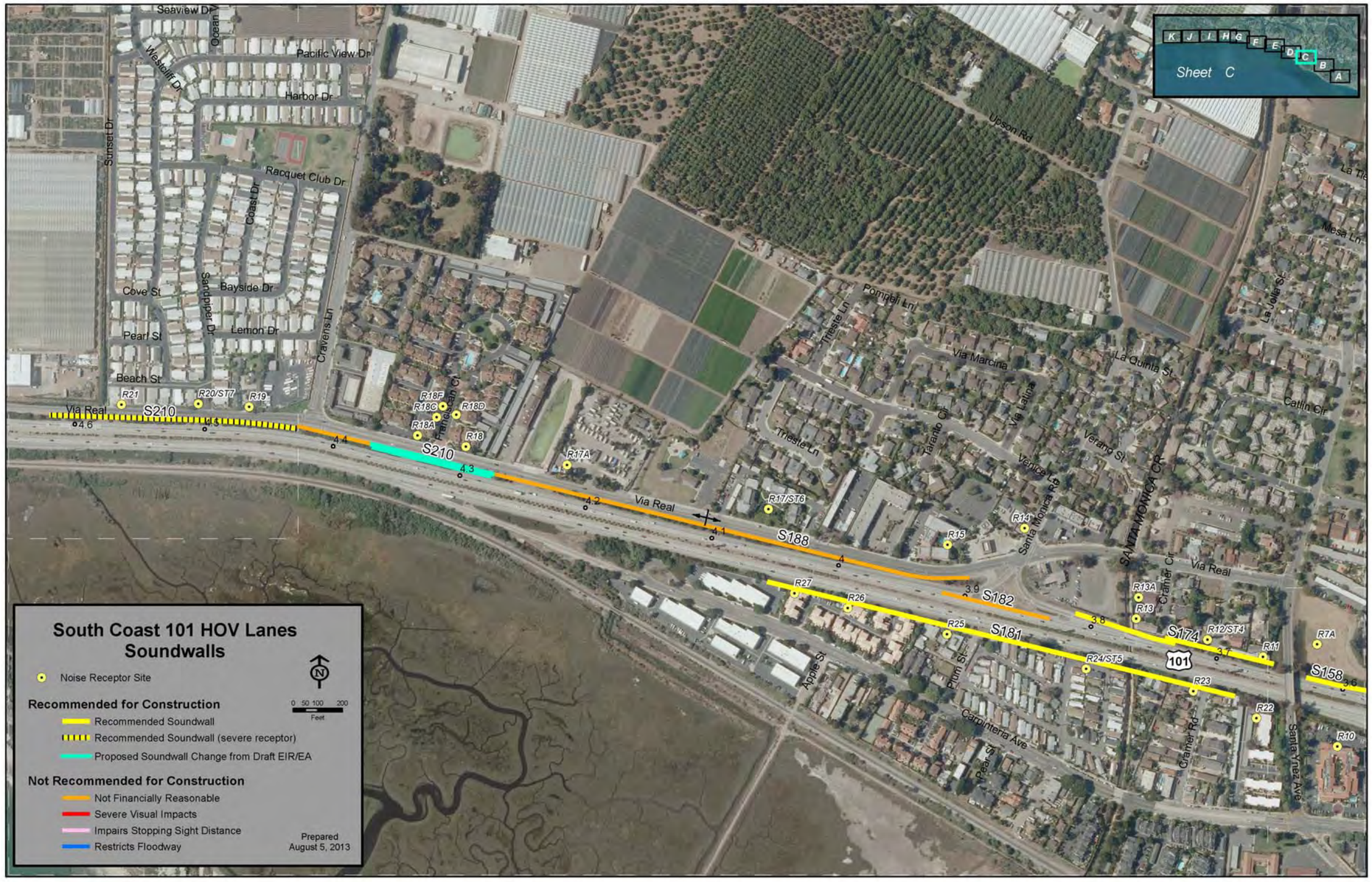

Figure 2-24 Proposed Soundwall Locations

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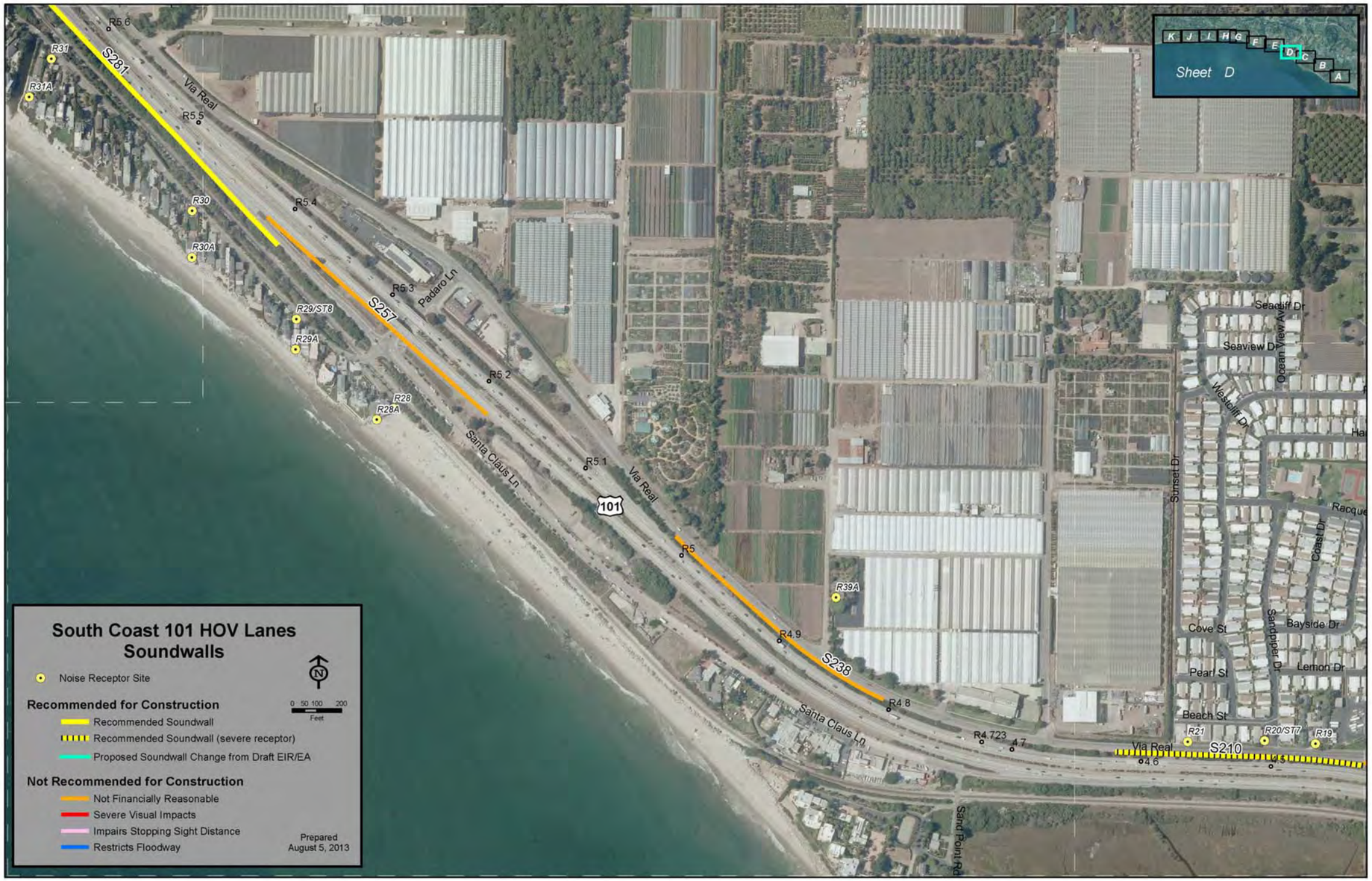

Figure 2-25 Proposed Soundwall Locations

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Figure 2-26 Proposed Soundwall Locations

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Figure 2-27 Proposed Soundwall Locations

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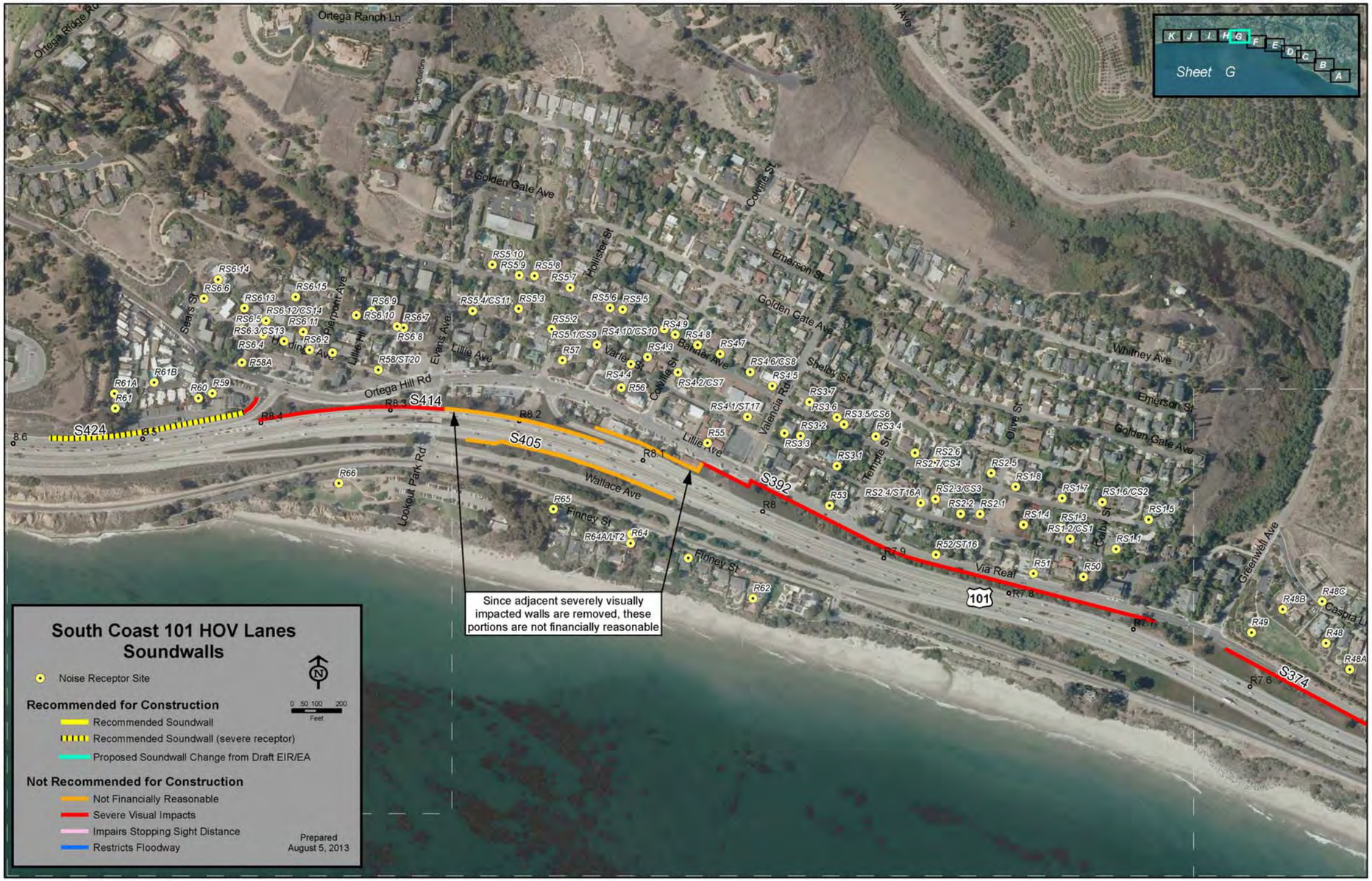

Figure 2-28 Proposed Soundwall Locations

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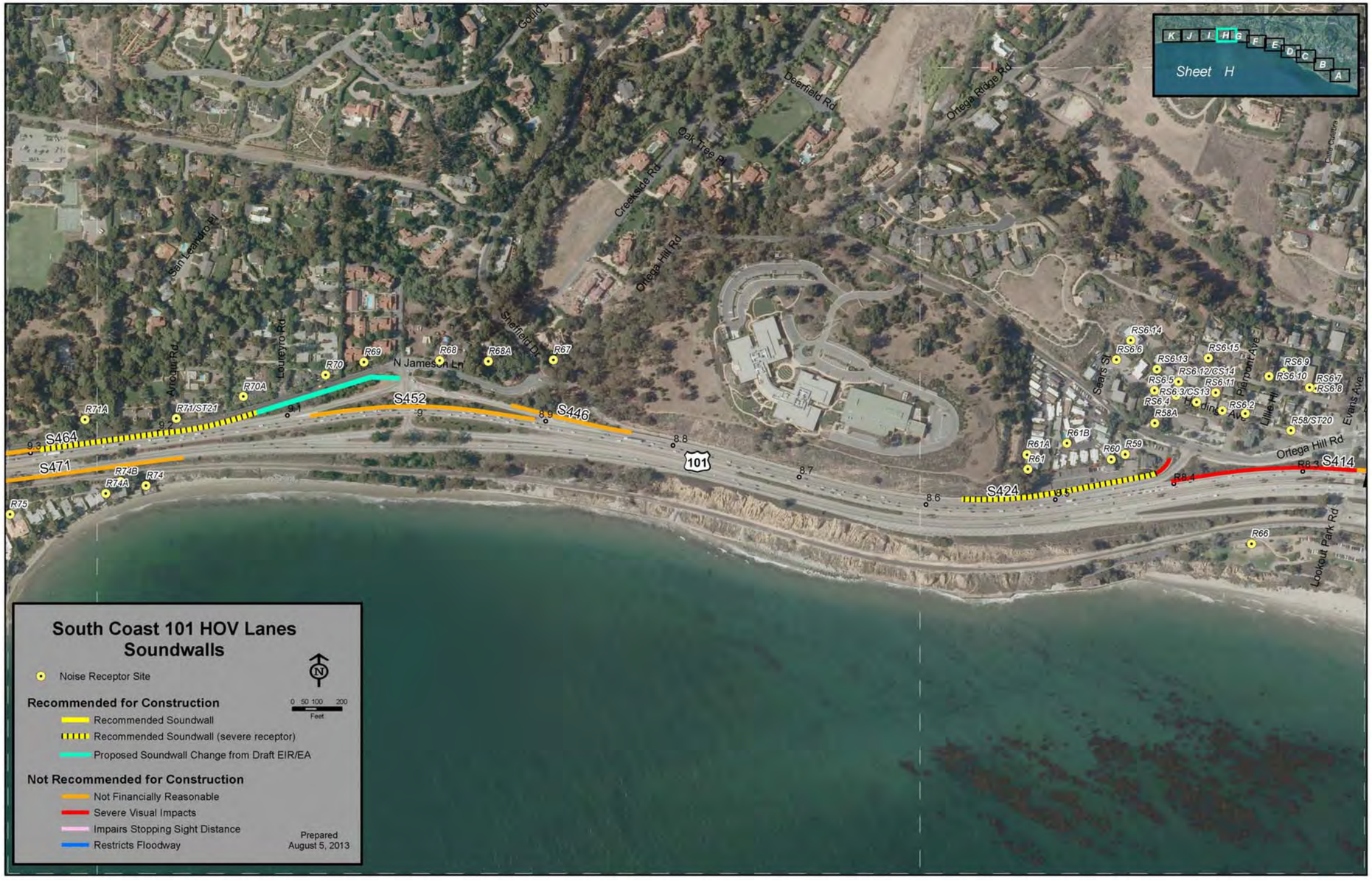

Figure 2-29 Proposed Soundwall Locations

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Figure 2-30 Proposed Soundwall Locations

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Figure 2-31 Proposed Soundwall Locations

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Figure 2-32 Proposed Soundwall Locations

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

Under the National Environmental Policy Act, 23 Code of Federal Regulations 772, noise abatement is considered when a substantial increase is identified or when the existing or future noise levels approach or exceed the noise abatement criteria of 67 dBA for residential uses and 72 dBA for commercial uses. A substantial increase is triggered when a build alternative in the design year increases noise levels by at least 12 dBA. Based on noise modeling conducted for this project, a maximum 3-dBA increase between existing noise levels and the future design year build alternative would result at any receptor location, a change which is barely perceptible to the human ear. As indicated in Table 2.37, 27 of the 35 receptor groups are anticipated to approach or exceed the noise abatement criteria (67 dBA), though no substantial (12 dBA) increase was identified. The Federal Highway Administration and Caltrans do not generally provide noise abatement for commercial receptors.

Noise Abatement Decision

The Caltrans Noise Analysis Protocol requires a District Noise Abatement Criteria Decision Report during the environmental process to document the following:

- Noise abatement reasonableness allowances
- Acoustic feasibility of noise abatement
- Locations and dimensions of evaluated noise barriers
- Engineering estimates of acoustically feasible noise abatement
- Other construction considerations related to noise barriers such as known utilities
- Effects of abatement on other environmental resources such as scenic views, biological habitats, and floodplains

The noise abatement recommendation identified in the Noise Abatement Decision Report becomes the proposed noise abatement decision unless compelling information received during the public review or the final design process indicates that it should be changed. If changes for proposed noise abatement occur during the public review process for the draft environmental document, the final noise abatement decision is indicated in the final environmental document.

The preliminary noise abatement decision presented in the Noise Abatement Decision Report is based on preliminary project alignments and profiles, which may be subject to change. Therefore, the physical characteristics of noise abatement described herein also may be subject to change. If pertinent parameters change substantially during the final project design, the preliminary noise abatement decision may be changed or eliminated from the final project design. A final decision to construct noise abatement would be made upon completion of the project design.

Part of the determination for proposing noise abatement is that noise abatement must also be considered feasible and reasonable. To be considered feasible, it must achieve a minimum of at least a 5-dBA reduction. To be considered reasonable, the cost of the noise abatement measure must not exceed the cost allowance, determined by the number and type of affected properties. In addition, the final decision to include soundwalls in the proposed project design may also consider reasonableness factors such as safety, biological resources, scenic resources, floodway issues[10], and information developed during the design and public review process. Furthermore, the views of affected residents would be a major consideration in reaching a decision on the reasonableness of abatement measures to be provided.

Soundwall Polling and Local Jurisdiction Approval

Feedback received during the public comment period indicated broad support by adjacent property owners for the soundwalls recommended as part of the project. Based on this input, all soundwalls that met the reasonable and feasible criteria are recommended for construction. The proposed noise abatement measures could change or may not be provided if the project changes substantially during the design phase, if more than 50 percent of affected property owners do not support a wall, or revisions occur as part of the coastal development permitting process. More detailed information will be included in the voting mailer that will be distributed to residents affected by recommended soundwalls.

In the design and permitting phase, additional polling of affected property owners will be conducted for each reasonable and feasible soundwall to ensure that a

[10] Soundwalls sections cannot be proposed within the floodway portion of the 100 year floodplains until further detailed analysis is conducted during the design phase of the project. The floodway is the deepest “center” section of flooding. The outside “edges” of 100 year flood plains are much shallower and are anticipated to be accommodated with floodgates or staggered floodwalls without causing additional flooding on adjacent properties.

majority of affected property owners supports construction of the wall. A proposed soundwall will not be built if a majority (greater than 50 percent) of the affected property owners does not want it. Soundwall-specific property owner polling is expected to occur when design work within that area is underway and prior to obtaining the Coastal Development Permit (CDP) within that area.

Final approval of soundwalls will also depend on the local Coastal Development Permit process, during which time the cities and the county may consider the benefits of proposed soundwalls in relation to local coastal policies, such as those protecting visual resources. Soundwall design and associated landscaping will also be subject to review and approval by the local design review boards.

Severe Receptors and Noise Abatement

A severe noise impact is considered to occur when predicted exterior noise levels equal or exceed 75 dBA-Leq(h) or are 30 dB or more above existing noise levels. Soundwalls were proposed to protect severe receptors (where they could be benefited by 5 dba or more) at locations that could be constructed without causing severe visual impacts or impeding into a floodway. Walls were proposed for severe receptors even in cases where the wall did not meet the financial reasonableness test (this exception to the financial reasonableness test is provided via the 2006 Federal Noise Protocols).

This resulted in all severe receptors being protected by soundwalls in all but eight locations. Four of the eight locations are in the community of Summerland. Two locations were behind a wall that was not proposed due to severe visual impacts, and two were behind a wall that would not benefit them by 5 dbA. (This wall was not proposed for construction because it was not financially reasonable and it did not benefit severe receptors.) The other four are in Montecito where walls could not be constructed due to floodway constraints. At these eight locations, options for providing acoustical treatments or constructing soundwalls on private or County-owned property will be further explored in the design phase (none of which are considered historic properties). Typical treatments include retrofitting windows and doors and adding air conditioning units. Depending on the circumstances, the cost of these features would normally be limited to the property-specific reasonableness allowance.

Consideration of location-specific treatment measures will occur through coordination with the severe receptor property owners. Initial contact with qualifying

property owners by Caltrans is expected to occur when design work within that area is underway and prior to obtaining the Coastal Development Permit (CDP) within that area.

Table 2.37 lists the soundwalls that meet the feasible and reasonable criteria and are currently recommended for construction.

Table 2.37 Soundwalls Recommended for Construction

Soundwall	Height (ft)	Length (ft)	Figure #	Notes*
S90/S98	10 - 14	1750	2-21	-
S158	10 - 12	1800	2-22/23	-
S174	12	895	2-23	-
S181	10	1981	2-23	6
S210	10 - 14	780 & 1000	2-23/24	1, 5, 6
S281	12	1780	2-24/25	6
S310	12	1250	2-25	-
S424	14 - 16	800	2-27/28	3, 4
S464	10 - 13	735 & 1450	2-28/29	1, 2, 5, 6, 7
S498	8 - 10	1525	2-29	1, 6, 7
S519	12	2169	2-29/30	1, 6
S520	8 - 10	1800	2-29/30	1, 6
S535	12	499	2-30	-
S549	10 - 12	1705	2-30	1

*Notes:

1) Added or lengthened as a result of the re-evaluation following public review period.
2) Lengthened due to changes in FEMA floodway mapping.
3) Clear see-through acoustic panels would be installed above the10 ft height of wall.
4) Soundwall shortened to protect prime ocean views
5) Soundwall split into two sections
6) Soundwall will have floodgates or staggered floodwalls to prevent additional flows
7) Severe receptors left without soundwall

Receptor Group 1 (R1-R3C)

Soundwalls S90/S98

Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of a noise barrier. To achieve a 5-decibel reduction, a 10- to 14-foot-high noise wall about 1,750 feet long would be needed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $1,164,000. The current estimated cost of the soundwall is $1,125,932. Because the total cost of the soundwall at this location is less than the total cost allowance, the barrier is feasible and reasonable in accordance with the Caltrans *Traffic Noise Analysis Protocol* and is recommended for construction.

Receptor Group 2 (R4-R7A)

Soundwall S158

Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of a noise barrier. To achieve a 5-decibel reduction, a 10- to 12-foot-high noise wall about 1,800 feet long would be needed and would tie into the proposed 12-foot-high soundwall that is planned for the Linden Avenue and Casitas Pass Road interchange project at Franklin Creek. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $1,326,000. The current estimated cost of the soundwall is $902,400. Because the total cost of the soundwall at this location is less than the total cost allowance, the barrier is feasible and reasonable in accordance with the Caltrans *Traffic Noise Analysis Protocol* and is recommended for construction.

Receptor Group 4 (R11-R13A)

Soundwall S174

Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of a noise barrier. To achieve a 5-decibel reduction, a 12-foot-high noise wall about 895 feet long would be needed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $636,000. The current estimated cost of the soundwall is $505,344. Because the total cost of the soundwall at this location is less than the total cost allowance, the noise barrier is feasible and reasonable in accordance with the Caltrans *Traffic Noise Analysis Protocol* and is recommended for construction.

Severely Affected Receptors—Two single-family residences, 1362 and 1364 Cramer Circle, represented by Receptor R13 would experience a predicted peak hour noise of

75 dBA without a barrier in place; these residences would be considered severely affected and a 985-foot-long soundwall would be recommended for construction. If during the Coastal Development Permit review process this wall is rejected, providing acoustical treatment on private property will be considered for these severely affected residences.

Receptor Group 5 (R14)

Soundwall S182

To achieve a 5-decibel reduction, a 16-foot-high noise wall about 450 feet long would be needed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $45,000. The current estimated cost of the soundwall is $338,400. Because the cost of the soundwall is more than the allowance, a noise barrier at this location is not considered financially reasonable and would not be built.

Receptor Group 6 (R15 and R17)

Soundwall S188

To achieve a 5-decibel reduction, a 12-foot-high noise wall about 1,100 feet long would be needed. The total cost allowance, calculated in accordance with the Caltrans Traffic *Noise Analysis Protocol*, is $70,000. The current estimated cost of the soundwall is $620,400. Because the cost of the soundwall is more than the allowance, a noise barrier at this location is not considered financially reasonable and would not be built.

Receptor Group 7 (R17A-R21)

Soundwall S210

To achieve a 5-decibel reduction, a 10- to 14-foot-high noise wall about 2,750 feet long was originally analyzed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, was $1,014,000. The estimated cost of the soundwall was $1,438,200. Because the cost of the soundwall was more than the allowance, a noise barrier at this location was not considered financially reasonable and would not be constructed except for severely affected receptors.

Following public circulation of the draft environmental document, Caltrans staff reevaluated Soundwall S210 to identify any residential units that may not have been previously counted and to identify areas of high-density development where shorter

sections might be financially reasonable. Based on the reevaluation, two additional segments were identified: Casa de Las Flores and Franciscan Village.

Casa de Las Flores

Casa de Las Flores, a high-density residential development, had a 330-foot-long frontage with a second row of benefitted receptors (recreation space, represented by Receptor R17c) with three frontage units not originally identified. There were also two additional buildings with four benefitted receptors, each represented by Receptor R17B. The total number of benefitted receptors is 11. To achieve a 5-decibel reduction for the above receptors, both walls must be built as a system and evaluated as one continuous wall. A 12-foot-high noise wall 1,100 feet long would be needed to benefit the 11 receptors at Casa de Las Flores. The current estimated cost of the soundwall is $620,400. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $407,000. Because the cost of the soundwall is more than the allowance, a noise barrier at this location is not considered financially reasonable and would not be recommended for construction.

Franciscan Village

A second segment of Soundwall S210 was evaluated along the 500-foot-long frontage of Franciscan Village, a high-density residential development. It was determined a second and third row of benefitted receptors (represented by the receptors R18c, R18D, and R18F) had not been originally identified. This raised the number of identified benefitted receptors to 14. To achieve a 5-decibel reduction, a 14-foot-high soundwall along a 500-foot-long frontage would be needed to benefit the 14 receptors in Franciscan Village. Meeting this criterion would require building a 780-foot-long staggered wall or a soundwall with floodgates. The current estimated cost of the soundwall is $513,240. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $714,000. Because the cost of the 780-foot-long soundwall is less than the cost allowance, a noise barrier is considered feasible and reasonable. Therefore, the wall is recommended for construction. Because this location is also within the 100-year floodplain, the wall would be designed to pass flood flows to avoid raising base flood elevations.

Severely Affected Receptors—The future exterior peak hour noise levels at seven first row mobile homes in The Sandpiper Mobile Village that are represented by Receptor R21 would exceed 75 dBA without a barrier in place; these receptors would

be considered severely affected. Therefore, a 1,000-foot-long soundwall is recommended for construction.

Receptor Group 8 (R22-R27)

Soundwall S181

Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of a noise barrier. To achieve a 5-decibel reduction, a 10-foot-high noise wall about 1,981 feet long would be needed for Receptors R23 through R27. There is an existing 6-foot-high soundwall on top of a 6-foot-high berm (earthen wall) in front of Receptor 22. Raising this soundwall to the combined height of 16 feet would not provide the additional 5-decibel reduction required by the protocol. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $1,968,000. The current estimated cost of the soundwall is $931,070. Because the total cost of the soundwall at this location is less than the total cost allowance, the barrier is feasible and reasonable in accordance with the Caltrans *Traffic Noise Analysis Protocol* and is recommended for construction. Because this location is also within the 100-year floodplain, the wall would be designed to pass flood flows and not raise base flood elevations.

Severely Affected Receptors—The future peak hour traffic noise levels at five single-family residences—1094 and 1097 Cramer Road, 4484 Carpinteria Avenue, 1041 and 1043 Plum Street—and 11 first row mobile homes of Sea Breeze Mobile Homes would exceed 75 dBA without a barrier in place; these receptors would be considered severely affected. Therefore, a 1,981-foot-long soundwall is recommended for construction.

Receptor Group 9 (R28-R29A) and Receptor Group 10 (R30-R35)

Soundwall S257 and S281

To achieve a 5-decibel reduction for the above receptors, both walls were evaluated as a system and as a stand-alone wall. Under the scenario where the two walls are evaluated as a system, if portions of Soundwall S281 are not built, Soundwall S257 will not be cost-effective. This is due to the additional costs associated with the lower density development at the southern end of Padaro Lane. See the analysis for each wall evaluated individually on the next page.

Receptor Group 9 (R28-R29A)

Soundwall S257

To achieve a 5-decibel reduction for Receptors R28 and R29, a 12-foot-high noise wall about 1,200 feet long would be needed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $540,000. The current estimated cost of the soundwall is $1,438,000. Because the cost of the soundwall is more than the allowance, a noise barrier at this location is not considered financially reasonable and would not be built.

Receptor Group 10 (R30-R35)

Soundwall S281

Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of a noise barrier. To achieve a 5-decibel reduction for Receptors R30, R31, R32, R32A, and R35, a 12-foot-high noise wall about 5,200 feet long would be needed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, ranges from $3,196,000 to $3,290,000. The current estimated cost of the soundwall is $12,386,236. Only a portion of Soundwall S281 could be proposed for construction due to the center portion of the wall being dropped for safety reasons when it was determined it would have blocked “stopping sight distance” for traffic. The total cost allowance for the remaining 1,780 feet portion is $1,504,000. The current estimated cost of the soundwall is $1,443,306. Because the total cost of the soundwall portion at this location is less than the total cost allowance, the barrier portion is feasible and reasonable in accordance with the Caltrans *Traffic Noise Analysis Protocol* and is recommended for construction. Because this location is also within the 100-year floodplain, the wall would be designed to pass flood flows and not raise base flood elevations.

Following public circulation of the draft environmental document, Caltrans staff reevaluated Soundwall S281 focusing on high-density development areas located behind the wall to identify short sections that might be financially reasonable. No additional locations were found to be financially reasonable. The remaining portion of Soundwall S281 was determined to be financially reasonable as a stand-alone wall segment.

Receptor Group 12 (R39A)

Soundwall S238

To achieve a 5-decibel reduction for Receptor R39A, a 14-foot-high noise wall about 1,100 feet long would be needed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $45,000. The current estimated cost of the soundwall is $723,800. Because the cost of the soundwall is more than the allowance, a noise barrier at this location is not considered financially reasonable and would not be built.

Receptor Group 14 (R39-R43)

Soundwall S310

Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of a noise barrier. To achieve a 5-decibel reduction, a 12-foot-high noise wall about 1,250 feet long would be needed and would tie into the existing soundwall protecting the Serena Park area. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, ranges from $867,000 to $918,000. The current estimated cost of the soundwall is $705,000. Because the total cost of the soundwall at this location is less than the total cost allowance, the barrier is feasible and reasonable in accordance with the Caltrans *Traffic Noise Analysis Protocol* and is recommended for construction.

***Receptors without Abatement*—**The future peak hour noise levels at two residences represented by Receptors R42A and R43 would exceed the noise abatement criteria of 67 dBA; however, Soundwall S310 would not provide the required 5-decibel noise reduction for these residences. The eastern portion of the existing Serena Park soundwall is already providing some noise reduction and building Soundwall S310 would not provide an additional 5-decibel reduction. Since soundwall S310 is recommended for construction, these two residences would receive a noise reduction of as much as 4 dBA.

Receptor Group 16 (R45-R45A)

Soundwall S334

To achieve a 5-decibel reduction for Receptors R45 and R45A, a 12-foot-high noise wall about 325 feet long would be needed and could tie into the western end of the existing soundwall protecting the Serena Park area. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $47,000. The current estimated cost of the soundwall is $183,300. Because the cost of

the soundwall is more than the allowance, a noise barrier at this location is not considered financially reasonable and would not be built.

Receptor Group 18 (R47A-R49)

Soundwall S374

To achieve a 5-decibel reduction for Receptors R47, R47A-D, R48, R48A-C, R49, and R49A, a 14-foot-high noise wall about 1,300 feet long was originally analyzed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, was $444,000. The estimated cost of the soundwall was $855,400. Because the cost of the soundwall was more than the allowance, a noise barrier at this location was not considered financially reasonable and would not be built.

Because the predicted future noise level approaches 66 decibels and exceeds the noise abatement criterion for residential uses (67 decibels), Receptors R47, R47A, R48A, R48B, and R49A would be adversely affected by noise. The future peak hour noise levels at two single-family residences and four multi-family residential units, represented by Receptors R48 and R48B, respectively, would also exceed the noise abatement criteria of 67 decibels; however, a soundwall would not provide feasible noise abatement for these residences due to their high elevation relative to the highway. Similarly, a portion of Oceanview Park that is adjacent to Greenwell Avenue, represented by Receptor R49, would not receive noise attenuation because of its elevation in relation to the highway.

Following public circulation of the draft environmental document, Caltrans staff reevaluated this soundwall to identify residential units that may not have been previously counted and to identify areas of high-density development where shorter sections might be financially reasonable. Based on this reevaluation, seven additional 100-foot-long frontage units in the park had not been included in the Noise Study Report. These units are represented by new modeling points at Receptor R49.1 and Receptor R49.2. Furthermore, because Receptor R49.2 would equal or exceed 75 dBA, it was determined to be a severe receptor. To achieve a 5-decibel reduction for the front row homes and most of the park, a 14-foot-high soundwall about 1,300 feet long would be needed to benefit the 19 receptors. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $817,000. The current estimated cost of the soundwall is $855,400. Because the cost of the soundwall is more than the allowance, a noise barrier at this location is not considered financially reasonable and would not be built. Furthermore, the Project Development

Team would not have recommended this soundwall because the wall would block prime ocean views from a public roadway, resulting in severe visual impacts.

Severely Affected Receptors—The future peak hour traffic noise levels at two frontage units (200 feet of the public park) represented by Receptor R49.2, would also equal or exceed 75 dBA without a barrier in place; these receptors would be considered severely affected. For these residents where a severe receptor is present with no proposed soundwall, providing acoustical treatment on private property or constructing a soundwall on county property will be considered. Alternative proposals would be done in coordination with the property owner. Acoustical treatment on private property might include insulation, dual-paned windows, air conditioning or private walls.

Receptor Group 19 (R50-R56), Receptor Group 20 (R57-R58), and Receptor Group 21 (R58A-R61B)

Soundwall S392, S414, and S424

To achieve a 5-decibel reduction for the above receptors, all three walls must be built as a system. Therefore, they must be evaluated as one continuous wall. If, however, portions of Soundwall S392, Soundwall S414, and Soundwall S424 are not built because they block prime coastal views, the remaining portions of S392, S414, and S424 will not be cost-effective because the receptors near the ends of the walls would no longer be benefitted.

Receptor Group 19 (R50-R56)

Soundwall S392

To achieve a 5-decibel reduction, a 14- to 16-foot-high noise wall about 2,402 feet long would be needed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $1,887,000. The current estimated cost of the soundwall is $1,740,504. Because the total cost of the soundwall at this location is less than the total cost allowance, the noise barrier could be feasible and reasonable in accordance with the Caltrans *Traffic Noise Analysis Protocol.* However, the Project Development Team did not recommend building the portion of this soundwall that would block prime ocean views, resulting in severe visual impacts. As a result, the remaining portion of S392 is not financially reasonable and cannot be recommended for construction.

Severely Affected Receptors—Future exterior peak hour noise levels at 2535 and 2549 Varley Street, represented by Receptor R50, would also equal or exceed 75 dBA without a barrier in place. Because of their high elevation relative to U.S. 101, noise abatement along the highway would not provide the 5-decibel reduction for these two residences. For these residents where severe receptors are present with no proposed soundwall, providing acoustical treatment on private property or soundwalls on county property, if appropriate, will be considered in coordination with the property owner. Acoustical treatment on private property might include insulation, dual-paned windows, air conditioning or private walls.

Receptor Group 20 (R57-R58)

Soundwall S414

To achieve a 5-decibel reduction for Receptors R57, RS5.1-RS5.10, R58, and RS6.1-RS6.15, a 16-foot-high noise wall about 1,427 feet long would be needed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $2,401,000. The current estimated cost of the soundwall is $1,073,104. Because the total cost of the soundwall at this location is less than the total cost allowance, the noise barrier could be reasonable in accordance with the Caltrans *Traffic Noise Analysis Protocol*. However, the Project Development Team did not recommend building the portion of this soundwall that would block prime ocean views, resulting in severe visual impacts. As a result, the remaining portion of S414 continues to be not financially reasonable and cannot be recommended for construction.

Receptor Group 21 (R58A-R61B)

Soundwall S424

To achieve a 5-decibel reduction for Receptors R58A, R59, R60, R61, R61A, and R61B, a 14- to 16-foot-high noise wall about 864 feet long would be needed. The total cost allowance, calculated in accordance with the Caltrans' *Traffic Noise Analysis Protocol*, is $490,000. The current estimated cost of the soundwall is $615,512. Because the cost of the soundwall is more than the allowance, a noise barrier at this location is not considered reasonable and would not be built. Furthermore, the Project Development Team determined that building this portion of the soundwall would block prime ocean views that would result in severe visual impacts. Although the remaining 800-foot portion of S424 is not financially reasonable, this segment is still recommended for construction due to the severely affected receptors.

***Severely Affected Receptors*—**The future exterior peak hour noise levels at seven mobile homes represented by Receptors R60 and R61 that are next to U.S. 101 would exceed 75 dBA without a barrier in place; these receptors would be considered severely affected. Therefore, it is recommended that an 800-foot soundwall be built for these severely affected mobile homes.

Receptor Group 22 (R62-R65)

Soundwall S405

To achieve a 5-decibel reduction for Receptor R65, a 10-foot-high soundwall about 900 feet long would be needed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $35,000. The current estimated cost of the soundwall is $423,000. Because the cost of the soundwall is more than the allowance, a noise barrier at this location is not considered financially reasonable and would not be built.

Receptor Group 24 (R67), Receptor Group 25 (R68A-R70), and Receptor Group 26 (R70A-R73)

Soundwall S446, S452, and S464

To achieve a 5-decibel reduction for the above receptors, all three walls must be built as a system. These soundwalls were analyzed as a system due to the on- and off-ramp at Sheffield Drive requiring the original soundwall be split into three segments. Therefore, they must be evaluated as if they are one continuous wall. If either of the two end walls (S446 or S464) were not built, the center wall (S452) would not be cost-effective because the receptors near the ends of the wall would no longer be benefitted.

Receptor Group 24 (R67)

Soundwall S446

To achieve a 5-decibel reduction for Receptor R67, a 12-foot-high soundwall about 500 feet long would be needed. However, Soundwall S446 alone would not provide feasible noise abatement for this receptor. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $37,000. The current estimated cost of the soundwall is $282,000. Because the cost of the soundwall is more than the allowance, a noise barrier at this location is not considered financially reasonable and would not be built.

Following public circulation of the draft environmental document, Caltrans staff reevaluated this soundwall for high-density development where shorter sections might be financially reasonable. Based on this reevaluation, no subsections of S446 were found financially reasonable.

Receptor Group 25 (R68A-R70)

Soundwall S452

To achieve a 5-decibel reduction, a 12-foot-high noise wall about 900 feet long would be needed. In addition, for these receptors to receive a minimum 5-decibel reduction, Soundwall S464 has to be in place in conjunction with soundwall S452. Soundwall S452 alone would not provide noise abatement for three residences represented by Receptor R70.

The total cost allowance, calculated in accordance with the Caltrans Traffic Noise Analysis Protocol, is $630,000. The current estimated cost of the soundwall is $507,600. Because the total cost of the soundwall at this location is less than the total cost allowance, the barrier is feasible and reasonable. However, if Soundwall S446 and Soundwall S464 are not built, then S452 will not be cost-effective because the receptors near the ends of the walls would no longer be benefitted. Since soundwall S446 is not recommended for construction, soundwall S452 is not considered financially reasonable and would not be built.

Following public circulation of the draft environmental document, Caltrans staff reevaluated this soundwall for high-density development where shorter sections might be financially reasonable. Based on this reevaluation, no subsections of S452 were found financially reasonable.

Receptor Group 26 (R70A-R73)

Soundwall S464

To achieve a 5-decibel reduction for Receptors R70, R70A, R71, R71A, R72, and R73, a 10- to 12-foot-high noise wall about 2,350 feet long was originally analyzed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, was $663,000. The estimated cost of the soundwall was $1,269,000. Because the cost of the soundwall was more than the allowance, a noise barrier at this location was not considered reasonable and would not be built except for severely affected receptors. In addition, portions of this soundwall, totaling a length of about 325 feet, were considered not reasonable due to conflicts with a

floodway (see Section 2.2.1, Hydrology and Floodplain, for more details). Because this location is also within the 100-year floodplain, the remaining wall would be designed to pass flood flows and not raise base flood elevations.

Following public circulation of the draft environmental document, Caltrans staff reevaluated this soundwall for high-density residential areas to identify shorter sections that might be financially reasonable. A 1,250-foot-long area along the freeway, represented by receptors R69, R70, R70A and R71, was identified as being the most densely developed. To achieve a 5-decibel reduction, a 13-foot-high noise wall segment about 1,250 feet long would be needed to benefit 16 receptors. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, for the 1,250-foot-long segment is $848,000. The current estimated cost of the soundwall is $763,750. Because the total cost of the soundwall is less than the total cost allowance, the noise barrier is feasible and reasonable and is recommended for construction. This 13-foot-high soundwall segment overlaps the previous 12-foot-high, 200-foot-long wall segment proposed for severe receptors. To be financially reasonable for severely affected receptors, the 1,250-foot length must remain at 13 feet high with the remaining 200 feet being 12 feet.

Severely Affected Receptors— Future exterior peak hour noise levels at seven residences—100 and 111 Arroqui Road, two residential units at 1790 North Jameson Lane, and 24, 135, and 136 La Vuelta Road (represented by Receptors R71 through R73)— would also equal or exceed 75 dBA without a barrier in place. These receptors would be considered severely affected and would qualify for a soundwall or acoustical treatment. Exceptions are for R72—136 La Vuelta Road and a resident at 1790 North Jameson Lane—due to conflicts with a floodway. For these residents where severe receptors are present with no proposed soundwall (R72), providing acoustical treatment on private property or soundwalls on county property, if appropriate, will be considered in coordination with the property owner. Acoustical treatment on private property might include insulation, dual-paned windows, air conditioning or private walls.

Two groups of severely affected receptors would qualify for soundwalls 1,450 feet (R70A, R71, R71A) and 735 feet long (R73).

The Caltrans *Traffic Noise Analysis Protocol* provides for revisions to the preliminary noise barrier decisions. The final decision on noise abatement construction is made

upon completion of the project design that allows for substantial changes to specific parameters. In the event that the final detailed hydraulic analysis[11] indicates a soundwall design can accommodate flood flows without affecting base flood elevations on private property, that portion of Soundwall S464 currently not recommended for construction in the floodway will be reconsidered. The Federal Emergency Management Agency recently revised the limits of the floodway nearer to Romero Creek, resulting in lengthening the wall from 575 feet to 735 feet.

Receptor Group 24 (R67), Receptor Group 25 (R68A-R70), and Receptor Group 26 (R70A-R73)

Soundwalls S446, S452, and S464

Because the cost of the soundwall system is higher than the allowance, a noise barrier at these locations is not considered reasonable and would not be built except for severely affected receptors. However, due to high-density residential development, an additional eastern section of Soundwall S464 was determined financially reasonable. It also should be noted that portions of Soundwall S464 totaling about 325 feet were considered infeasible due to conflicts with a floodway (see Section 2.2.1, Hydrology and Floodplain, for more details).

Receptor Group 28 (R83-R86A)

Soundwall S498

To achieve a 5-decibel reduction for Receptors R83, R84, R85, R86, and R86A, a 10-foot-high soundwall about 2,269 feet long would be needed. The total cost allowance, calculated in accordance with the Caltrans Traffic Noise Analysis Protocol, is $583,000. The current estimated cost of the soundwall is $1,066,430. Since the cost of the soundwall is more than the allowance, a noise barrier at this location is not considered reasonable and would not be built except for severely affected receptors. Additionally a portion of this soundwall located near 1620 North Jameson Lane and 102 Hixon Road and represented by Receptor R84 was considered infeasible due to conflicts with a floodway (see Section 2.2.1, Hydrology and Floodplain, for further details).

Following public circulation of the draft environmental document, Caltrans staff reevaluated this soundwall to identify residential units that may not have been

[11] According to the Hydraulics Engineer, some soundwalls can be staggered or constructed with floodgates to avoid restricting the floodway, but others cannot. During the design phase, additional modeling will occur prior to final determination.

previously counted and to identify areas of high-density development where shorter sections might be financially reasonable. As a result, it was discovered a new parcel was created by a lot split represented by R86B that now has two benefitted residences. In addition, a cottage behind the main home at R86 was not included in the original Noise Study Report. As a result, Caltrans staff reevaluated soundwalls for high-density residential areas to identify shorter sections that might be financially reasonable. One segment of this soundwall was identified. To achieve the required 5-decibel reduction, an 8-foot-high soundwall 500 feet long would be needed to benefit four receptors (R86 and R86B). In accordance with the Caltrans Traffic Noise Analysis Protocol, the total cost allowance for the northern section of Soundwall 498 is $188,000. The current estimated cost of the northern section of soundwall is also $188,000. Because the cost of the northern section of S498 is the same as the allowance, the northern section of the barrier is feasible and financially reasonable and is recommended for construction.

Severely Affected Receptors—The future peak hour noise levels at two first-row residences located at 1580 and 1586 North Jameson Lane represented by Receptor R84 would equal or exceed 75 dBA. These residences would be considered severely affected and a soundwall 10 feet high about 1,025 feet long is recommended for construction.

The future peak hour noise levels at two other first-row residences—1620 North Jameson Lane and 102 Hixon Road also represented by R84—would equal or exceed 75 dBA. However, a soundwall measuring approximately 725 feet covering these two residences is not considered feasible due to conflicts with the floodway. In the event that final detailed hydraulic analysis indicates that a soundwall design can accommodate floodway flows without impacting flood elevations on private property, the portion of Soundwall S498 covering Receptor R84 that is currently not recommended for construction in the floodway will be reconsidered. For these residents where severe receptors are present with no proposed soundwalls, providing acoustical treatment on private property or soundwalls on county property, if appropriate, will be considered in coordination with the property owner. Acoustical treatment on private property might include insulation, dual-paned windows, air conditioning or private walls.

The Caltrans *Traffic Noise Analysis Protocol* provides for revisions to the preliminary noise barrier decisions. To allow for substantial changes to pertinent parameters, the

final decision on building noise abatement would be made upon completion of the project design. If final detailed hydraulic analysis indicates that a soundwall design can accommodate floodway flows without affecting flood elevations on private property, the portion of Soundwall S498 located near two homes represented by Receptor R84 that is currently not recommended for construction in the floodway will be reconsidered. If the soundwall is not recommended, acoustical treatment must be considered because this is a severe receptor.

Receptor Group 29 (R74-R80)

Soundwall S471

To achieve a 5-decibel reduction for Receptors R74, R74B, R74A, R75, R76, R77, R77A, R78, and R78A, an 8- to 14-foot-high soundwall about 1,965 feet long was originally analyzed. Due to biological resource conflicts with San Ysidro Creek, this soundwall could not be extended west to cover Receptors R79 and R80. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, was $784,000. The estimated cost of the soundwall was $1,067,840. Because the cost of the soundwall was more than the allowance, a noise barrier at this location was not considered financially reasonable and would not be built.

Following public circulation of the draft environmental document, Caltrans staff reevaluated this soundwall to identify residential units that may not have been previously counted and to identify areas of high-density development where shorter sections might be financially reasonable. As a result, two additional benefitted units associated with Receptor R76 were found that were not included in the original Noise Study Report. Second-row homes were also reevaluated and confirmed to not be benefitted by a wall. To achieve a 5-decibel reduction, an 8- to 14-foot-high soundwall about 1,965 feet long would be needed to benefit 18 receptors. The total cost allowance of Soundwall S471, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $882,000. The current estimated cost of the soundwall is $1,067,840. Because the cost of the soundwall is more than the allowance, a noise barrier at this location is not considered financially reasonable and is not recommended for construction. No portions of Soundwall S471 were identified as financially reasonable. Also, Soundwall S471 crosses the same floodway as Soundwalls S464 and S498.

Receptor Group 30 (R81-R82A)

Soundwall S489

To achieve a 5-decibel reduction for Receptors R81, R82, and R82A, a 12-foot-high soundwall about 360 feet long was originally analyzed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, was $140,000. The estimated cost of the soundwall was $203,040. Because the cost of the soundwall was more than the allowance, a noise barrier at this location was not considered financially reasonable and would not be built. Furthermore, this barrier could not be placed on the state right-of-way line because the barrier would decrease visibility for vehicles approaching the Posilipo Lane on-ramp to southbound U.S.101.

Following public circulation of the draft environmental document, Caltrans staff reevaluated this soundwall to identify residential units that may not have been previously counted and to determine if a redesign to the configuration might be reasonable and feasible. As a result, one additional benefitted unit associated with Receptor R82 was identified. The additional receptor raised the total cost allowance for the soundwall to $175,000. Because the cost of the wall along the state right-of-way was $203,040, this wall was still considered not to be financially reasonable and continued to be considered infeasible due to sight distance issues for vehicles approaching the Posilipo Lane on-ramp. Also, two alternative soundwall locations were evaluated that were off the state right-of-way—one on the southern frontage road right-of-way and one on the southern bank of Oak Creek—that were both found to not be financially reasonable. All evaluated soundwall locations for S489 are considered infeasible due to conflicts with a floodway (see Section 2.2.1, Hydrology and Floodplain, for further details).

Two additional configurations were analyzed to determine if a redesign would make a soundwall reasonable and feasible. To achieve the minimum 5-decibel reduction, a 10-foot-high soundwall about 360 feet long is needed to benefit five receptors along the southern right-of-way of South Jameson Lane. In accordance with the Caltrans *Traffic Noise Analysis Protocol*, the total cost allowance of Soundwall S489 at this location is $175,000. The current estimated construction cost is $383,040, including the floodgates. Because the cost of the soundwall is greater than the allowance, a noise barrier at this location is not considered financially reasonable. This wall, therefore, is not recommended for construction.

An alternative location for this soundwall was studied on private property along the southern bank of Oak Creek. To achieve a 5-decibel reduction, a 13-foot-high soundwall about 330 feet long would be needed to benefit the original five receptors, plus the one additional receptor represented by R82A. The total cost allowance of Soundwall S489 at this location is $246,000 as calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*. The current estimated cost of the soundwall is $366,630, including floodgates. Because the cost of the soundwall is more than the allowance, a noise barrier at this alternative private location is not considered financially reasonable and cannot be recommended for construction.

Receptor Group 31 (R87B-R91)

Soundwall S520

To achieve a 5-decibel reduction for Receptors R87, R87A, R87B, R88, R89, R90, R90A, and R91, a 10-foot-high soundwall about 2,429 feet long was originally analyzed. Because this location is also within the 100-year floodplain, the wall would need to be designed to pass flood flows and not raise base flood elevations. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, was $816,000. The estimated cost of the soundwall was $1,446,110. Because the cost of the soundwall was more than the allowance, a noise barrier at this location was not considered financially reasonable and would not be built except for severely affected receptors.

Following public circulation of the draft environmental document, Caltrans staff reevaluated this soundwall for areas of high-density development to identify shorter sections that might be financially reasonable. Two additional segments of soundwall S520 were identified.

To achieve a 5-decibel reduction, a 10-foot-high segment about 460 feet long would be needed at the eastern end of the soundwall to benefit the two receptors identified in the Noise Study Report with R87A. In accordance with the Caltrans *Traffic Noise Analysis Protocol*, the total cost allowance of the eastern segment of soundwall is $102,000. The current estimated cost of the eastern segment of soundwall is $216,200. Because the cost of the eastern segment of Soundwall S520 is more than the allowance, a noise barrier at this location is not considered financially reasonable and would not be built.

To achieve a 5-decibel reduction, an 8-foot-high segment about 1,850 feet long would be needed at the western end of the soundwall to benefit the 15 receptors identified in the Noise Study Report with R88, R89, R90 and R90A. In accordance with the Caltrans *Traffic Noise Analysis Protocol*, the total cost allowance of this section of Soundwall S520 is $735,000. The current estimated cost of this section of soundwall is $695,600. Because the cost of this section of soundwall is less than the allowance, the 1,850-foot-long wall is feasible and reasonable and is recommended for construction. This 1,850-foot segment overlaps the previously recommended 1,250-foot-long soundwall for severe receptors. Therefore, the most easterly 1,250 feet of this 1,850-foot soundwall must remain at a height of 10 feet to protect severe receptors (see below.)

Severely Affected Receptors—The future peak hour noise levels at three first-row residences—1410 and 1430 North Jameson Lane; 1424 La Vereda Lane—represented by Receptors R88 and R89, would equal 75 dBA without a barrier in place; these residences would be considered severely affected, and a 1,250-foot-long soundwall is recommended for construction.

Receptor Group 32 (R92-R97B)

Soundwall S519

To achieve a 5-decibel reduction for Receptors R92, R92A, R93, R94, R95, R96, R96A, R97, R97A, and R97B, a 10- to 14-foot-high soundwall about 2,740 feet long was originally analyzed. Because this location is also within the 100-year floodplain, the wall would need to be designed to pass flood flows and not raise base flood elevations. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, was $1,275,000. The estimated cost of the soundwall was $1,857,360. Because the cost of the soundwall was more than the allowance, a noise barrier at this location was not considered financially reasonable and would not be built except for severely affected receptors.

Following public circulation of the draft environmental document, Caltrans staff reevaluated this soundwall for areas of high-density development to identify shorter sections that might be financially reasonable. Two additional segments of soundwall S519 were identified.

To achieve a 5-decibel reduction, a 14-foot-high soundwall 571 feet long at the eastern end would be needed to benefit the seven receptors identified in the Noise

Study Report. The total cost allowance of the eastern segment of soundwall, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $357,000. The current estimated cost of the southern extension is $375,718. Because the cost of the eastern segment is more than the allowance, a noise barrier extension at this location is not considered financially reasonable and cannot be recommended for construction.

To achieve a 5-decibel reduction, a 12-foot-high soundwall 1,003 feet long at the western end would be needed to benefit the 12 receptors identified in the Noise Study Report with R95, R96, R96A, R97 and R97A. In accordance with the Caltrans *Traffic Noise Analysis Protocol*, the total cost allowance of this segment of soundwall is $612,000. The current estimated cost of the western segment is $565,692. Because the cost of the 1,003-foot western end segment is less than the allowance, a noise barrier segment at this location is financially reasonable and is recommended for construction. This 1,003-foot-long western end segment of soundwall would be an extension to the previously recommended 1,166-foot soundwall for severe receptors (see below.)

Severely Affected Receptors—The future peak hour noise levels at three single-family residences—1411, 1433, 1447 South Jameson Lane—and two multi-family residential units at 1403 South Jameson Lane, represented by Receptors R93 and R94, would approach or exceed 75 dBA; these residences would be considered severely affected, and a 12-foot-high soundwall about 1,166 feet long is recommended for construction.

Receptor Group 33 (R98-R99)

Soundwall S535

To achieve a 5-decibel reduction for Receptor R98, R98A, and R99, a 12-foot noise wall approximately 499 feet long would be needed. The total cost allowance, calculated in accordance with Caltrans' *Traffic Noise Analysis Protocol*, is $258,000. The current estimated cost of the soundwall is $281,436. Because the cost of the soundwall is more than the allowance, a noise barrier at this location is not considered financially reasonable and will not be built. However, the entire barrier would be required to cover severely affected receptors.

Severely Affected Receptors: The future peak hour noise level at one residence, 75 Olive Mill Road, represented by Receptor R98, would exceed 75 dBA; this residence would be considered severely affected. Although single- and multi-family residences represented by Receptors R98A and R99 (an existing 6-foot private soundwall provides some reduction from highway noise) behind Soundwall S535 are not severely affected, the entire barrier would be required to provide noise abatement for the severely affected Receptor R98 and is recommended for construction. If this wall is rejected during the Coastal Development Permit review process, Caltrans will consider providing acoustical treatment on private property for these severely affected residences.

Receptor Group 34 (R100A-R103)

Soundwall S549

To achieve a 5-decibel reduction for Receptors R100A, R100, R101, R102, and R103, a 10- to 12-foot-high soundwall about 2,005 feet long was originally analyzed. The total cost allowance, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, was $987,000. The estimated cost of the soundwall was $1,284,882. Because the cost of the soundwall was more than the allowance, a noise barrier at this location was not considered financially reasonable and would not be built.

Following public circulation of the draft environmental document, Caltrans staff reevaluated Soundwall S549 for areas of high-density development to identify shorter sections that might be financially reasonable. To achieve a 5-decibel reduction, a 10-foot-high soundwall 1,705 feet long would be needed to benefit identified residences in the Noise Study Report with R100A, R100, R101 and R102. The originally proposed R103 was replaced by R103A to represent the shortened wall end. The total cost allowance of the wall segment, calculated in accordance with the Caltrans *Traffic Noise Analysis Protocol*, is $855,000. The current estimated cost of the soundwall segment is $848,350. Because the total cost of the soundwall segment at this location is less than the total cost allowance, the barrier is feasible and reasonable and is recommended for construction.

Noise Abatement Summary

In summary, based on the studies completed to date, Caltrans has considered noise barriers at 27 locations. The considered noise barriers vary in height from 8- to 16-feet and range in length from 450 to 5,200 feet. Calculations based on preliminary

design data indicate that the barriers would reduce noise levels by 5 to 12 decibels for benefited receptors. Of the 27 soundwalls being considered, only 14 met reasonable and feasible requirements. The noise barriers vary in height from 8 feet to 16 feet and in length from 499 feet to 2,169 feet. The walls would reduce noise levels by 5 to 12 decibels for benefitted receptors. If, during final design, conditions have substantially changed, noise abatement recommendations may be revised. The final decision on noise abatement will be made upon completion of the project final design, the soundwall voting process, and the Coastal Development Permit process.

In addition to the above considered noise barriers, several alternative soundwall locations for each soundwall S281, S374, S471, and S489 were evaluated off state right-of-way, and none were found to be feasible or reasonable.

Note that the above described noise abatement process is based on federal guidance and Caltrans noise protocol. Refer to Chapter 3 for a noise discussion as it relates to the California Environmental Quality Act.

2.3 Biological Environment

2.3.1 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed in Section 2.3.5, Threatened and Endangered Species. Wetlands and other waters of the United States are discussed in Section 2.3.2.

Affected Environment

Information provided in this section was taken from the Natural Environment Study produced in January 2012 and an addendum in April 2014.

Coastal Scrub

Patches of coastal scrub species were planted as part of the Ortega Hill Class II bike path project. These coastal scrub species, including black sage and sagebrush, are next to but outside of the project footprint.

Riparian

Riparian habitat occurs on the banks of Arroyo Paredon, Garrapata, Toro Canyon and San Ysidro creeks. Riparian vegetation in and next to creek channels is limited within the state right-of-way due to routine clearance by the Santa Barbara County Flood Control District (per the annual maintenance plan). Therefore, existing riparian areas within the project limits are patchy and exhibit limited species diversity. Franklin and Santa Monica creeks have no riparian vegetation in or next to the project limits because they are concrete-lined channels.

Surveys indicate the main riparian vegetation in the area of direct impact consists of arroyo willow, western sycamore, cape ivy, periwinkle, and garden nasturtium. Highway landscaping in upland areas near creeks include coast live oak, eucalyptus, cypress, pine trees, and myoporum trees.

Coast Live Oaks

The Memorial Oaks are parallel rows of coast live oak trees planted along U.S. 101 between post miles 6.3 and 6.7. In 1928, 71 trees were planted along the highway to commemorate Santa Barbara County soldiers who had given their lives in service during World War I. The trees were planted along both sides of the original two-lane highway. However, when the highway was converted to a four-lane limited-access freeway, the trees that originally lined the north side of the old highway became part the new freeway median. In July 2009, the total number of trees was estimated at 32 (16 in the median and 16 along the southbound shoulder).

Aside from the Memorial Oaks, coast live oak trees that occur within and next to the project limits are individual trees interspersed randomly throughout specified drainages, roadside landscaping and along the highway shoulder and are not considered a natural oak woodland community.

Environmental Consequences

Coastal Scrub

No impacts to coastal scrub are anticipated; this plant community lies outside the project footprint.

Riparian

Several bridges in the project limits would be modified or replaced as part of all three build alternatives. Bridges at Arroyo Paredon, Romero (Picay), Oak, and San Ysidro

creeks would be replaced by structures that extend beyond the existing footprint. Riparian vegetation would be removed during the associated bridge construction.

Nineteen arroyo willows ranging from 3 inches to 10 inches in diameter at breast height would be removed from riparian areas. All build alternatives would avoid the large sycamore tree that provides shade to the south end of San Ysidro Creek and the four coast live oak trees that shade the culvert outlet at Garrapata Greek (see Table 2.39 later in this chapter).

Design changes made after March 2012 and a field study for determining canopy acreage resulted in revised riparian impacts as shown in Table 2.38.

Table 2.38 Riparian Impacts

Number of Trees per Species	Diameter At Breast Height (# of Trees)	Locations	Acreage
Arroyo Paredon Creek			
11 arroyo willows (*Salix lasiolepis)*	4 inches (5) 5 inches (2) 6 inches (1) 7 inches (2) 8 inches (1)	6–south bank 5–north bank	0.05 acre (temporary)
Toro Canyon Creek			
4 arroyo willows (*Salix lasiolepis)*	7 inches (1) 8 inches (1) 9 inches (1) 10 inches (1)	4–north bank	0.01 acre (temporary)
Greenwell Creek			
4 arroyo willows (*Salix lasiolepis)*	3 inches (3) 5 inches (1)	4–south bank	0.10 acre (temporary) 0.03 acre (permanent)
San Ysidro Creek			
2 Monterey pine (*Pinus radiata*)	24 inches (1) 28 inches (1)	2–south bank	0.01 acre (temporary)

Source: Addendum to the Natural Environmental Study, March 2013; South Coast 101 High Occupancy Vehicle (HOV) Project

Coast Live Oaks

Oak woodlands are defined as a 5-acre circular area containing five or more oak trees per acre (Senate Concurrent Resolution No. 17). As previously mentioned, these are individual oak trees, but are not considered a natural oak woodland community.

Of the 71 Memorial Oaks originally planted, approximately 32 remain. Although this section of right-of-way has the most terrestrial habitat value within the project limits, its habitat values are diminished by the presence of ornamental species and the adjacent residential areas. The wildlife habitat value of the trees is further limited by the lack of connectivity, regular pruning, and traffic noise from the surrounding four-lane freeway.

Soundwall additions and extensions added to the project after August 1, 2012 would result in the removal of an additional 33 coast live oak trees (soundwalls must go through a voting process and receive Coastal Development Permit approval). Coast live oaks would be removed with the following soundwall extensions: Soundwall S498 (extended between post miles 9.93–10.0) would remove four trees. Soundwall S520 (extended between post miles 10.37–10.5) would remove 28 trees. Soundwall S549 (extended at post mile 10.75) would remove one tree. When the 33 trees are added to the 220 coast live oaks originally identified in the draft environmental document, the estimated number of individual coast live oaks to be removed by the project would be 253.

Avoidance, Minimization, and/or Mitigation Measures

Riparian

- All work in riparian areas would be confined to the Caltrans right-of-way and delineated temporary construction easements.
- All build alternatives would avoid the mature sycamore trees that provide shade to the south end of San Ysidro Creek Bridge and the coast live oak trees that shade the culvert outlet at Garrapata Creek.
- Prior to any ground-disturbing activities, environmentally sensitive area fencing would be installed around the drip line of the trees to be protected. Where feasible, fencing will be placed at least 5 feet from the drip line of those trees.
- To avoid affecting nesting birds in riparian vegetation, no clearing activities would take place between February 15 and September 1. If tree removal is

required during the nesting season, a qualified biologist would need to conduct a focused survey for active bird nests in the trees to be removed. If any active migratory bird nests are found, Caltrans would coordinate with the California Department of Fish and Wildlife to determine an appropriate buffer based on the habitat and needs of the species.

- Impacts to native riparian vegetation would be offset by replacement planting within the project limits as follows: to avoid flooding, replanting plans for creek locations would be reviewed by Santa Barbara Flood Control to ensure that plantings would not impede flows within creek channels. The following ratios would be used: 3:1 for willows; 3:1 for coast live oaks or western sycamore greater than 6 inches in diameter at breast height. Monterey cypress and Monterey pine trees would be replaced in kind. Plantings would be detailed in the Caltrans landscape architecture Landscape Planting Plan. (Note: Although higher replacement ratios are sometimes appropriate, the state right-of-way along the creeks is actively managed by the county flood control, and the fact that the trees would be maintained in the right-of-way, make this an appropriate replacement number for this project.)
- At Greenwell Creek, permanent impacts to riparian vegetation would be offset by enhancement of 0.145 acre of the creek south of U.S. 101. Non-native plants (ice plant, arundo, and castor bean) would be removed from banks in the work area. Bioengineering techniques incorporating arroyo willows and other native plants would be applied in and above the rock slope protection along creek banks to reduce erosion and enhance riparian habitat available for wildlife. Castor bean and arundo, both invasive plants, occur in the proposed work area and are listed on the California Invasive Plant Council's Invasive Plant Inventory. Where non-native invasive plants are removed from the work area and creek banks during construction, replanting would use native riparian species such as willow and sycamore.
- Disturbed areas that are not replanted with riparian trees or shrubs would be stabilized and seeded with native grasses and forbs (herbs). If replacement ratios cannot be met at these locations due to flooding concerns, planting would occur at other appropriate locations within the state right-of-way. All riparian plantings would be monitored to ensure successful revegetation at six months after planting and then once a year for three years. Removal of existing stands of invasive giant reed (arundo) on the south banks of Arroyo Paredon

Creek and at Greenwell Creek would be included in the Caltrans landscape plans.

Coast Live Oaks

- All existing trees and shrubs would be preserved to the greatest extent possible.
- All oaks and other native trees greater than 6 inches in diameter at breast height to remain in the project vicinity would be delineated on design plans. Prior to any ground-disturbing activities, environmentally sensitive area fencing would be installed around the drip line of the trees to be protected. Where feasible, fencing would be placed at least 5 feet from the drip line.
- To avoid affecting nesting birds that might use the landscaped portions of the right-of-way, tree removal should not occur between February 15 and September 1. If tree removal is required during the nesting season, a qualified biologist would do a focused survey for active bird nests. If any active migratory bird nests are found, Caltrans would coordinate with the California Department of Fish and Wildlife to determine an appropriate buffer based on the habits and needs of the species.
- Impacts to native oak trees greater than 6 inches in diameter at breast height would be offset by replacement planting within the project limits. Replacement plantings, in accordance with Santa Barbara County Draft Guidelines for Urban Oak Trees (2006), would be achieved using a 3:1 ratio for each tree removed. Although higher numbers are sometimes appropriate, the limited habitat value of the trees to be removed and the fact that all replacement trees would be maintained within Caltrans right-of-way make this an appropriate number for this project. Replacement plantings would be detailed in the Caltrans landscape architecture Landscape Planting Plan. Oak tree plantings would be monitored to ensure successful revegetation at six months and then once a year for three years. It is recommended that native tree and shrub species such as western sycamore, lemonade berry, toyon, laurel sumac, and coyote brush also be included as replacement plantings.

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 primary law regulating wetlands and surface waters. The Clean Water Act regulates the discharge

of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

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

The executive order for the protection of wetlands (Executive Order 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency such as the Federal Highway Administration cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds the following: 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 primarily by the California Department of Fish and Wildlife, the State Water Resources Control Board, and the Regional Water Quality Control Boards. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or the Tahoe Regional Planning Agency) may also be involved.

Sections 1600–1607 of the California Fish and Game Code require any agency that proposes a project that would 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 Wildlife before beginning construction. If the California Department of Fish and Wildlife determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement would be required. The California Department of Fish and Wildlife 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 U.S. Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the California Department of Fish and Wildlife.

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 Board also issues water quality certifications in compliance with Section 401 of the Clean Water Act. Please see the Water Quality section for additional details.

Affected Environment

Wetlands

Delineation of jurisdictional wetlands and other waters of the United States was conducted as part of the Natural Environment Study (2012) prepared for this project. The study included 11 waterways within the project limits, plus the Carpinteria Salt Marsh. The marsh receives surface water flow from several drainages. This natural estuary is within the project limits, but lies just outside of the project impact area.

Forty-six potential wetland locations were identified in the project biological study area (Figures 2-33 through 2-40). Both Coastal Zone jurisdictional (one indicator required) wetlands and U.S. Army Corps of Engineers jurisdictional (three indicators required) wetlands occur in the project area (see the Regulatory Section definitions and below). The wetland locations include drainage ditches, vegetated roadside features, and culvert outlets. The locations of the various wetlands within the project limits are shown in the Natural Environment Study.

The California Department of Fish and Wildlife and the California Coastal Commission use a one-parameter wetland definition that requires evidence of only a single parameter such as hydrology, hydric soils, or hydrophytic vegetation to establish wetland conditions. Using the single-parameter wetland definition, unlined creek channels within the biological study area were delineated as Coastal Zone wetlands. These creeks include Arroyo Paredon, Romero (Picay), San Ysidro, Oak, and portions of Toro Canyon. However, these creek channels are also considered “other waters of the United States” by the U.S. Army Corps of Engineers and are identified as such for purposes of this document.

Other Waters

On August 29, 2012, Caltrans received a formal Approved Jurisdictional Determination from the U.S. Army Corps of Engineers (refer to Appendix H). Following review of all proposed jurisdictional waters of the United States described in the Natural Environment Study, the U.S. Army Corps of Engineers determined jurisdictional waters of the United States are present on the project site, as well as non-jurisdictional aquatic resources in the locations described on the map sheets. Based on the U.S. Army Corps of Engineers' determination, multiple sites shown on the Natural Environment Study mapping (Table 11 in the Natural Environment Study, January 2012) were determined non-jurisdictional waters.

Nineteen roadside drainage ditches and associated culverts were mapped within the biological study area. Ditches were typically less than 2 feet deep and showed evidence of regular maintenance. Several of the constructed drainage features that would be affected are concrete lined. These lined channels provide storm water control benefits, but do not provide substantial groundwater recharge or wildlife services. The channels are further described below.

***Highly Altered Channels*—**Within the state right-of-way, Franklin and Santa Monica creeks consist of open concrete-box channels. Garrapata Creek is contained entirely within a culvert. No substrate or vegetative cover is present within these channels. These altered channels provide storm water control benefits, but do not provide substantial biological diversity, groundwater recharge, or wildlife habitat.

Franklin Creek

Franklin Creek crosses under U.S. 101 at post mile 3.11. Within and adjacent to the biological study area, Franklin Creek is confined to a concrete-lined channel. Franklin Creek provides no riparian or wildlife habitat within the biological study area as the bottom and sides of the channel are entirely concrete. Channel lining extends for about 1,000 feet downstream from the highway bridge. One-half-mile downstream, near to and within the Carpinteria Salt Marsh, is known habitat for tidewater goby.

Santa Monica Creek

Santa Monica Creek crosses under U.S. 101 at post mile 3.78 and is confined to a concrete-box channel within and adjacent to the project limits. Santa Monica Creek provides no riparian or wildlife habitat within the biological study area as the bottom and sides of the channel are entirely concrete. About 1,000 feet downstream of the

U.S. 101 bridge, Santa Monica Creek crosses under the Union Pacific Railroad Bridge and drains into the Carpinteria Salt Marsh.

Garrapata Creek

Garrapata Creek crosses under U.S. 101 at post mile 6.25. The creek enters the highway culvert to the north of Via Real on the north side of the highway and exits the culvert directly south of the highway. The creek provides little riparian or wildlife habitat within the biological study area as most of the drainage runs through a culvert beneath U.S. 101. All build alternatives will avoid affecting Garrapata Creek.

Partially Altered Channels—Of the 11 creeks that cross the highway, seven contain areas of natural substrates. Channeled banks within the state right-of-way typically consist of concrete walls, and in most cases there are county or railroad bridge structures and modified channel conditions immediately up- or downstream. Limited riparian vegetation occurs within the right-of-way at several creeks. These natural-bottom creek channel sections provide storm water control, groundwater recharge, biological diversity, and wildlife habitat.

Carpinteria Creek

No work is planned in the bed or banks of Carpinteria Creek. Bridge replacement and widening planned for the Linden Avenue and Casitas Pass Road interchanges project, currently in design, would provide necessary pavement width to add HOV lanes proposed with this project.

Arroyo Paredon Creek

Arroyo Paredon Creek crosses under U.S. 101 at post mile 5.63. Before crossing under U.S. 101, the creek passes under a county bridge at Via Real Road upstream of the southbound bridge and northbound bridge on U.S. 101 bridges. Downstream, the creek flows under the Union Pacific Railroad Bridge and finally under Padaro Lane before following a rip-rap-lined channel to the Pacific Ocean.

Within the biological study area, Arroyo Paredon is a natural-bottom channel that conveys water beneath the highway and drains to the Pacific Ocean during periods of high flow. During the dry season, a seasonal lagoon forms at the mouth. The lagoon extends north of the railroad bridge and can even extend upstream of the highway. Beneath and adjacent to U.S. 101, the channel is relatively flat and the bed material is natural sediments (sand and mud with some cobble). The banks are vertical concrete walls from the Via Real Bridge inlet through the southbound U.S. 101 bridge outlet.

Riparian vegetation is minimal within the state right-of-way. Although some arroyo willow canopy exists on sections of the banks, there is sparse emergent vegetation.

Arroyo Paredon Creek is within the geographical area known to be occupied by steelhead trout (see Section 2.3.4). Tidewater gobies are also known to inhabit the seasonal lagoon at the mouth of Arroyo Paredon Creek (see Section 2.3.4). On February 6, 2013, this portion of Arroyo Paredon Creek was designated critical habitat for tidewater goby.

Toro Canyon Creek

Toro Canyon Creek crosses under U.S. 101 at post mile 6.79. Within the biological study area, Toro Canyon Creek is mostly a concrete-lined channel that conveys water beneath U.S. 101. The natural-bottom channel transitions to a concrete-lined channel between northbound and southbound U.S. 101 and remains concrete lined for the remainder of the state right-of-way downstream. A 4-foot-drop structure occurs immediately downstream of the state right-of-way at the Union Pacific Railroad right-of-way. Some riparian vegetation exists on the banks of the channel to the north of the northbound highway bridge where the channel bed and banks are natural cobbles and soil. This section of Toro Canyon Creek was included in the Santa Barbara County Flood Control 2009/2010 Annual Maintenance Plan; all vegetation was cleared from the channel in summer 2009.

Greenwell Creek

Greenwell Creek currently flows under U.S. 101 at post mile 7.7 through a 72-inch corrugated pipe culvert. In June 2009, the area around the culvert inlet (outside the Caltrans right-of-way) was earthen banks and non-native vegetation.

Next to the southbound lanes of U.S. 101, water exits the culvert about 12 feet above a plunge pool and flows along a disturbed open channel and under Union Pacific Railroad culverts before draining into the Pacific Ocean. The channel is a natural earthen bottom, though remains of concrete-sack check-dams occur at varying intervals downstream of the pool. Several scattered willows are present, but the channel is dominated by ornamental species such as ice plant and garden nasturtium. Invasive species such as arundo (reed grass) and castor bean are also present.

Though heavily disturbed, the drainage provides marginal habitat for a variety of wildlife species. Native species observed using this area of the creek include the Pacific chorus frog, raccoon, black phoebe, and mallard duck.

Santa Barbara County Flood Control's Conceptual Plan for Creeks in Montecito

In Montecito, the Santa Barbara County Flood Control District has a conceptual plan to improve the channel and bridge capacities at Romero (Picay), San Ysidro and Oak creeks. The County has replaced its bridges at North Jameson Lane directly upstream of U.S. 101 at these three creeks. The County bridges were designed to pass flood flows and have substantially greater capacity than adjacent facilities immediately downstream (U.S. 101 bridges and Union Pacific Railroad bridges). To avoid the hydraulic and geomorphic disruption caused by severe contraction and expansion downstream, all three County bridges were partially blocked to match their previous capacities for the indefinite future.

Romero (Picay) Creek

Romero (Picay) Creek crosses under U.S. 101 at post mile 9.34. Within the biological study area, the channel is a natural-bottom drainage that conveys water beneath U.S. 101. The channel substrate is cobble and boulders. Banks are vertical gabion and concrete walls from the county bridge inlet to the railroad bridge outlet downstream of the highway. Romero (Picay) Creek is channelized in the lower reaches as it flows through the urban areas of Montecito. The riparian habitat present in open channel areas within the biological study area during wetland surveys in spring 2009 consisted of sparse emergent vegetation and three sycamore saplings less than 3 inches in diameter at breast height. This section of Romero (Picay) Creek was included in the Santa Barbara County Flood Control District Annual Maintenance Plan. Vegetation was cleared from the channel in 2009.

Romero (Picay) Creek is within the geographical area known to be occupied by steelhead trout and is federally designated as critical habitat.

San Ysidro Creek

San Ysidro Creek is a moderate-size drainage that crosses under U.S. 101 at post mile 9.56. Within the biological study area, the channel is vertical concrete banks and a natural bottom (primarily cobble) that conveys water beneath U.S. 101 and drains to the Pacific Ocean west of Fernald Point. Upstream of the biological study area, the creek is highly channelized with concrete-sack walls. Downstream of the highway bridge, unlined channel banks extend for about 300 feet to the Union Pacific Railroad Bridge. San Ysidro Creek is within the geographical area known to be occupied by steelhead trout and is federally designated as critical habitat.

Oak Creek

Oak Creek is a small drainage that crosses under U.S. 101 at post mile 9.66. Within the biological study area, the channel has concrete banks and a natural primarily cobble bottom that conveys water beneath U.S. 101 and drains to the Pacific Ocean.

Montecito Creek

No work is planned in the bed or banks of Montecito Creek. The HOV lanes with this project would be built in the median of the existing bridge.

Environmental Consequences

Wetlands

All build alternatives would affect the U.S. Army Corps of Engineers wetlands and coastal zone wetlands as well as other waters of the United States. Table 2.39 compares impacts to wetlands for each alternative. Alternative 2 would have the greatest impacts. Differences between Alternative 1 (the preferred alternative) and Alternative 3 are minimal. Most of the impacts would result from bridge construction and soundwall installation. Permanent impacts to affected creeks are discussed below under "other waters." Most bridge-related impacts would result from temporary construction access.

Tables 2.39 and 2.40 contain updated impact totals for jurisdictional wetlands.

Table 2.39 Impacts to Jurisdictional Wetlands (acres)

Wetland Type	Alternative 1 (Preferred Alternative) Impacts		Alternative 2 Impacts		Alternative 3 Impacts	
	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
U.S. Army Corps of Engineers and Coastal Zone	0.082	0.001	0.077	0.012	0.082	0.001
Additional Coastal Zone Wetlands	0.369	0.229	0.383	0.403	0.369	0.229

Source: Addendum to Natural Environmental Study, March 2013; South Coast 101 HOV Lanes project
Note: Temporary and permanent impacts to individual creeks are presented in Table 2.39 Impacts to Other Waters of the U.S.

The revised impact calculations for wetlands and other waters of the United States followed an approved Jurisdictional Determination by the U.S. Army Corps of Engineers. In addition, based on public comment received during circulation of the

draft environmental document, there were also changes made to drainage plans for two roadside ditches in Carpinteria.

Permanent impacts would result from replacing or extending bridges, soundwalls, highway fill for road widening, and culvert extensions. Temporary impacts to human-made drainage features would result from construction-related activities including equipment access, vegetation removal, excavation and grading for new structures, and temporary water diversions.

In terms of human-made drainage features, all alternatives would result in temporary impacts to 0.027 acre of a seasonal wetland in an earthen-lined roadside drainage ditch along the northbound lanes of U.S.101. The ditch receives runoff from the highway and nearby residential areas and was covered in a dense layer of vegetation. Temporary impacts to this wetland would result from soundwall construction on both sides of the highway.

The culvert inlet at Greenwell Creek would be replaced with a like structure, resulting in temporary impacts along 20 linear feet of Greenwell Creek bed at the north end.

Between post miles 3.9 and 4.1, all alternatives would result in temporary and permanent impacts to vegetated roadside drainage ditches that run parallel to the northbound and southbound lanes. Impacts would occur if soundwalls are placed on both sides of the highway.

Alternative 2 would result in additional impacts to coastal zone wetlands to handle the road widening. At post mile 3.3, Alternative 2 would temporarily affect 0.019 acre of a vegetated roadside drainage channel that flows along the southbound lanes and drains into Franklin Creek. Between post mile 3.9 and 4.1, Alternative 2 would result in temporary and permanent impacts to vegetated roadside features as a result of soundwall placement.

Alternative 2 would also result in temporary and permanent impacts to a vegetated culvert outlet at post mile 4.15 that leads into an open drainage channel dominated by arroyo willow and arundo (reed grass). The channel flows about 70 feet to the south before entering a culvert under the frontage road and draining into Carpinteria Marsh.

The area that lies between U.S. 101 and the Union Pacific Railroad right-of-way, post mile 5.45 to post mile 5.85, consists of arroyo willows growing in drainage swales. The Toro Canyon General Plan defines this area between U.S. 101 and Padaro Lane

as "Coastal Zone Wetland, not Environmentally Sensitive Habitat." Placing soundwalls in all build alternatives would result in temporary and permanent impacts to willows growing at these locations. Alternative 2 would have a greater impact than Alternative 1 (the preferred alternative) or Alternative 3.

Other Waters of the U.S.

Table 2.40 summarizes the temporary and permanent impacts to "other waters" across the project area for all project alternatives. This table was updated subsequent to the release of the draft environmental document to align with results from an Approved Jurisdictional Determination from the U.S. Army Corps of Engineers, received August 29, 2012 (Appendix H). Refer to Table 2.41 for a summary of impacts to the creeks for each alternative.

Alternative 2 has greater temporary and permanent impacts to "other waters." Impacts do not differ substantially between Alternative 1 (the preferred alternative) and Alternative 3.

Table 2.40 Summary of Impacts to Other Waters of the U.S. (acres)

Wetland Type	Alternative 1 (Preferred Alternative) Impacts		Alternative 2 Impacts		Alternative 3 Impacts	
	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
Other Waters of the U.S.						
Human-made drainage features	0.069	0.207	0.090	0.303	0.069	0.207
Creeks	0.380	0.042	0.380	0.042	0.380	0.042
TOTAL	**0.449**	**0.281**	**0.470**	**0.345**	**0.449**	**0.249**

Creeks: Franklin, Santa Monica creeks, Arroyo Paredon, Toro Canyon , Greenwell, Romero (Picay), San Ysidro and Oak creeks.
Source: Addendum to Natural Environmental Study, March 2013; South Coast 101 HOV Lanes project

Franklin Creek

The existing bridge deck would be extended 22 linear feet (Alternative 1 [preferred alternative] and Alternative 3) or 40 linear feet (Alternative 2) to the north. The deck would extend 26 linear feet in the center to enclose the currently open area between the two bridge decks. The southbound existing edge of deck will be widened 2 feet to the south to carry the additional load of the soundwall. No permanent structures would be placed in the channel. Additional shading from the extended bridge deck

would not affect riparian or wildlife habitat because the bottom and sides of the channel consist entirely of concrete. Therefore, no permanent impacts to the channel shape or substrate would occur.

Santa Monica Creek

The existing bridge deck would be extended 16 linear feet to the north and 28 linear feet to the south. The existing 26-foot-long open area between the two bridge decks would be closed. No permanent structures would be placed in the channel. Additional shading from the extended bridge deck would not affect riparian or wildlife habitat because the bottom and sides of the channel consist entirely of concrete. Therefore, no permanent impacts to the channel shape or substrate would occur.

Arroyo Paredon Creek

The project would replace the existing freeway bridges crossing Arroyo Paredon Creek. The design of a replacement bridge has changed since the draft environmental document was released as a result of coordination with the National Oceanic and Atmospheric Administration Fisheries relative to fish passage. There are two existing bridges for the creek at U.S. 101, one each for the southbound and northbound lanes. Each bridge is a one-span structure separated by a gap of about 40 feet. These two structures can accommodate about half the flow of a 25-year storm event. The proposed replacement bridge would be one structure that would have two spans, and double the hydraulic capacity compared to the existing bridges. Due to adjacent development constraints, the 100-year flow cannot be accommodated at this location, therefore the Santa Barbara County Flood Control Agency has agreed to conveyance of close to a 25-year flood flow. However, due to existing stream channel capacity restrictions, including smaller capacity bridges upstream and downstream of the U.S. 101 bridge, the channel cannot contain a 25-year flow either. Santa Barbara County Flood Control has no imminent plans to improve capacity at this creek, therefore to prevent exacerbating the current flooding patterns with higher capacity flood flow passage of the new bridge, one of the proposed spans would be temporarily blocked off. This will allow the new bridge to maintain the existing capacity until future channel and bridge capacity improvements can be made by Santa Barbara County Flood Control, Santa Barbara County and Union Pacific Railroad. At that time, Caltrans would open the second span.

Blocking one bridge span represents a change from conditions proposed in the draft environmental document. The open bridge span would follow the existing channel. The new span would be 3 feet wider than the current conditions, resulting in a minor

widening of the channel. Vertical concrete walls (abutments) currently line the channel banks, and the creek bed consists of cobble and silt. The new bridge would also have vertical concrete walls, and the streambed would continue to consist of a cobble and silt substrate. The wider channel would gain about 0.012 acre of natural creek bed.

Toro Canyon Creek

The northbound and southbound bridges at Toro Canyon Creek would be replaced with a single structure about 35 feet long and 150 feet wide. The new structure would enclose the open channel between the two bridges, resulting in 30 linear feet of additional shading by the bridge deck. The structure would span the channel without in-stream piers. Up to 0.105 acre of concrete bed lining would be removed within the state right-of-way to allow restoration of the creek bottom. Rock slope protection may be proposed along bridge abutments in locations where bed lining is removed.

Greenwell Creek

The plunge pool that has formed below the culvert outlet is about 12 feet deep. To help prevent further erosion and dissipate flow, about 35 linear feet of rock slope protection would be used to line the basin and side slopes immediately downstream of the culvert outlet. Bioengineering techniques such as brush-layering with willows would be used to stabilize the south bank.

About 120 feet downstream of the culvert outlet, the creek is eroding the fill-slope that supports U.S. 101. Caltrans proposes to excavate slide material from the channel and stabilize the channel and banks adjacent to the fill-slope with rock slope protection and brush-layering or live siltation for up to 250 feet beyond the culvert outlet. Concrete-sack revetment and fill material from previous work would be removed.

Invasive plants, castor bean, and arundo occur in the proposed work area and are listed on the California Invasive Plant Council’s Invasive Plant Inventory. These invasive species would be removed. Temporarily disturbed areas would be planted with native species. Creek banks would be replanted with native riparian species, including arroyo willow.

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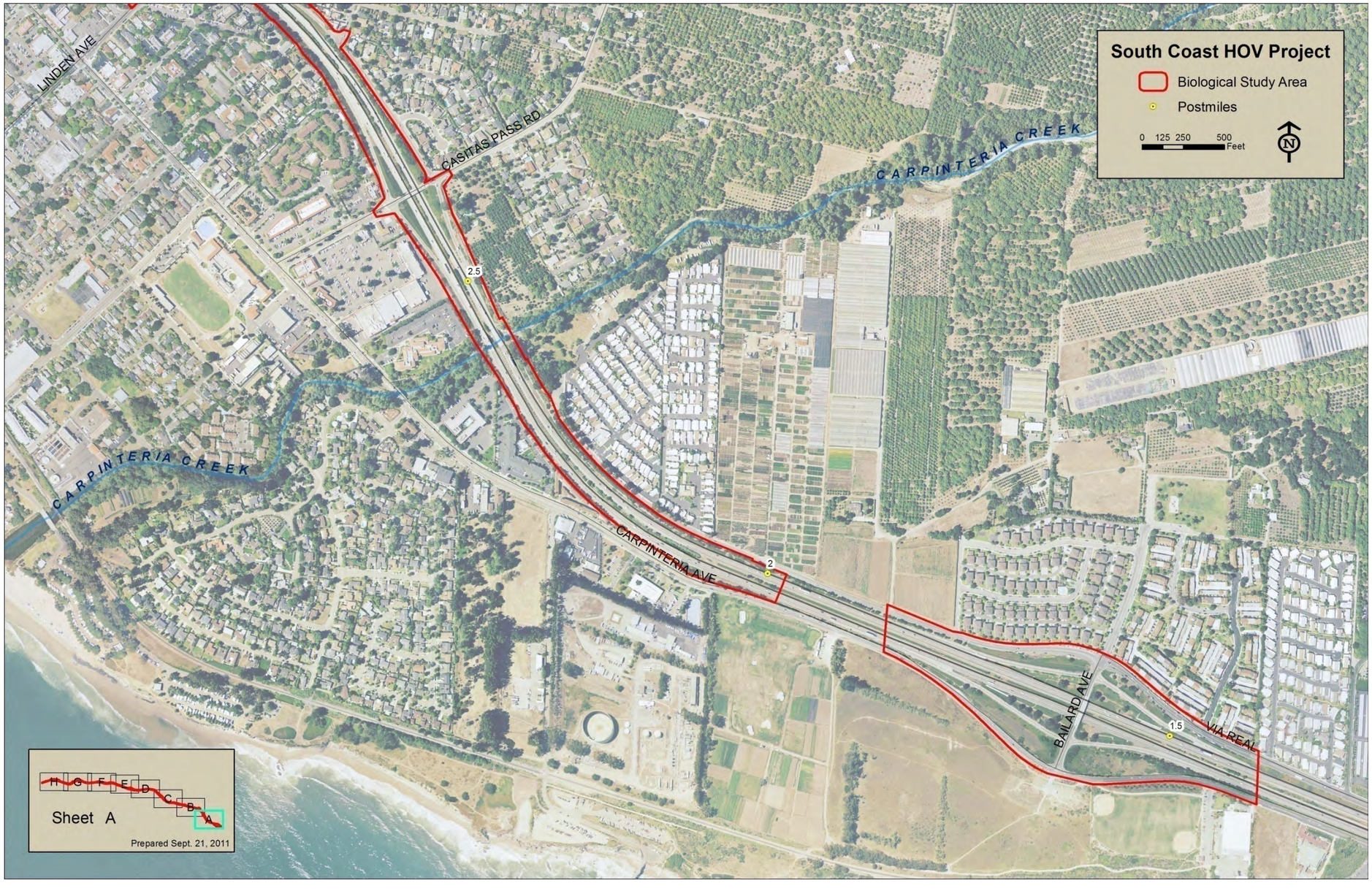

Figure 2-33 Biological Study Area

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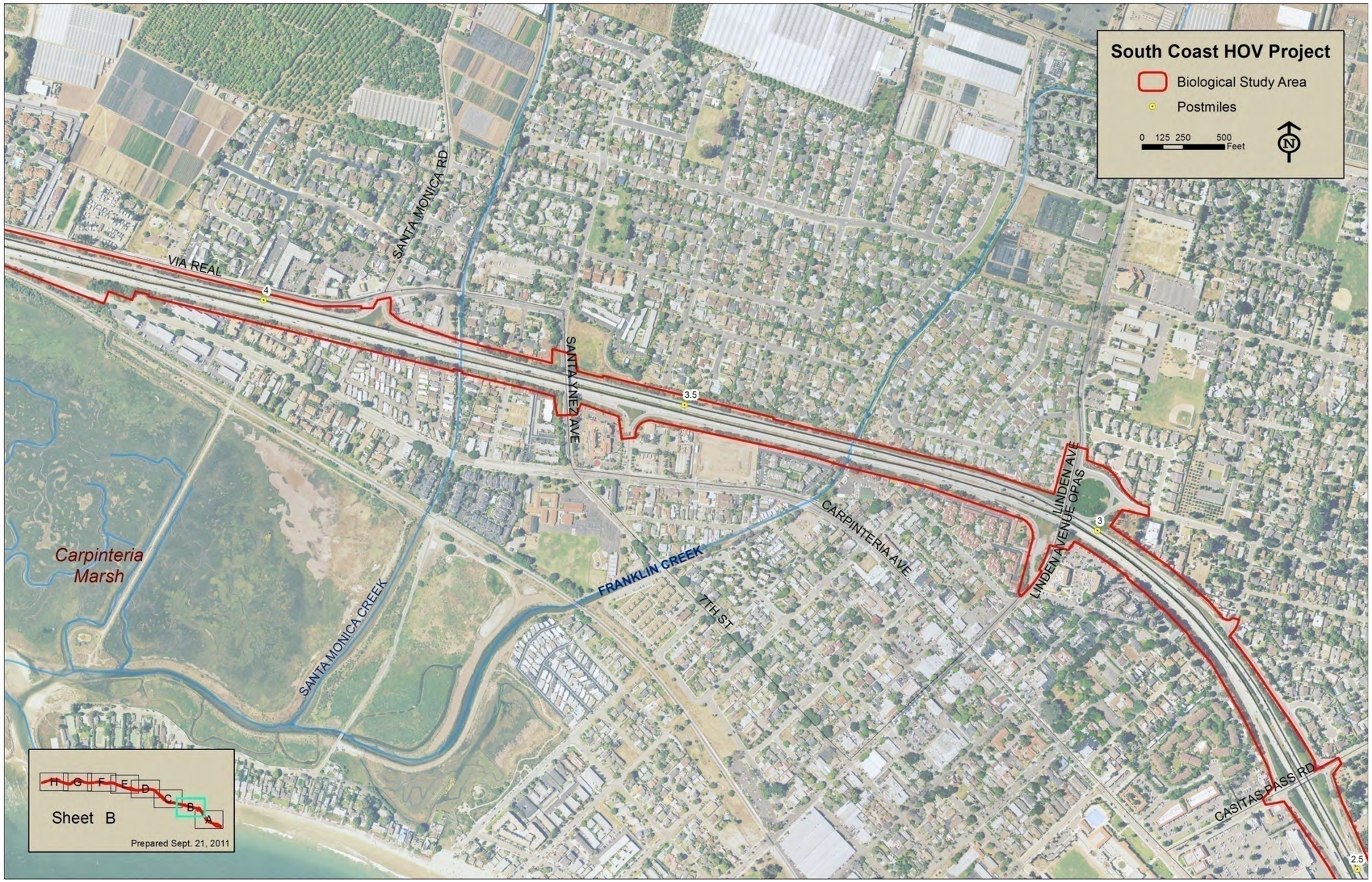

Figure 2-34 Biological Study Area

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Figure 2-35 Biological Study Area

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Figure 2-40 Biological Study Area

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Santa Barbara County Flood Control Conceptual Plan for Creeks in Montecito

With this project, Caltrans plans to replace the highway structures at Romero (Picay), San Ysidro and Oak creeks. The new highway bridges would have longer spans that match the county structures directly upstream. While highway bridges would be built with longer spans, Caltrans would adopt a similar approach to the county and partially block capacity to maintain current channel widths until capacities are improved throughout the reach. Ultimately, when the Santa Barbara County Flood Control District achieves its goals of improving creek capacities throughout the reaches of concern, county and highway bridges can be used to the fullest. There are no current set plans for when downstream improvements would be made.

Romero (Picay) Creek

The bridge at Romero (Picay) Creek would be replaced with a structure about 105 feet long and 120 feet wide. The new structure would extend 10 feet to the north and south to support soundwalls and would span the channel without in-stream piers. The new bridge span would be designed to match the county bridge at Jameson Lane directly upstream of U.S.101 to be consistent with the Santa Barbara County Flood Control Conceptual Plan for Creeks. The longer bridge span would handle a wider channel, resulting in a gain of about 0.13 acre of unlined creek bed when the bridge is opened to full capacity. As noted above in the discussion under the Santa Barbara Flood Conceptual Plan for Creeks, the highway bridge would be partially blocked off to maintain its current channel width until capacity is improved throughtout the reach. The creek bed would remain a natural bottom, and the creek banks would remain concrete walls that support the bridge deck.

San Ysidro Creek

The bridge at San Ysidro Creek would be replaced with a structure about 80 feet long and 110 feet wide and would span the channel without in-stream piers. The new bridge span would be designed to match the county bridge at North Jameson Lane directly upstream of U.S. 101. The longer bridge span would handle a wider channel, resulting in a gain of about 0.11 acre of unlined creek bed when the bridge is opened to full capacity. As noted above in the discussion under the Santa Barbara Flood Conceptural Plan for Creeks, the highway bridge would be partially blocked off to maintain its current channel width until capacity is improved throughtout the reach.The creek bed would remain a natural bottom, and creek banks would remain concrete walls that support the bridge deck. Environmentally sensitive area fencing would be placed on the southeast bank around the western sycamore trees that provide shade to this portion of the creek.

Oak Creek

The bridge at Oak Creek would be replaced with a structure about 44 feet long and 105 feet wide. The new structure would extend 23 feet to the north of the existing bridge and would span the channel without in-stream piers. The new bridge span would be designed to match the county bridge at North Jameson Lane directly upstream of U.S. 101. The longer bridge span would handle a wider channel, resulting in a gain of about 0.03 acre of unlined creek bed when the bridge is opened to full capacity. The creek bed would remain a natural bottom, and the creek banks would remain concrete walls that support the bridge deck.

Table 2.41 summarizes impacts to other waters of the United States at creeks. Other waters are separated from coastal or U.S. Army Corps of Engineers-defined wetlands. Temporary impacts to creeks would result from construction-related activities, including equipment access, temporary water diversions and de-watering, and temporary fill placement. At Greenwell Creek, permanent impacts to 0.042 acre of other waters would occur from installing rock slope protection at the base of the scour pool and along the unlined channel where water flow is eroding the slope against the U.S. 101 at post mile 7.76. New bridge structures would result in expanded areas of unlined creek beds on multiple creeks: Arroyo Paredon and Toro Canyon creeks immediately; Romero (Picay), San Ysidro, and Oak creeks once downstream conditions allow. At Arroyo Paredon and Toro Canyon creeks, jurisdictional waters that now flow under two separate parallel bridge structures would flow under single elongated bridges after project construction.

Table 2.41 Impacts to Other Waters of the U.S. at Creeks

Creek	Temporary Impacts (acres)	Permanent Impacts (acres)
Franklin	0.074	0.0
Santa Monica	0.108	0.0
Arroyo Paredon [a]	0.078	0.0
Toro Canyon [b]	0.039 [b]	0.0
Greenwell [a,]	0.006	0.042
Romero (Picay) [a]	0.021	0.0
San Ysidro [a]	0.037	0.0
Oak [a]	0.016	0.0

[a] Unlined creek reaches in the biological study area are considered both “other waters” and coastal zone wetlands.
[b] At Toro Canyon Creek, the channel is partially lined. In addition to temporary impacts to “other waters” in the lined portion of the channel, temporary impacts would occur in 0.023 acre of unlined channel delineated as seasonal wetlands (U.S. Army Corps of Engineers and coastal zone).

Avoidance, Minimization, and/or Mitigation Measures

Wetlands

All design alternatives have been modified to minimize effects to wetlands.

Table 2.42 presents compensatory mitigation for permanent impacts at a 3:1 ratio for each alternative. Restoration in areas of temporary impacts would also be required.

Table 2.42 Compensatory Mitigation for Permanent Wetland Impacts

Wetland Type	Alternative 1 (acres)	Alternative 2 (acres)	Alternative 3 (acres)
U.S. Army Corps of Engineers and Coastal Zone Wetlands	0.003	0.036	0.003
Coastal Zone Wetlands	0.687	1.209	0.687

Source: Addendum Natural Environmental Study, April 2014; "South Coast 101 HOV Project"

The U.S. Army Corps of Engineers and the California Coastal Commission have a "no net loss of wetlands" policy and require compensatory mitigation for wetlands impacts. Impacts would be minimized in all jurisdictional areas. All design alternatives were modified to minimize effects to wetlands. Impacts to wetlands would be offset by constructing seasonal wetlands onsite to the extent practicable:

- Human-made wetlands (roadside drainage features) would be replaced with more human-made wetlands. Sites chosen for mitigation would be within the project limits where feasible. New vegetated ditches that receive and filter highway runoff would replace the function of the vegetated roadside ditches that are considered coastal zone wetlands. Enough room would be available in the proposed right-of-way to replace most or all of the coastal zone wetland losses onsite with vegetated ditches or bio-swales. Grasses and other low-growing vegetation would provide the greatest filtering capacity. Plantings should include native species such as horsetail, sedge, mugwort, marsh baccharis, and blackberry.
- Caltrans expects to mitigate at a 3:1 ratio for permanent impacts to coastal zone and U.S. Army Corps of Engineers wetlands. The compensation ratio required for impacts is based on resource agency recommendations as well as the function and quality of wetland habitat that needs to be replaced. With the exception of creeks, coastal wetlands to be impacted by the project are human-made drainage features adjacent to U.S. 101 that are periodically disturbed for maintenance purposes.

- Offsite mitigation is proposed in the Carpinteria Salt Marsh if all mitigation cannot occur onsite. The Carpinteria Marsh is the largest remnant of the native ecosystem in the region and has the highest occurrence of special-status species in the area. It is a critically important Southern California coastal estuary, but impacts from agricultural runoff, sedimentation, and invasive species threaten its productivity. Restoration or habitat creation in the marsh would focus on enhancing the function and habitat value of this important natural resource.
- All human-made roadside drainage features delineated as "other waters" that are lost during construction would be replaced in-kind. Temporary impacts to other waters of the United States would be restored to reflect their preexisting state. Unlined channels would be stabilized according to the Caltrans National Pollution Discharge Elimination System Statewide Storm Water Permit. Caltrans would hydroseed roadside banks with native seed mix where practicable to benefit water quality by decreasing runoff and sedimentation into waterways.
- Areas of temporary impacts to creeks would be re-graded, as needed, to reflect their preexisting state. All partially modified creek channels are within the active floodplain and would quickly reestablish with natural vegetation. Vegetation in these creeks, however, would remain subject to maintenance by Santa Barbara County Flood Control. Native vegetation would be planted on creek banks above other waters of the United States where replanting does not conflict with flood control practices. Planting along creeks would occur in accordance with local coastal plans and would be detailed in the Caltrans landscape architecture Landscape Planting Plan.
- Removal of the concrete channel lining in Toro Canyon Creek would allow the restoration of up to 0.105 acre of creek bottom in the state right-of-way. The restored channel would increase filtration capacity and groundwater recharge.
- The longer bridge span at Arroyo Paredon Creek will be 3 feet wider than the current condition, resulting in a gain of approximately 0.012 acre of natural creek bed. Expanded channels would increase filtration capacity and lower peak water velocities for migrating steelhead trout.
- At Greenwell Creek, impacts to other waters of the United States would be offset by enhancement of 0.145 acre of the creek south of U.S. 101. Concrete-sack and other fill material would be removed from the channel bed. Non-native plants (iceplant, arundo and castor bean) would be removed from banks in the work area. To reduce erosion and enhance riparian habitat available for wildlife,

bioengineering techniques that incorporate arroyo willows and other native plants would be applied in and above rock slope protection along creek banks. Invasive plants such as castor bean and arundo occur in the proposed work area and are listed on the California Invasive Plant Council's Invasive Plant Inventory. Areas where non-native invasive plants are removed would be replanted with native riparian species such as willow and sycamore. Riparian plantings would be monitored for three years to ensure that successful revegetation has occurred. Disturbed areas that are not large enough to accept riparian trees and shrubs would be hydroseeded with native species for erosion control.

- In addition to the measures listed above, the following measures would be employed during construction:
    - Work in creek channels would occur between May 1 and October 31, unless creek channels dry earlier than May 1. At Arroyo Paredon, Romero (Picay) and San Ysidro creeks, work would be limited to June 1 through October 31 to avoid impacts to migrating steelhead trout or tidewater goby.
    - Stream diversions may be necessary at some creeks. De-watering and diversion plans would be developed and submitted to the appropriate regulatory agencies for review.
    - Construction equipment, stockpiles, etc., would be located in upland locations that are at least 100 feet from all waterways, wetlands and riparian areas.

Wetlands Only Practicable Finding

Executive Order 11990 establishes a national policy to avoid adverse impacts to wetlands wherever there is a practicable alternative. Alternatives 1 and 3 have similar impacts to wetlands because the wetlands are mostly located in the outside shoulder areas. Alternative 2 would widen the roadway to the outside shoulder, resulting in additional impacts to wetlands. Alternative 1 (the preferred alternative) was designed with the idea of balancing resources, so the road widening weaves in and out to avoid affecting wetlands as much as possible. Many of the wetlands are ditches commonly found in low-lying areas along the highway. Because Alternative 1 was designed to avoid wetlands whenever possible, there is no practicable alternative to the proposed construction in wetlands. The proposed action includes all practicable measures to minimize harm to wetlands.

2.3.3 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration Marine Fisheries, and California Department of Fish and Wildlife 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 2.3.4. All other special-status animal species are discussed here, including California Department of Fish and Wildlife fully protected species and species of special concern, and U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration Fisheries 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

State laws and regulations pertaining to wildlife include the following:

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

Affected Environment

A Natural Environment Study was completed for the project in January 2012, with an addendum in April 2014.

Wildlife observed in the biological study area include the western fence lizard, California vole, California ground squirrel, brown towhee, red-tailed hawk, American kestrel, turkey vulture, mourning dove, Brewer’s blackbird, Western gull, American crow, mallard duck, Anna’s hummingbird, song sparrow, house finch, red-winged blackbird, great blue heron, and black phoebe. The Pacific chorus frog, steelhead trout, mosquito fish, raccoon, striped skunk, big brown bat, and California myotis were observed in waterways or creek channels. Other typical birds in the area include the northern mockingbird, European starling, northern Flicker, common yellowthroat, house finch, lesser goldfinch, brown-headed cowbird, and bushtit. Common terrestrial mammals

found within the biological study area include the coyote, domestic cat, opossum, and Botta's pocket gopher. Exotic species observed in the biological study area include the non-native crayfish, mosquito fish, and red-eared slider turtle.

Several creeks in the project area are used by urban wildlife such as raccoons, skunks, tree frogs and various fish species. Introduced species such as feral cats, red-eared slider turtles, and rats are also found in the area. The proposed new bridges would not affect the function of these creeks as movement corridors for local wildlife. California, along with other states and nations, is becoming more aware of the importance of connected habitats to ensure the persistence of wildlife and biodiversity. In 2009, Caltrans and the Department of Fish and Game (now Fish and Wildlife) sponsored the creation of a statewide wildlife habitat connectivity map as part of the *California Essential Habitat Connectivity Project* to identify high-priority wildlife corridors and landscape linkages for use in transportation planning. This project does not occur within a linear linkage or least-cost corridor modeled by the Essential Habitat Connectivity Database (2011). The nearest identified landscape linkage begins 4 miles north of the project limits in the Sulfur Mountain-Sierra Madre Mountains Essential Connectivity Area.

State Species of Special Concern status animal species with the potential to occur in the project area include the western pond turtle, two-striped garter snake, and monarch butterfly. The following species were not found within the project limits:

- No western pond turtles were observed in the biological study area. Potential aquatic habitat was observed at the Greenwell Creek outlet downstream of the study area at Arroyo Paredon Creek. Nearby uplands are fragmented by U.S. 101, country roads, railroad tracks, and urban development and do not provide suitable nesting and overwintering habitat.

- The two-striped garter snake is designated as a state species of concern. The two-striped garter snake was not found within the project limits. The closest known occurrence to the project area is about 3.5 miles north of the biological study area in Los Padres National Forest.

- Monarch butterflies typically aggregate in eucalyptus groves, Monterey cypress, Monterey pines, and coast live oaks. Based on records from local community plans for Montecito, Summerland, and Toro Canyon, eight mapped butterfly roosts occur within 0.25 mile of the project area: Music Academy of the West in Santa Barbara; Butterfly Lane and High Road in Montecito; Crane Country Day School in Montecito; Ortega Hill in Montecito; Via Real and Padaro Road in Summerland;

Lambert Road in Summerland; and two locations along Padaro Road in Toro Canyon. Three Environmentally Sensitive Habitat sites for the monarch butterfly occur within 200 feet of the work limits: one at Ortega Hill between U.S. 101, Sheffield Drive and Ortega Hill Road and two along Padaro Lane outside the western boundary of the biological study area. Surveys were done in areas of the biological study area next to these locations to determine if monarch butterflies were over-wintering in trees within or next to the work area. No roosts were observed within the project limits. No work is planned within 50 feet of Environmentally Sensitive Habitat for monarch butterflies. Project work in the vicinity of these locations would be limited to the paved roadway and highway median. The project is not expected to affect monarch butterfly roosting sites.

Migratory Birds

Swallows were observed nesting under some bridges within the biological study area. Surveys for raptor nests in the biological study area were performed in January and February 2010. Raptor nests are often used from year to year and remain as established structures. To ensure maximum visibility, focused surveys for raptor nests were done in January and February 2010 prior to trees leafing out. Because several raptor species in the area exhibit courtship and nesting behavior in late January or early February, the biological study area was also surveyed for raptor presence, courting, or pair-bonding behavior. No raptors were observed using the highway corridor in the biological study area. During additional site visits in the nesting season (April and May) in 2009 and 2010, the biological study area was reviewed for raptor presence and nesting behavior. No raptors were observed using the highway corridor in the biological study area.

Double-crested cormorants

A review of local records indicated that cormorants began nesting in eucalyptus trees within the Caltrans right-of-way near the Sheffield Drive Interchange in 2011, following the original field studies for the project. Additional research indicated that the cormorants appear to have moved to this location from the Santa Barbara Zoo, where they had nested previously. Cormorants are colonial nesters, and this location qualifies as a maternal colony under the California Environmental Quality Act. Approximately 52 nests were observed at this location in September 2012. Caltrans biologists have made regular field study visits to monitor this site since September 2012. The purpose of the site visits is to monitor the local breeding population and refine the proposed work windows needed to avoid impacts to nesting cormorants at this location.

Environmental Consequences

Western Pond Turtles

While the project would temporarily affect potential aquatic habitat, no potential habitat would be permanently lost. Nearby uplands are fragmented by U.S. 101, country roads, railroad tracks, and urban development and do not provide suitable nesting and overwintering habitat. Southwestern pond turtles are unlikely to occur in these locations during construction. The project is not expected to affect western pond turtles.

Two-striped Garter Snake

No garter snakes were observed in the biological study area during surveys. Two-striped garter snakes are unlikely to occur in the project limits or in modified creek reaches upstream and downstream due to a lack of dense vegetation and protected areas for basking. The project is not expected to affect two-striped garter snakes. Minimization or avoidance measures are not warranted for this project.

Monarch Butterflies

No work is planned within 50 feet of Environmentally Sensitive Habitat for monarch butterflies. Project work in these areas will be limited to the paved roadway and highway median. The project is not expected to affect monarch butterfly roosting sites.

Migratory Birds

Federal and state laws protect migratory birds, their occupied nests, and their eggs from destruction. The applicable federal law is the Migratory Bird Treaty Act (15 U.S. Code 703-711), 50 CFR Part 21, and 50 CFR Part 10. Protection under California law is found in Fish Game Code Sections 3503, 3513, and 3800. With the proposed avoidance and minimization measures in place, the project is not anticipated to affect migratory birds or their active nests.

Double-crested Cormorants

The interchange at Sheffield Drive would be rebuilt to remove the existing left-side off-ramps. The existing two northbound lanes would remain in place, and a third northbound lane for HOV use would be constructed. Three new southbound lanes would be built next to the northbound lanes. The area vacated by the existing southbound lanes would be used to construct new southbound ramps that connect to the right of the southbound lanes. The new southbound ramps at Sheffield Drive would require retaining walls to assure slope stability and prevent impacts to railroad right-of-way. To reduce earthwork and minimize disturbance to vegetation and nesting trees along the outside edge of the proposed southbound ramps, a retaining wall would be built.

The project has been designed to minimize disturbance to trees and vegetation along the outside edge of the southbound ramps. With the proposed avoidance and minimization measures in place, this project is not expected to affect double-crested cormorants or their active nests.

Avoidance, Minimization, and/or Mitigation Measures

Migratory Birds

- To avoid impacts to nesting birds, tree removal would occur between September 1 and February 15. If tree removal is required during the nesting season, a qualified biologist would conduct a focused survey for active bird nests in the trees to be removed. If any active migratory bird nests are found, Caltrans would coordinate with the California Department of Fish and Wildlife to determine an appropriate buffer based on the habits and needs of the species. The nest would not be removed until the young have fledged and nesting is complete.
- The Caltrans Standard Specifications for Bird Protection would be included with the project's contract.
- Non-standard Specifications for nesting swallows would be included with the project's Plans and Specifications. If construction activities occur on these structures during the swallow nesting season (March to August), a qualified biologist would need to inspect all nests to ensure that no birds are using them. If the nests are abandoned, the contractor can remove the nests before March 1 and either prohibit birds from assessing the structure using netting, or actively discourage nesting.

Double-crested Cormorants

- An environmentally sensitive area would be established around the stand of eucalyptus trees that support active cormorant nests. The environmentally sensitive area would be delineated on project plans and marked in the field with environmentally sensitive area fencing prior to the start of work at this location. No equipment or personnel would be allowed within the environmentally sensitive area.
- Construction activities within 300 feet of the environmentally sensitive area, including clearing and grubbing, would be limited to September 15 through March 1 to avoid affecting active nests during the critical maternity season and to ensure survival of first-year birds. If Caltrans proposes any work within 500 feet of the environmentally sensitive area during this period, a qualified biologist would be required to monitor active nests during construction work.

2.3.4 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 are required to consult with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration Fisheries to ensure that a federal agency is not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 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 under 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 Wildlife 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 Wildlife. For projects requiring a Biological Opinion under Section 7 of the Federal Endangered Species Act, the California Department of Fish and Wildlife may also authorize impacts to California Endangered Species Act species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

Affected Environment

Federally listed species with the potential to occur in the project area include the steelhead trout, tidewater goby, California red-legged frog, light-footed clapper rail,

Belding's savannah sparrow, southwestern willow flycatcher, least Bell's vireo, California least tern, and western snowy plover.

The following species were not found within the project limits:

- Protocol-level surveys for the California red-legged frog (federally threatened) were negative. No critical habitat for California red-legged frogs exists within the project limits.
- The light-footed clapper rail (federally and state endangered) requires dense coastal marsh habitat, which does not occur within or immediately next to the project limits. The project would avoid the Carpinteria Salt Marsh. No known records exist of this species nesting in the biological study area.
- Belding's savannah sparrow (state endangered) requires dense pickleweed coastal marsh habitat, which does not occur within or immediately next to the project limits. The project would avoid the Carpinteria Salt Marsh. No known records exist of this species nesting in the biological study area.
- The southwestern willow flycatcher (federally endangered) requires a specific habitat type that does not occur within or adjacent to the project limits. No known records exist of this species nesting in the biological study area.
- Least Bell's vireo (federally and state endangered) requires a specific habitat type that does not occur within or adjacent to the project limits. No known records exist of this subspecies nesting in the biological study area.
- California least terns (federally and stare endangered) nest on sandy beaches, which would not be affected by the proposed project. The specific habitat types required for this species do not occur within or next to the project limits.
- Snowy plovers (federally threatened) live on sandy beaches or alkaline lakes, neither of which would be affected by the proposed project. The specific habitat types required for this species do not occur within or adjacent to the project limits.

Only the two following federally endangered species have potential to be affected by this project: steelhead trout and tidewater goby.

Steelhead Trout, Southern California Evolutionary Significant Unit

The steelhead trout, an ocean-going form of rainbow trout, is native to Pacific Coast streams from Alaska south to northwestern Mexico. Wild steelhead populations in California have decreased substantially from their historic levels. This decline prompted listing of the Southern California distinct population segment as endangered on August 18, 1997; the listing includes all naturally spawned populations of steelhead trout and their progeny residing below long-term impassable barriers. The Southern California Evolutionary Significant Unit includes all naturally spawned populations from the Santa Maria River south to Malibu Creek. The steelhead trout is also a state species of special concern.

Critical habitat is defined as the following: 1) specific areas within the geographical area occupied by the species at the time of listing, if the habitat contains physical or biological features essential to conservation, and those features may require special management considerations or protection; and 2) specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.

This project crosses five creeks designated as critical habitat for the steelhead trout. Bridge replacement is proposed at three of these creeks (Arroyo Paredon, Romero (Picay) and San Ysidro). Formal Section 7 consultation with the National Oceanic and Atmospheric Administration National Marine Fisheries Service for potential incidental take of steelhead trout and critical habitat was completed September 30, 2013. Refer to Chapter 4 for an overview of the coordination efforts with the National Oceanic and Atmospheric Administration Marine Fisheries.

Tidewater Goby

The tidewater goby is a small fish rarely exceeding 2 inches in length that occurs in tidal streams associated with coastal wetlands in California. Since 1900, the tidewater goby has disappeared from nearly 50 percent of the coastal lagoons within its historic range, including 74 percent of the lagoons south of Morro Bay on the Central Coast. This decline prompted listing of the tidewater goby as endangered on February 4, 1994. Revised critical habitat was proposed for the tidewater goby on October 19, 2011 to include Arroyo Paredon Creek.

Surveys for tidewater gobies were not conducted for this project due to the known status of the species in Arroyo Paredon Creek and at the mouth of Franklin Creek. According to the California Natural Biodiversity Database, the tidewater goby was observed at Arroyo Paredon lagoon just downstream from the project area. Due to an absence of appropriate

habitat, the tidewater goby is not known to occur within the project limits on Franklin Creek.

Critical habitat is defined as the following: 1) specific areas within the geographical area occupied by the species at the time of listing, if the habitat contains physical or biological features essential to conservation, and those features may require special management considerations or protection; and 2) specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.

On February 6, 2013, the U.S. Fish and Wildlife Service announced designated revised critical habitat for the tidewater goby. The latest designation of critical habitat includes a portion of Arroyo Paredon Creek within the project area. The U.S Fish and Wildlife Service biological and conference opinion for this project (August 6, 2012) includes a formal conference opinion for proposed critical habitat at Arroyo Paredon Creek. Refer to Chapter 4 for an overview of the coordination efforts with U.S. Fish and Wildlife Service.

Environmental Consequences

Steelhead Trout

Proposed work within the Arroyo Paredon, Romero (Picay) and San Ysidro creeks is the same for all three build alternatives. The build alternatives would result in both permanent and temporary impacts to migration habitat within the project limits.

The build alternatives may affect steelhead trout and may result in incidental take. Incidental take could be a result of harassment, harm, or mortality of steelhead trout during water diversion, demolition and construction, or relocation actions. Formal consultation under Section 7 of the Endangered Species Act was conducted with the National Oceanic and Atmospheric Administration National Marine Fisheries Service for potential incidental take of steelhead trout in Arroyo Paredon Creek, Romero (Picay) Creek, and San Ysidro Creek. A Biological Opinion was obtained September 30, 2013.

Temporary impacts could occur with water diversion and de-watering during project construction. Given that the work window in the creek is outside the time of steelhead trout migration, it is anticipated that any incidental take that might occur would be juvenile steelhead trout during the water diversion and de-watering of Arroyo Paredon and Romero (Picay) creeks. San Ysidro Creek typically dries up in May and remains dry until the winter rains in November. Following water diversion, remaining fish within the area to be de-watered would be removed by seine and dip nets. Steelhead trout captured during seining would be relocated to suitable habitat within that creek.

Permanent impacts to Arroyo Paredon and Romero creeks would result from replacement bridge structures that extend beyond the footprint of the existing structures. At Romero Creek, bridge decks would be extended 10 linear feet to the north and south, resulting in additional shading at each end of the bridge deck. At Arroyo Paredon Creek, the 26 linear feet currently open between the two bridge decks would be covered by the larger new bridge structure. Vertical concrete walls (abutments) currently line the channel banks. Creek beds consist of cobble and silt. No emergent vegetation or potential cover was observed at these locations during surveys. New bridge structures would increase shading through these creek reaches. Creek banks would still have concrete walls. The creek bed would remain natural substrates. Additional shading of creek beds may result in slightly cooler water temperatures, which are preferred by steelhead trout. At Arroyo Paredon, the completed project would gain 0.012 acre of natural creek bed. New bridge structures would result in expanded areas of natural creek bed at Romero (Picay) Creek (once downstream conditions allow) and Arroyo Paredon Creek (immediately).

Bridge construction would temporarily affect 0.35 acre of steelhead critical habitat within the state right-of-way. The new highway bridges would be designed to have longer spans across the creek channels (however, a portion of each would be blocked off until such time that remaining facilities upstream and downstream are upgraded). Highway bridges at Romero Creek and San Ysidro Creek would meet requirements for a 100-year flood flow, and the new highway bridge at Arroyo Paredon Creek would meet requirements for a 25-year flood flow, resulting in lower velocities and improved conditions for fish passage. The full capacity of the bridges cannot be used until channel constraints upstream and downstream of the Caltrans right-of-way are removed. The current channel widths would be maintained until improvements are made to facilities immediately downstream (Romero and San Ysidro creeks) as part of the Santa Barbara County Flood Control Conceptual Plan for Creeks (see Section 2.3.2, Wetlands and Other Waters).

At present, the capacities of downstream facilities are not large enough to handle additional flows. Substantial infrastructure such as county frontage roads, the Union Pacific Railroad, and private property are in the immediate vicinity of each bridge. Caltrans determined that widening the bridges at this time with existing downstream flow constrictions would result in hydrologic and geomorphic disruption that could threaten nearby bridges that have limited capacity, private homes, the Union Pacific Railroad and county roads. To avoid the hydraulic and geomorphic disruption caused by severe contraction and expansion, flow through the new highway bridges would be partially blocked in their respective creek channels to maintain their current flow capacities. The temporary bulkheads would remain on the new bridges until downstream conditions

improve to the point that these bridges do not jeopardize existing facilities such as railroad bridges.

At Romero Creek and San Ysidro Creek, the larger bridge structures would be temporarily blocked off using a bulkhead at the same locations as the current walls. At Arroyo Paredon Creek, the second span would be blocked off using a bulkhead. The open span would match the flow line of the existing channel, but would be 3 feet wider. With portions of the new bridges temporarily blocked off using a bulkhead, water velocities at these bridges would remain the same as existing velocities, or be slightly improved as in the case of Arroyo Paredon Creek. Blockage would remain until other facilities in the area are upgraded and the bulkheads can be removed. Channel conditions would match existing conditions: vertical concrete walls (abutments) lining the channel at the same locations and natural streambeds consisting of cobble and silt substrate.

Senate Bill 857 requires Caltrans to fix any fish-passage obstacles for anadromous (swimming upstream from the ocean) fish when modifying a structure. Aside from one identified obstacle at Carpinteria Creek, no physical obstructions to fish passage (in-stream structures, lining, bed, and significant grade changes) were identified in steelhead trout creeks in the state right-of-way. The obstacle to fish passage at Carpinteria Creek—the current bike path—would be removed as part of the Linden-Casitas Highway improvement project before the start of this project.

Caltrans began early consultation with the National Oceanic and Atmospheric Administration National Marine Fisheries Service in May 2009 to identify and conduct various hydraulic analyses of steelhead trout creeks such as Arroyo Paredon Creek, Romero (Picay) Creek and San Ysidro Creek where work is proposed. Fish flows for the creeks were analyzed for existing and proposed conditions within the developed reach of the creek. Though significant grade changes do not occur within the biological study area, constructed channels upstream and downstream at San Ysidro and Romero (Picay) creeks create peak flood flows that currently exceed recommended velocities for fish passage.

Velocities at the highway bridges are better than or equivalent to those at nearby locations upstream and downstream. Channel widening at Arroyo Paredon Creek improves conditions by lowering velocities at peak flows and improving conditions for migrating steelhead trout. Caltrans has considered adding features such as boulders or weirs to provide flow complexity and additional water-velocity shelters in the creeks. These features would also increase roughness and raise water surface elevations. Romero

Creek and San Ysidro Creek are prone to severe flooding, and Federal Emergency Management Agency regulations prohibit any increase to water surface elevations. The creeks cannot be widened only at U.S. 101 to counter roughness increases. The hydraulic and geomorphic disturbances that would result could threaten adjacent facilities.

Because these creeks are modified throughout their lower reaches, fixing velocities in these reaches requires addressing the broader channel. Santa Barbara County Flood Control has a long-range conceptual plan to widen the lower channel reaches at these creeks to increase capacity, though no timeline is currently identified. Within the state right-of-way, Caltrans is planning to replace the highway bridges with larger structures at an additional cost of $6.5 million. This commitment provides the best practicable solution to velocity issues at these locations, given all the existing constraints upstream and downstream such as critical transportation infrastructure and private property.

The new highway structures would allow future creek widening to be compatible with Santa Barbara County's long-range conceptual plan to widen the lower channel reaches to allow increased capacity and decreased velocities. By investing in larger highway bridges, Caltrans is actively supporting and contributing to the regional goal of improving these lower creek reaches when downstream conditions allow. When Santa Barbara County achieves its goals of improving creek capacities throughout these reaches of concern, bulkheads can be removed and highway bridges can be used fully. Caltrans would assist and cooperate with the County in this effort to help ensure the success of future alignments. In addition to building larger bridge structures as part of a long-term solution for velocity issues in these creeks, Caltrans is working with state and federal agencies to provide enhancements within the corridor that would promote species recovery in the near term.

Using the proposed grading plans, replanting of riparian areas, plus other measures included in this document, temporarily affected portions of critical habitat are anticipated to recover to pre-project conditions. It is unlikely the proposed project would have any long-term or substantial effects on critical habitat. A permanent beneficial effect of the project at Arroyo Paredon Creek would be a gain of 0.012 acre of unlined creek bed. Widening of the creek channel by 3 feet under the highway would result in decreased velocities at peak flows, improving conditions for migrating steelhead trout.

Tidewater Goby

The build alternatives may affect the tidewater goby, and may result in incidental take in Arroyo Paredon Creek. Incidental take of the tidewater goby is not anticipated even

though that has the potential to occur. Incidental take could include the following: harassment, harm, or mortality during water diversion, demolition, construction, or relocation.

The project would replace the existing freeway bridges crossing Arroyo Paredon Creek. The design of a replacement bridge has changed since the draft environmental document was released. The change occurred as a result of coordination with the National Oceanic and Atmospheric Administration Fisheries relative to fish passage. There are two existing bridges for the creek at U.S. 101, one each for the southbound and northbound lanes. Each bridge is a one span structure separated by a gap of about 40 feet. These two structures can accommodate about half the flow of a 25-year storm event. The proposed replacement bridge would be one structure that would have two spans, and double the hydraulic capacity compared to the existing bridges. Due to adjacent development constraints, the 100-year flow cannot be accommodated at this location, therefore the Santa Barbara County Flood Control Agency has agreed to conveyance of close to a 25-year flood flow. However, due to existing stream channel capacity restrictions, including smaller capacity bridges upstream and downstream of the U.S. 101 bridge, the channel cannot contain a 25-year flow either. Santa Barbara County Flood Control has no imminent plans to improve capacity at this creek, therefore to prevent exacerbating the current flooding patterns with higher capacity flood flow passage of the new bridge, one of the proposed spans would be temporarily blocked off. This will allow the new bridge to maintain the existing capacity until future channel and bridge capacity improvements can be made by Santa Barbara County Flood Control, Santa Barbara County and Union Pacific Railroad. At that time, Caltrans would open the second span.

Blocking off one of the bridge spans with a bulkhead represents a change from conditions proposed in the draft environmental document. The open bridge span would follow the existing channel. The new span would be 3 feet wider than existing conditions, resulting in a minor widening of the channel. Vertical concrete walls (abutments) now line the channel banks. The creek bed consists of cobble and silt. The wider channel would be a net gain of 0.012 acre of natural creek bed. Creek banks would remain concrete walls. The creek bed would remain natural substrates. Permanent beneficial impacts would include an expanded area of natural creek bed at Arroyo Paredon Creek that could provide additional habitat for the tidewater goby.

Avoidance, Minimization, and/or Mitigation Measures

Steelhead Trout

- The project would temporarily affect designated critical habitat for the Southern California steelhead trout distinct population segments where U.S. 101 crosses Arroyo Paredon, Romero and San Ysidro creeks. Temporarily affected portions of critical habitat are expected to recover to pre-project conditions using detailed grading plans, riparian area replanting, and other minimization measures. Permanent beneficial effects of the project at Arroyo Paredon Creek would result in a gain of 0.012 acre of unlined creek bed. Widening of the creek channel by 3 feet under the highway at Arroyo Paredon Creek would result in decreased velocities at peak flows, improving conditions for migrating steelhead trout. Longer bridge spans at Romero Creek and San Ysidro Creek would result in wider unlined channels and lower velocities at peak flows in the future, once the downstream facilities have been upgraded. Additional mitigation measures in creeks that support steelhead trout include a 3:1 ratio for replanting the riparian vegetation removed during construction. An existing stand of invasive arundo (giant reed grass) at Arroyo Paredon Creek would also be removed.

The following are other measures that would be incorporated into each build alternative:

- All work activities within or adjacent to critical creek habitat would take place only during the low-flow period between June 1 and October 31. This would avoid affecting migrating steelhead trout, unless creek channels dry earlier than June 1.
- Preconstruction educational meetings that discuss steelhead trout and other sensitive species would be required for the construction personnel that work in the creeks.
- Water diversions would be required at Arroyo Paredon and Romero (Picay) creeks. San Ysidro Creek is typically dry at the state highway crossing by May 1 each year and remains dry until November. If water is flowing at San Ysidro Creek between June 1 and October 31, a water diversion would be required.
- Only qualified personnel authorized under a Biological Opinion shall participate in activities associated with the capture, handling, relocation and monitoring of steelhead trout. The names and credentials of personnel who want to conduct these activities shall be supplied to the National Oceanic and Atmospheric Administration for its review and approval at least 15 days prior to the onset of these activities.

- Prior to construction activities, the project area will be surveyed for the presence of special-status species, including the tidewater goby and steelhead trout. Additional surveys will be conducted upstream and downstream from the area of direct impact to identify appropriate habitat for temporary fish relocation. Fish barriers will be installed temporarily, and individuals inside the area of direct impact will be relocated within the creek by a Service-approved fisheries biologist, as authorized under a Biological Opinion.
- No work will be performed in a wetted stream channel. A water diversion will be installed at the beginning of the construction window (June 1 or thereafter) and prior to any work in the creek. It will remain in place until October 31 or when construction in the creek is finished for the season. The water in the creek will be diverted using a pipe during construction activities. If the water is to be pumped around work sites, pump intakes will be completely screened with wire mesh not larger than 0.08 inch to prevent tidewater gobies or steelhead trout from entering the pump system.
- During the de-watering effort, if present, steelhead trout shall be removed prior to draining the site. After barriers are constructed, steelhead trout shall be captured, transported in buckets, and released in the most appropriate habitat immediately adjacent to the de-watered area. Handling time for steelhead trout shall be minimal.
- Upon completion of construction activities each year, flow barriers shall be removed in a manner that allows flow to resume with the least disturbance to the substrate.
- All disturbance to potential steelhead trout habitat, including riparian vegetation and jurisdictional waters, shall be minimized with the use of environmentally sensitive area fencing, and all soil exposed as a result of project construction shall be revegetated using native-plant hydroseeding or live planting methods.
- If the stream substrate is altered, the substrate shall be graded or otherwise returned to preconstruction conditions or better after the work is completed.
- Any heavy equipment used in or near the creek channel shall be removed from the channel at the end of each workday.
- All material and debris related to bridge demolition and construction shall be removed from the creek channel bed and riparian zone as soon as possible and prior to November 1.

- Caltrans shall provide the final design and grading plans of the proposed actions in Arroyo Paredon, Romero, and San Ysidro creeks to the National Marine Fisheries Service within 14 calendar days prior to the beginning of construction so the National Marine Fisheries Service may review and provide comments. Caltrans shall revise and resubmit the plans to the National Marine Fisheries Service within 30 calendar days of receiving the National Marine Fisheries Service's comments. Caltrans must receive final National Marine Fisheries Service agreement with the design and grading plans prior to implementation of the proposed action.
- Caltrans shall obtain a topographical survey of the stream channel at each site within 30 calendar days following completion of the proposed action and submit the results to the National Marine Fisheries Service as soon as they become available.

Tidewater Goby

- Mitigation measures include the 3:1 ratio for replanting of riparian vegetation to be removed during construction in addition to the removal of an existing stand of arundo, an invasive non-native plant, at Arroyo Paredon Creek.
- The window of work for construction within or adjacent to Arroyo Paredon Creek will be during the low-flow period between June 1 and October 31 to reduce the potential harassment and mortality of tidewater gobies.
- Preconstruction educational meetings that discuss the tidewater goby will be required for construction personnel prior to work in Arroyo Paredon Creek.
- Only qualified personnel authorized under a Biological Opinion will participate in activities associated with the capture, handling, and relocation of tidewater gobies. The names and credentials of personnel who desire to conduct these activities shall be supplied to the U.S. Fish and Wildlife Service for its review and approval at least 15 days prior to the onset to these activities.
- If the water is to be pumped around work sites, pump intakes will be completely screened with wire mesh not larger than 0.08 inch to prevent tidewater gobies from entering the pump system.
- During de-watering efforts, as many tidewater gobies as possible, if present, will be removed prior to draining the site. After barriers are constructed, tidewater gobies shall be captured, transported in buckets, and released into the most appropriate habitat immediately adjacent to the de-watered area. If a beach seine is used, it must be pulled to shore in a deliberate manner with care being taken to

avoid rolling the lead line inward. The number of tidewater gobies will be estimated prior to release. All debris and aquatic and emergent vegetation in the pumped area must be carefully inspected for tidewater gobies and other vertebrates. As the work site is de-watered, remaining pools will be inspected for tidewater gobies. As many gobies as possible should be captured using dip nets and other appropriate tools and moved as described above. Handling time for tidewater gobies will be as minimal as practicable.

- Upon completion of construction activities each year, flow barriers will be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
- All disturbance to potential tidewater goby habitat, including riparian vegetation and jurisdictional waters, will be minimized with the use of environmentally sensitive area fencing and all soil exposed as a result of the project must be revegetated using native-plant hydroseeding or live planting methods.
- If the substrate of the stream is altered during work activities, the substrate will be graded or otherwise returned to preconstruction conditions or better after the work is completed.

2.3.5 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 United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” 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 applying National Environmental Policy Act analysis to the proposed project.

Affected Environment

According to the Natural Environment Study prepared for the project (January 2012), many plants found in the study area are on the California Invasive Plan Council Invasive Plan Inventory. These plants include arundo (reed grass), pampas grass, cape ivy, castor bean, bur clover, French broom, ice plant, myopurum, garden nasturtium and Italian thistle.

Invasive plant species that have the greatest possibility of negatively affecting the natural ecology in the project area are veldt grass, giant reed, ice plant, pampas grass, French broom, myopurum, cape ivy, and garden nasturtium.

Environmental Consequences

None of the species on the California list of noxious weeds is currently used by Caltrans for erosion control or landscaping. Removal of invasive species is considered a beneficial project impact. Caltrans removes and controls the spread of invasive plants wherever possible.

Avoidance, Minimization, and/or Mitigation Measures

To prevent new invasive species from being imported to the site, Caltrans requires that the project contractor use the following control measures:

- Only certified noxious-weed-free erosion control materials and fill would be used.
- All straw and seed material will be certified weed-free by the county agricultural commissioner prior to being used at the project site. The California Department of Food and Agriculture maintains a current listing of noxious weeds.

2.4 Construction Impacts

Refer to Section 2.3.1, 2.3.2, 2.3.3, 2.3.4, and 2.3.5 for potential impacts to biological resources during construction.

Affected Environment

Utilities

Domestic water services in the study area are provided by the Carpinteria Valley Water District, Montecito and Summerland Water District, and the Santa Barbara County Water Agency. Wastewater collection and treatment services are provided by the Carpinteria Sanitary District, Summerland Sanitary District, Montecito Sanitary District, the El Estero Wastewater Treatment Plant in the City of Santa Barbara, and through septic systems in the unincorporated areas of Santa Barbara County. Natural gas services in the study area are provided by the Southern California Gas Company, and electricity is provided by Southern California Edison. Other utility services in the study area include telephone and cable or satellite television services.

Traffic and Transportation/Pedestrian and Bicycle Facilities

Bicycle and Pedestrian Routes

Currently, there are approximately 299.7 miles of bikeways in Santa Barbara County. About 163.1 miles of bikeways are located in the South Coast region.

Cultural Resources

The archaeological area of potential effects encompasses the anticipated ground-disturbing activities for all of the project alternatives and includes all construction areas, equipment staging and material storage areas, and easements. A buffer around the outer limits of these zones was also included within the archaeological area of potential effects to accommodate minor design changes.

Water Quality

The project sits within the South Coast hydrologic unit made up of small coastal watersheds originating in the southern Los Padres National Forest and draining to the Santa Barbara coast.

Paleontology

The Paleontology Report documents the existence of two geologic units that lie within or adjacent to the project limits that are known to have sensitive paleontological significance.

Air Quality

Certain construction activities can be the source of temporary impacts to air quality. These potential impacts include dust-producing activities that occur during grading and paving. Standard provisions included on all Caltrans projects would address potential emissions generated by construction equipment, grading activities, and use of various construction materials.

Noise

The highway corridor is mostly residential areas mixed with small pockets of commercial, agricultural, and recreational areas. Except for the Summerland area, terrain through the corridor is relatively flat. U.S. 101 through the project limits is currently two lanes in each direction. Traffic on U.S. 101 is the main source of noise through the corridor; however, trains also travel through the area several times a day. In addition to permanent noise impacts, it is also important to look at potential noise impacts caused by construction and the potential work proposed for the railroad right-of-way. Railroad work was part of three of the five configurations proposed for the Cabrillo Boulevard

interchange. Selecting the F Modified configuration eliminates the need for railroad work during project construction. Work associated with replacing the Los Patos railroad overhead required temporary relocation of the railroad tracks (closer to the Andrée Clark Bird Refuge) and a permanent change to the railroad profile. The profile would be raised 0 to 4 feet for 0.67 mile for configurations J, M and M Modified.

Vibration

Certain construction activities can be the source of heavy vibrations, which tend to at minimum be annoying and at worst have potential to cause damage to homes and other structures. Effects can be caused by vibrations that are continuous over long periods of time or short, individual events. For example, equipment such as excavators, road graders, vibratory rollers, and paving machinery cause sustained vibrations that spread through the ground, diminishing in strength with distance. Buildings founded on the soil near the construction site respond to these vibrations with varying results, ranging from no perceptible effects (low vibration levels) to perceptible vibrations (moderate vibration levels) to slight architectural damage (high vibration levels).

There are no federal or state standards for vibration impacts. The traditional view has been that highway traffic and most construction vibrations pose no threat to buildings and structures, and that annoyance to people is similar to typical noise issues experienced from living near highways. Caltrans, however, has conducted research and developed a Transportation and Construction-Induced Vibration Guidance Manual to assess the potential for construction-related vibration impacts.

Safe levels for continuous vibrations, such as from traffic, are not as well defined. The Transport and Road Research Laboratory in England has researched continuous vibrations to some extent and developed a summary of vibration levels and reactions of people and the effects on buildings (see Table 2.43). These are the criteria used by Caltrans to evaluate the severity of vibration problems.

Table 2.43 Vibration Level and Intensity

Peak Particle Velocity (inches per second)	Human Reaction	Effect on Buildings
0.006 to 0.019	Threshold of perception—possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relatively short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling—houses with plastered walls and ceilings Special types of finish such as lining of walls and flexible ceiling treatment would minimize "architectural" damage
0.4 to 0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: A Survey of Traffic-Induced Vibrations by Whiffen, A.C. England, 1971

Annoyance levels in this table are subjective and can vary depending on the activity level of the observer. Annoyance can occur at lower peak particle velocities for more sedentary observers. The "architectural damage risk level" for continuous vibrations (peak particle velocity of 0.2 inch per second) shown in Table 2.43 is 0.1 of the maximum safe level of 2 inches per second for single events. Table 2.43 shows an upper level of 0.08 inch per second for continuous vibrations to which "ruins and ancient monuments" should be limited. This criterion level may also be used for fragile historical buildings or buildings that are in very poor condition.

In any situation, the probability of exceeding architectural damage risk levels for continuous vibrations from construction is very low. However, if pavement-breaking activities or extensive pile driving is involved, damage to nearby buildings or non-reinforced structures is a remote possibility. This may also be true if these operations occur next to historical buildings (unless in excellent condition), buildings in poor condition, or buildings previously damaged in earthquakes. Buildings outside the limits for architectural and structural damage may still be close enough to pile driving sites that the annoyance level from vibrations may be exceeded.

Environmental Consequences

Utilities/Emergency Services

The proposed project construction would have the potential to impact utilities such as domestic water service, wastewater collection and treatment, natural gas service, electric service, and telephone and television utilities. The proposed project would also potentially impact emergency service providers during construction.

Traffic and Transportation/Pedestrian and Bicycle Facilities

Construction of the overall six-lane facility would improve local vehicular travel and decrease local intersection delay within the corridor, which would enhance bicycle and pedestrian circulation at other locations as well. As with any larger road construction project, a certain amount of delay and inconvenience is anticipated by the public. These inconveniences can be minimized by careful development of a construction staging plan and a traffic management plan. These plans are finalized during the design process.

Construction of the HOV lanes in the median would occur in one stage. Under the first stage, temporary striping would provide for no less than two 11-foot-wide lanes in each direction with traffic being separated from the median work zone by temporary concrete barriers. All construction would occur within the barriers. After completion, traffic would be shifted to its final configuration.

Asymmetrical or directional freeway widening would be accomplished in two stages. In the first construction stage, northbound traffic would be shifted toward the median by 4 feet, allowing temporary concrete barriers to be installed near the outside edge of the travel way. This would allow all future northbound outside widening to be accomplished. In the second stage, temporary striping would provide for no less than two 11-foot-wide lanes in each direction with traffic being separated from the median work zone by temporary concrete barriers. All construction can occur within the barriers and, after construction is completed, traffic would be shifted to its final configuration.

Reconstruction of paired bridges (one in each direction) would occur in two stages. Under the first stage, temporary pavement would be provided for a transition of lanes to no less than four 11-foot-wide lanes on one of the bridges, with northbound and southbound traffic separated by temporary concrete barriers. Once traffic is shifted, construction on the vacated bridge would provide a minimum of four 12-foot-wide travel lanes for a total width of 50 feet.

In stage two, after completion of the first bridge, all traffic lanes would be shifted to the new bridge and roadway, again with northbound and southbound movements separated by temporary concrete barrier. After all traffic is shifted to the new bridge, the second bridge would be built. Once this construction is complete, traffic would be shifted to its final configuration.

Construction of single bridges to carry both directions of traffic would also occur in two stages. Under the first stage, temporary pavement would be provided for standard transition of all lanes to no less than four 11-foot-wide lanes on one side of the existing structure, with northbound and southbound traffic separated by temporary concrete barriers. Once traffic is shifted, construction of the remaining half of the bridge would provide a minimum of four 11-foot-wide travel lanes against for a total width of 50 feet.

In stage two, after completion of the first half of bridge construction, all traffic lanes would be shifted to the new bridge construction and roadway, again with northbound and southbound movements separated by temporary concrete barrier. Once traffic is shifted, the other half of the bridge would be constructed. Once this construction is complete, traffic would be shifted to its final configuration.

None of the three build alternatives would permanently impact bicycle or pedestrian facilities, including the Pacific Coast Bike Route. During construction of the Cabrillo interchange, bicycles, pedestrians, and persons with disabilities would have continual access through construction areas.

With the F Modified configuration for the Cabrillo Boulevard/Hot Springs Road interchange, two lanes would remain open on U.S. 101 in each direction (except for intermittent nighttime lane closures). Cabrillo Boulevard would remain open (except for intermittent nighttime lane closures), and access to and from Cabrillo Boulevard would be maintained. No traffic would be diverted to Los Patos Drive. The Hermosillo off-ramp would be the only northbound off-ramp open in the Montecito vicinity for a maximum of one month. Estimated duration for construction of the Cabrillo Boulevard/Hot Springs Road Interchange is 24 to 29 months.

Visual/Aesthetics

Building the entire project would not occur all at one time along the total length of the corridor. Rather, the project would be separated into construction phases. Expected total duration for construction would be about 10 years. However, at any given location within a community, visual impacts from construction would be limited to a few years.

Visual impacts would occur as a result of construction vehicles and equipment and other elements on and near the project site. Temporary storage of construction materials would also be visible in the area. In addition, required safety devices such as orange cones, fencing, and signage would affect views temporarily while the project is under construction. Workers would be present and visible throughout the construction phases. Views of stopped and slowed vehicles on the highway would also increase due to construction-related traffic delays. On certain local roadways, visibility of vehicular traffic may increase.

Additional vehicles, equipment, materials, safety devices, and workers would not be unexpected visual elements seen at a construction site. However, because of the overall duration of work and the great number of affected viewers, substantial visual impacts would result from the proposed construction activities.

Cultural Resources

Caltrans concluded in a Finding of Adverse Effect (February 2011) and in a Revised Finding of Adverse Effect (September 2011) that the proposed project would have an adverse effect on the National Register-eligible Via Real Redeposited Midden. Comprehensive studies conducted by Caltrans suggest that the National Register-eligible property is not only located below the level of proposed U.S. 101 construction but is also located outside the state right-of-way—and therefore outside the Area of Direct Impact. Although Caltrans does not anticipate impacts to the redeposited midden, we nevertheless deem it prudent to consider the remote possibility of discoveries during construction. In the unlikely event that archaeological resources are encountered during construction, the *Treatment and Data Recovery Plan for the South Coast 101 High Occupancy Vehicle Lanes Project, Santa Barbara County, California* will be implemented, in accordance with the June 20, 2013 *Programmatic Agreement between the California Department of Transportation and the California State Historic Preservation Officer Regarding the South Coast 101 HOV Lanes Project, U.S. Route 101, Santa Barbara County, California* (see Appendix D, *State Historic Preservation Officer Correspondence).*

Water Quality

Temporary impacts to water quality are expected during construction. The largest percentage of construction pollutants would be sediment, construction debris from demolished structures, and dust generated during excavation, grading, hauling, demolition, and various other activities (see Table 2.44). The impacts of these activities would vary each day as construction progresses. Due to uncertainties concerning the exact design details, timing, equipment usage rates associated with specific project

features and potential work required, the following analysis assumes a conservative amount of soil disturbance and asphalt and concrete usage. The estimated total project disturbance area is 97 acres. There is only a slight difference in the overall footprint of each alternative. The following table lists potential construction site activities, materials and associated pollutants that could occur during project construction.

Table 2.44 Construction Site Activities, Materials, and Associated Pollutants

Construction Site Activity	Construction Site Materials	Pollutant
Vehicle and Equipment Cleaning, Fueling, and Maintenance	Vehicle Fluids	Oil Grease Petroleum Coolants
Concrete Cement Operations and Concrete Waste Management	Portland Concrete Cement and Masonry Products	Portland Concrete Cement
		Masonry Products
		Sealant (Methyl Methacrylate)
		Incinerator Bottom Ash Bottom Ash Steel Slag Foundry Sand Fly Ash
		Mortar Concrete Rinse Water
	Curing Compounds	Non-Pigmented Curing Compounds
Landscaping	Landscaping and Other Products	Aluminum Sulfate
		Sulfur-Elemental
		Fertilizers-Inorganic
		Fertilizers-Organic
		Natural Earth (Sand Gravel and Topsoil)
		Herbicide
		Pesticide
		Lime
Excavation and Grading	Contaminated Soil	Aerially Deposited Lead
		Petroleum

Source: California Department of Transportation 2003a.

The current 303(d) list (2010) states that the impairment of water bodies in the watershed for this project are total coliform, fecal coliform, indicator bacteria, boron, nitrate as nitrite (NO_3) pathogens, nutrients, priority organics, organic enrichment, and low dissolved oxygen. Impairment sources are from natural sources, transient encampments, groundwater loadings, removal of riparian vegetation, agriculture, urban runoff/storm sewers, other urban, and unknown. Of the 303(d) listed pollutants of concern, only three are typically found in storm water runoff from construction activities associated with a highway. These are fecal coliform, nitrate, and pH. None of these constituents was found to exceed the water quality objectives as listed in Table 2.24 303(d) Listed Water Bodies HSA 315.34. In addition, the 303(d) listing does not identify highway runoff as a source for the impairments.

Other Waters

Temporary impacts to creeks would result from construction-related activities such as equipment access, temporary water diversions and de-watering, and temporary fill placement. Table 2.45 summarizes potential temporary and permanent impacts to the creeks that might result from construction-related activities to unlined portions of creek channels in the following creeks: Arroyo Paredon Creek, Toro Canyon Creek (partially lined), Romero Creek, San Ysidro Creek and Oak Creek.

Table 2.45 Impacts to Other Waters of the U.S. at Creeks for Preferred Alternative

Creek	Temporary Impacts (acres)	Permanent Impacts (acres)
Franklin	0.074	0.0
Santa Monica	0.108	0.0
Arroyo Paredon [a]	0.078	0.0
Toro Canyon [b]	0.039 [b]	0.0
Greenwell [a,]	0.006	0.042
Romero (Picay) [a]	0.021	0.0
San Ysidro [a]	0.037	0.0
Oak [a]	0.016	0.0

Source: Addendum Natural Environment Study 2012

At creeks, temporary impacts will be re-graded, as needed, to reflect their preexisting state. All partially modified creek channels are within the active floodplain and will quickly reestablish with vegetation naturally.

Erosion

The project area contains predominately Natural Resources Conservation Service Group C and D soils that have a moderate to high erosion risk. Group C soils are sandy clay loam and have low infiltration rates. Group D soils have a mixture of clay, loam, and sand and have a very low infiltration rate that creates high runoff potential. Compliance with the Caltrans Storm Water Management Plan would address most concerns with erosion. However, unusual situations such as unexpected rain and improper use of best management plans could result in temporary impacts to surface water quality.

Chemical Releases

Potential sources of temporary surface water impacts include construction materials, contaminants in the existing roadway, vehicle leaks, traffic accidents, and illegal dumping. Temporary construction site storm water best management practices would minimize or eliminate chemical releases to ground and surface waters. Preliminary investigations indicated that groundwater at certain locations is contaminated.

Shade Canopy

Riparian shade canopy is important to maintain cool water temperatures for "cold" beneficial uses of all drainages designated as such. Removal of trees that currently provide riparian shade may temporarily cause warming of surface waters. Removal of trees would also reduce available shade for wildlife that use nearby waterways.

Temporarily impacted portions of creeks are expected to recover to pre-project conditions or better with implementation of replanting and other measures included in the environmental document. Non-native invasive plants that are removed from creek banks during construction would be re-planted with native species. Because post-construction replanting of riparian areas is planned, and total area of riparian canopy at U.S. 101 bridge sites is limited (except for San Ysidro Creek where much of the shade canopy will be retained), it is not expected that the proposed project will have any substantial or long-term effects to creek habitat or water temperature within the project area.

Groundwater Hydrology

During construction, there can be substantial short-term change in groundwater flow paths, lower groundwater table from de-watering, change in surface water-flow rates and volumes, and domestic water uses from stream diversions and wells. Due to elevated pollutant levels, groundwater at certain locations would be tested if de-watering is needed to determine how polluted groundwater can be disposed of. Out of all of the samples

taken, none meet drinking water standards, a beneficial use of all surface water bodies. Groundwater may be used to irrigate and control dust during construction of this project.

Paleontology

Due to the possibility of encountering scientifically sensitive specimens during excavation into middle- to upper-Pleistocene sedimentary rocks of the Marine terrace deposits, and inter-fingerings of the Santa Barbara Formation into the Casitas Formation, paleontological mitigation in the form of monitoring, salvage, and data recovery is indicated where excavation will disturb in-situ deposits of these strata. The uppermost few feet of sediment in the project area is mostly covered by younger alluvial and fluvial fan deposits and is less likely to yield significant fossil remains, but deeper excavation for the proposed walls and structures has a chance of encountering fossils. Because the Rincon Formation is next to proposed excavation sites, mitigation in the form of monitoring, salvage, and data recovery may also be necessary in this formation.

Air Quality

During construction, the proposed project would generate air pollutants. The exhaust from construction equipment contains hydrocarbons, oxides of nitrogen, carbon monoxide, suspended particulate matter, and odors. Use of asphalt, concrete, and other chemicals during construction activities would emit organic gases and other potentially harmful compounds. However, the largest percentage of pollutants would be windblown dust generated during excavation, grading, hauling, demolition, and various other activities. The impacts of these activities would vary each day as construction progresses. Dust and odors occurring very close to the right-of-way could potentially cause occasional annoyance and complaints from nearby residences.

The six major sources of air pollutants on a construction project are reactive organic gas (ROG) emissions from asphalt use; particulate matter (PM) from grading. Emissions from construction vehicles contribute carbon monoxide (CO), reactive organic compounds (ROC), oxides of nitrogen (NOx), and PM emissions from construction vehicles. ROC and NOx combine in the presence of sunlight to form ozone. These pollutants can contribute to respiratory ailments. The total estimated construction emissions are included in Table 2.46.

Table 2.46 Estimated Construction Emissions (Vehicles)

Constituent	No-Build Alternative	Build Alternatives	Build Alternatives
	Quarterly (tons)	Quarterly (tons)	Total (tons)
Carbon Monoxide (CO)	0	**4.7**	**104.1**
Reactive Organic Gas (ROG)	0	**1.2**	**26.4**
Oxides of Nitrogen (NOx)	0	**14.3**	**315.6**
Diesel PM_{10}	0	**0.6**	**14.2**

Source: Air Quality Study 2010. These figures include an estimate of all construction vehicles expected to be used on the project.

Total suspended particulate matter would be the major air pollutant. Of particular concern would be PM_{10} (particulate matter smaller than 10 microns in diameter). PM_{10} is about 65 percent of suspended particulate matter and is considered a health hazard that can lead to respiratory ailments, especially in the young and the elderly who are more prone to respiratory ailments. The main source of air pollutants associated with construction activities would be from soil grading and the application of asphalt products, both from the activities themselves and the vehicles that perform the operations.

Air emissions are considered to be equivalent for the various build alternatives due to the similar size, scope, and nature of the proposed project features. As such, projected short-term construction related emissions have only been evaluated as a single-build alternative under the maximum possible footprint required (Alternative 2). The project is expected to be phased, and each sub-phase would have a unique amount of working days depending on the project features required within the specific jurisdiction. In total, the entire project is expected to take approximately 10 years to complete, and the current estimate of total area that the project would disturb is about 97 acres.

Assuming a total of 97 acres of soil disturbance and that all project grading is done in an initial four-month period (88 working days) for each sub-phase (352 total soil-disturbing days), and that the disturbed soil is continually worked throughout the 88-day duration per phase, about 0.3 acre per day would be disturbed during the initial clearing, grubbing, and grading period for each sub-phase. Assuming 10.25 pounds of PM_{10} per acre per day average, average daily emissions of PM_{10} dust are estimated be about 31 pounds (10.25 x 0.3 = 3.1) per day. However, most of the construction impacts to air quality are short term and therefore would not result in long-term adverse conditions.

Noise

Caltrans follows the Federal Highway Administration Noise Standards to minimize noise levels during construction. Caltrans understands that local standards may differ from state and federal standards, but as a state agency we are obligated to maintain consistency in applying state and federal standards equally across the state. When there is an inconsistency between state and local standards, state standards must be followed.

Two types of short-term noise impacts would occur during project construction. First, construction crew commutes and the transport of construction equipment and materials to the project site would incrementally raise noise levels on access roads leading to the site. The pieces of heavy equipment for grading and construction activities would be moved onsite, remain for the duration of each construction phase, and not add to the daily traffic volume in the project vicinity. There would be the potential for a relatively high single noise exposure event due to the passing of trucks/equipment. However, thresholds of 86 dBA and a distance of 50 feet must not be exceeded. Because the projected construction traffic volumes would be low when compared to existing traffic volumes on U.S 101, the associated long-term noise level change would not be perceptible to the human ear. Therefore, short-term construction-related worker commutes and equipment transport noise impacts would not be substantial.

The second type of short-term noise impact is related to noise generated during excavation, grading, and roadway construction. Construction is performed in steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated and, therefore, the noise levels along the alignments as construction progresses. During construction in the vicinity of the Cabrillo and Sheffield interchanges, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction.

It should be noted that although Caltrans standards minimize noise levels to the greatest extent possible, there are times where construction noise levels may exceed local noise thresholds due to the high probability for night work. Given the congested nature of the project limits, certain construction activities will need to occur when traffic volumes are at their lowest.

Table 2.47 summarizes noise levels produced by construction equipment commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dBA at a distance of 50 feet, and noise produced by

construction equipment would be reduced over distance at a rate of about 6 dBA per doubling of distance.

Table 2.47 Construction Equipment Noise

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

Source: Federal Transit Administration 1995.

Noise Impacts Resulting from Temporary Relocation of Railroad Tracks

With three of the configurations (J, M, and M Modified) considered for the Cabrillo interchange, the temporary shoofly would be relocated 0 to 30 feet (average distance is 15 feet) closer to the Andrée Clark Bird Refuge. The current location of the railroad is approximately 100 feet north of the bird refuge. Noise levels of a train on a structure pass are 85 dBA at 50 feet or 82 dBA at 100 feet. Doubling the distance toward the noise source increases the noise impacts by 6 dBA. Where the railroad would be relocated approximately 15 feet closer to the bird refuge, the noise level generated by the train would increase by only 0.7 dBA, resulting in an 82.7 dBA. With Caltrans' selection of the F Modified configuration, railroad work would not be part of the project.

Vibration

In general, three zones of lessening intensity were established to classify the expected impacts from proposed construction activities. These zones of influence are general in nature and are defined as the following:

- Perception—A 300-foot-radius zone within which residents would begin to perceive vibrations.
- Annoyance—A 100-foot-radius zone within which continuous vibrations begin to annoy people.
- Damage—A generalized 60-foot-radius zone within which continuous vibrations may cause architectural damage.

To assess the potential for damage to structures from activities such as pile driving, a minimum safe distance for existing structures was calculated using factors such as soil type, pile type, and pile hammer strength. This included assuming default values for unknown soil types, and a conservative energy rating for a driving hammer at just below the point of pile damage based on standard plan driven piles of 15-inch diameter (see Table 2.48).

Table 2.48 Minimum Safe Distance for Existing Structures

Structure Type	Minimum Safe Distance from Vibration Source (feet)	Maximum Peak Particle Velocity (inches per second)
Historic, extremely fragile structures	179	0.08
Historic, fragile structures	147	0.10
Historic old structures	64	0.25
Old structures	54	0.30
New or modern construction	34	0.50

Source: Vibration Study 2010 and Addendum to the Vibration Study 2013

Using this methodology, specific properties and structure types that are located within or next to the zones of concern were further evaluated to determine their risk of architectural damage or human annoyance. The historic properties that have been identified as eligible for the National Register of Historic Places were specifically evaluated for potential vibration impacts. As shown in Table 2.49, no historic properties would be affected by construction-related vibration.

Table 2.49 Structures within Zones of Concern

Structure Type	Number of Structures within Zone of Concern	Safe Distance Threshold Used for Analysis
Historic, any age	0	42 to 179 feet *
Older (1969 or earlier), non-historic	43	64 feet
Newer (1970 to present)	34	34 feet
Mobile home	19	64 feet

** Depending on structure stability*
Source: Vibration Study 2010 and Addendum to the Vibration Study 2013

In addition, the Summerland World War I Monument, a historical resource for the purposes of the California Environmental Quality Act, would not be affected by construction-related vibration. The monument is 20 feet from a proposed soundwall, but alternate construction methods would be used as a protective measure.

Properties that fall within established safe buffer zones would have site-specific low vibration construction methods used to ensure there are no impacts due to construction-induced vibration.

Avoidance, Minimization, and/or Mitigation Measures

Utilities and Emergency Services

Coordination between Caltrans and service providers would strive to ensure utility and services are not disrupted. Preconstruction utility location would be required in conjunction with service providers to avoid disruption of any utility service. Before and during construction, all utilities in conflict with the proposed project would be relocated, avoided, or protected in place. Design would continue to minimize the need for utility relocations and reconstruction.

Traffic and Transportation/Pedestrian and Bicycle Facilities

A Traffic Management Plan would be developed before building the project. Measures would be taken to avoid impacts to emergency services with alternate routes made available for use during construction. During all temporary closures, detour routes would be provided for vehicles, pedestrians, and bicycles. Caltrans plans to work closely with County Public Works regarding the construction traffic management plan for neighborhood streets surrounding the Sheffield Drive Interchange and with City of Santa Barbara Public Works with regard to a construction traffic management plan for neighborhood streets surrounding the Cabrillo Boulevard interchange. At the completion stage of the project, Caltrans would evaluate local streets to determine to what extent repair or repaving is required and to ensure that the project meets the Americans with Disabilities Act requirements. The plan would consider phasing and scheduling associated with other construction projects in the corridor to minimize delays to the driving public.

The Traffic Management Plan for this project may include the following items:

- Public awareness campaign—Flyers, brochures, press releases, website, and advertising, as required, would inform travelers of the project.

- Construction Zone Enhanced Enforcement Plan—Additional California Highway Patrol officers would be assigned to the construction zone during peak travel times to ensure construction zone safety.
- Temporary facilities—Changeable message signs and ramp-detour notices would alert travelers to road closures, detours, and other pertinent information.
- Temporary access—Access would be provided to residences and businesses as necessary.
- Emergency services—Emergency services would be notified before any required roadway or highway lane closures.
- Maintenance schedule—The maintenance of traffic and sequencing of construction would be planned and scheduled to minimize traffic delays.
- Detour signs—When ramps are closed, detour signs would direct traffic to the nearest available ramp.

Cultural Resources

Caltrans concluded in a Finding of Adverse Effect (February 2011) and in a Revised Finding of Adverse Effect (September 2011) that the proposed project would have an adverse effect on the National Register-eligible Via Real Redeposited Midden. Caltrans has conducted extensive studies to characterize the location, extent, and composition of the midden deposit. Background research documented previous construction activities within the project Area of Potential Effects to assess the likelihood of finding any original ground or areas that had not been previously disturbed. The current South Coast 101 HOV Lanes project is limited to the existing state right-of-way—all of which has been highly disturbed by prior construction of the existing mainline highway and structures, as well as by utilities installation. A thorough archaeological survey was made of the project area, and a detailed geoarchaeological model was developed to identify and test the most likely areas for any buried archaeological deposits. These comprehensive studies suggest that the National Register-eligible portion of the site is not only located below the level of proposed U.S. 101 construction but is also located outside the state right-of-way—and therefore outside the Area of Direct Impact. Although Caltrans does not anticipate impacts to the redeposited midden, we nevertheless deem it prudent to consider the remote possibility of discoveries during construction.

- Avoidance, minimization and mitigation measures for cultural resources will be carried out through the implementation of the June 20, 2013 *Programmatic*

Agreement Between the California Department of Transportation and the California State Historic Preservation Officer Regarding the South Coast 101 HOV Lanes Project, U.S. Route 101, Santa Barbara County, California and the appended *Treatment and Data Recovery Plan for the South Coast 101 High Occupancy Vehicle Lanes Project, Santa Barbara County, California (See Appendix D, State Historic Preservation Officer Correspondence).*

- The eligible portion of the Via Real Redeposited Midden, located outside the Area of Direct Impact, will be protected during construction by the establishment and enforcement of an Environmentally Sensitive Area with exclusionary fencing. The Environmentally Sensitive Area will be depicted on construction plans, with no access allowed during construction. Additionally, the Caltrans Environmental Construction Liaison will have a copy of the plan on file and maintain contact with the Resident Engineer, construction contractor, and archaeologist on Environmentally Sensitive Area compliance.

- Caltrans will prepare a technical report documenting the results of the implementation of the Data Recovery Plan. Copies of the report will be distributed by Caltrans to the State Historic Preservation Officer, the Central Coast Information Center of the California Historical Resources Information System, and to the Coastal Band of the Chumash Nation, the Santa Ynez Band of Chumash Indians, and Chumash individuals and groups participating in the consultation process.

- If Caltrans determines, during the implementation of the Data Recovery Plan, that the plan or project will affect a previously unidentified property that is categorically different from that covered in the plan, Caltrans shall address the discovery in accordance with Code of Federal Regulations Section 800.13(b).

- If human remains are discovered, State Health and Safety Code Section 7050.5(b) states that further disturbances and activities must cease in any area or nearby area suspected to overlie remains, and the county coroner would be contacted. Pursuant to State Health and Safety Code 7050.5(c), if the county coroner/medical examiner determines that the human remains are or may be of Native American origin, the Native American Heritage Commission will be contacted and the discovery will be treated in accordance with the provisions of California Public Resources Code 5097.98(a)-(d). The Native American Heritage Commission will notify the Most Likely Descendent. The Caltrans staff or construction personnel who discovered the remains will contact the cultural resource specialist who will then work with

the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code 5097.98 are to be followed as applicable.

Water Quality

Standard Caltrans temporary construction site and permanent design pollution prevention and permanent storm water treatment best management practices would be used during and after construction of the project to control potential discharges of pollutants to surface water. Best management practices would be designed with the goal of controlling general gross pollutants or sedimentation and siltation, depending on location. The required Storm Water Pollution Prevention Plan would address all the best management plans necessary to prevent water quality impacts during construction of the project. In addition, buffers from sensitive resources such as wetlands and riparian corridors would be established throughout the project area.

Rain-event action plans and the sampling and analysis requirements would require adequate best management plans prior to any predicted rain event, along with sampling every storm water discharge location three times a day to meet specific sediment and pH-level requirements. The following measures include several that overlap with discussions in Sections 2.3.1, 2.3.2, and 2.3.4.

- Approved work windows—Work in creek channels would occur between May 1 and October 31, unless creek channels dry up earlier than May 1. At Arroyo Paredon, Romero (Picay) and San Ysidro creeks, work would be limited to June 1 through October 31 to avoid impacts to migrating steelhead trout or tidewater goby. Refer to Section 2.3.4 for more detailed information.
- Stream diversions—Diversions may be necessary in some creeks. De-watering and diversion plans would be developed and submitted to appropriate regulatory agencies for review.
- Wetland disturbance—Temporary disturbances to existing wetlands during construction would be avoided to the maximum extent feasible. Where temporary disturbances to wetlands are unavoidable, reasonable measures to maintain the original grade and soil characteristics should be used to prevent permanent wetland loss.
- Construction and waterways—Construction equipment, parking areas and stockpiles would be located in upland locations that are at least 100 feet from all waterways, wetlands, and riparian areas.

Paleontology

The build alternatives are all constrained by the existing right-of-way and the laterally extensive geologic formations. Mitigation measures, specifically monitoring, salvage of fossil specimens, and data recovery during construction excavation for this project would result in the reduction of the potential adverse impact.

Paleontological mitigation for the project during construction would require the following:

- Review of design plans prior to their being ready to submit for the Coastal Development Permit process, must occur by a retained qualified Principal Paleontologist (holding a M.S. or Ph.D. in paleontology or geology, and is familiar with paleontological procedures and techniques). The Principal Paleontologist or an assigned project paleontologist would review the construction plans with proposed excavation sites and the prepared Paleontological Evaluation Report to determine which, if any, project component would involve earth-moving activities at depths sufficient to warrant monitoring and the corresponding development of a Paleontological Monitoring Plan. If monitoring is deemed necessary, the Principal Paleontologist would review the construction schedule to develop a monitoring schedule and compile accompanying costs. This information would be used to prepare a site-specific Paleontological Monitoring Plan, if one is determined necessary for reducing adverse environmental impacts on paleontological resources to an insignificant level. Prior to Coastal Development Permit application.
- A nonstandard special provision for paleontology mitigation must be included in the construction contract special provisions if monitoring has been determined to be necessary based on the final project design. The provision would advise the construction contractor of the requirement to cooperate with the paleontological salvage.
- The Paleontological Mitigation Plan would include monitoring locations and procedures for data collection as indicated below:
    - Recording pertinent geographic and stratigraphic information
    - Recovery methods for both macrofossil and microfossil remains
    - Stabilization (preservation) methods for the specimens

  - Provisions for the remains to be accessioned into the collections of an appropriate repository such as the Los Angeles County Museum or University of California Museum of Paleontology
  - Preparation of a final report detailing the results of the mitigation program

- The qualified Principal Paleontologist would be present at pre-grading meetings to consult with grading and excavation contractors.
- Before the start of excavation, the Principal Paleontologist would conduct an employee environmental awareness training session for all persons involved in earth-moving for the project.
- A paleontological monitor, under the direction of the qualified Principal Paleontologist, would be onsite to inspect cuts for fossils at all times during original disturbance of sensitive geologic formations. Once excavation is under way, the intensity of monitoring may be reduced in areas that are not producing fossils.
- When fossils are discovered, the paleontologist (or paleontological monitor) would recover them. Construction work in these areas may be halted or diverted to allow recovery of fossil remains in a timely manner.
- Bulk sediment samples would be recovered from fossiliferous horizons and processed for micro vertebrate remains as determined necessary by the Principal Paleontologist.
- Fossil remains collected during the monitoring and salvage portion of the mitigation program would be cleaned and prepared to the point of identification (not exhibition), sorted and cataloged.
- Prepared fossils, along with copies of all pertinent field notes, photos, and maps, would then be deposited in an appropriate and Caltrans-approved scientific institution with paleontological collections.
- A final report would be completed that outlines the results of the mitigation program and would be signed by the Principal Paleontologist and Professional Geologist.

Air Quality

Caltrans Standard Specification sections pertaining to dust control and dust palliative applications are required for all construction contracts and would effectively reduce and

control construction-emission impacts. The provisions of Caltrans Standard Specifications, Section 14 "Air Pollution Control" and Section 10 "Dust Control," require the contractor to comply with all California Air Resources Board and Santa Barbara County Air Pollution Control District rules, ordinances, and regulations.

Santa Barbara County Air Pollution Control District requires certain measures for all projects involving earth-moving activities. The first measure listed in the bullets below is required for all projects involving earth-moving activities regardless of the project size or duration. The measures are based on policies adopted in the 1979 Air Quality Action Plan for Santa Barbara County. Proper implementation of all of these measures, as necessary, is assumed to reduce fugitive dust emissions to an acceptable level and is strongly recommended for all projects involving earth-moving.

PM_{10} Measures

- During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this would include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency would be required whenever the wind speed exceeds 15 miles per hour. Reclaimed water would be used whenever possible. However, reclaimed water should not be used in or around crops for human consumption.
- Onsite vehicle speeds shall be reduced to 15 miles per hour or less, and disturbed areas would be minimized.
- Equipment and materials storage sites would be located as far away as possible from residential and public park areas, schools, and other possible sensitive receptors.
- Gravel pads shall be installed at all access points to prevent tracking mud onto public roads. Wheels and undercarriages of construction equipment should be washed off before leaving individual project sites. Placement of automatic wheel washing equipment at all site exit points is recommended.
- If importation, exportation and stockpiling of fill material are involved, soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site would be tarped from the point of origin.

- After clearing, grading, earth moving or excavation is completed, treat the disturbed area by watering, revegetation, or spreading soil binders until the area is paved or otherwise developed so that dust generation does not occur.
- In areas where the application of water may be impractical or not feasible, the use of chemical-based dust suppressants would be considered. Recommended areas include unpaved roads used for construction purposes, project parking areas, and equipment staging areas. The use of dust suppressants also should be considered for areas that may be susceptible to wind erosion after working hours, on weekends, or during holidays.
- Any dust, mud, or other debris tracked out from project sites onto public roads shall be cleaned up immediately, with total site cleanup (including public access roads) occurring no less than daily. The use of wet vacuum street sweepers is recommended.
- The contractor or builder would designate a person to monitor the dust control program and to order increased watering, as necessary, to prevent transporting dust offsite. The designated person's duties would include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons would be provided to the Santa Barbara County Air Pollution Control District prior to land-use clearance for map recordation and finish-grading for the structure.
- Caltrans and its contractors shall provide notification of demolitions to the Santa Barbara County Air Pollution Control District to ensure compliance with federal and local asbestos removal requirements. Notifications of demolitions must be made regardless of asbestos content and must be made prior to the start date of demolition activities.

Ozone Precursor (nitrous oxides and reactive organic compounds) Measures

As of June 15, 2008, fleet owners are subject to sections 2449, 2449.1, 2449.2, and 2449.3 in Title 13, Article 4.8, Chapter 9, of the California Code of Regulations to reduce diesel particulate matter and criteria pollutant emissions from in-use off-road diesel-fueled vehicles. The following would be adhered to during project grading and construction to reduce nitrous oxides and small particulate matter ($PM_{2.5)}$ emissions from construction equipment:

- All portable construction equipment shall be registered with the state's portable equipment registration program or permitted by the Santa Barbara County Air Pollution Control District by September 18, 2008.

- Diesel construction equipment meeting the California Air Resources Board's Tier 1 emission standards for off-road heavy-duty diesel engines should be used. Equipment meeting Tier 2 or higher emission standards would be used to the maximum extent feasible.
- The engine size of construction equipment shall be the minimum practical size.
- The number of construction equipment vehicles operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.
- Construction equipment shall be maintained in tune per the manufacturer's specifications.
- Construction equipment operating onsite shall be equipped with two to four degree engine timing retard or pre-combustion chamber engines.
- Catalytic converters shall be installed on gasoline-powered equipment, if feasible.
- Diesel catalytic converters, diesel oxidation catalysts, and diesel particulate filters as certified and/or verified by the Environmental Protection Agency or California Air Resources Board should be installed on onsite equipment.
- Diesel-powered equipment would be replaced by electric equipment whenever feasible.
- Idling of heavy-duty diesel trucks during loading and unloading shall be limited to 5 minutes; auxiliary power units would be used whenever possible.
- To the extent possible, construction traffic would be routed and scheduled to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Gasoline-dispensing equipment shall have local air district permits, be certified by the Air Board, and operated in accordance with local air district rules and the Air Board certification requirements. Periodic maintenance and testing are specified under the Air Board executive order that was issued for the certification and by many local air district rules. Equipment repairs and testing must be performed by trained personnel with proper certifications by the manufacturers and, depending on the air pollution control district, by the International Code Council. In addition, local air pollution control districts generally require records of all repair and testing activities to be maintained onsite.

Noise

No adverse noise impacts from construction are anticipated because construction noise would be minimized by the following measures;

- Caltrans will consider constructing the permanent noise barriers before begining project construction so that the barriers can reduce construction noise transmission to adjacent residents and other land uses. When it would not interfere with other construction activities, recommended permanent soundwalls would be built during the first phase of construction to protect sensitive receptors from subsequent construction noise, dust, light, and glare.
- Advanced Notice: The resident engineer shall notify the District 5 Public Information officer to place notice of the proposed project in local news media in advance of construction. The notice will give estimated dates of construction and mention potential noise impacts.
- Public Relations: A telephone shall be installed in the Public Information Officer's office to receive noise complaints. The telephone number shall be publicized in local newspapers and by letter to residences near the construction area.
- Construction activities would be minimized near any residential areas during evening, nighttime, weekend, and holiday periods. Noise impacts are typically minimized when construction activities are performed during daytime hours. When possible, noisier construction tasks exceeding 87dBA within 50 feet of residential areas would be limited to weekdays from 7:00 a.m. to 5:00 p.m. It should be noted, however, that some nighttime construction is necessary to avoid major traffic disruption.
- In the case of construction noise complaints by the public, the construction manager would be notified and the specific noise-producing activity may be changed, altered, or temporarily suspended. District noise staff would be consulted if specific noise-producing activities cannot be adequately reduced in the field.
- All equipment would have sound-control devices no less effective than those provided on the original equipment. All equipment shall operate with muffled exhaust.

- When feasible, the use of loud sound signals such as back-up warning buzzers or alarms would be avoided in favor of light warnings. The exception would be those cases required by safety laws for the protection of personnel.

- As directed by the Caltrans resident engineer, the contractor will implement appropriate additional noise mitigation measures such as notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.

- Temporary barriers would be used, if needed, to protect residential areas from excessive construction noise generated by such items as compressors, generators, pneumatic tools, and jackhammers. Noise barriers can be made of heavy plywood, moveable insulated sound blankets, or other best available control techniques.

Vibration

- Avoiding the adverse vibration effects caused by planned construction activities and subsequent highway operations involves informing the public of the potential for these effects and using physical methods to reduce vibration impacts. Information disseminated to the public about the kinds of equipment and expected noise levels and durations would help to forewarn potentially affected neighbors about the temporary inconvenience. In these cases, a general description of the variation of noise levels during a typical construction day would be included.

- All of the structures that fall within the established buffer zones would have site-specific low-vibration construction methods employed to ensure there are no structural impacts caused by construction-induced vibration. Mobile homes, however, do not have rigid foundations and are built to withstand the type of vibration typical of soundwall construction. There is little potential for vibration-related impacts to these structures.

- A Vibration Reduction Plan would be prepared to address potential effects of construction vibration. In all cases where properties fall within the established buffer zones, impacts from vibration would be avoided by using alternative construction methods near susceptible structures. Elsewhere, minimization measures to reduce the effects would be developed and included in the plan.

- Every attempt should be made to reduce the adverse vibration effects from construction activities through the use of modern techniques, procedures, and

products. The following steps would be taken in development of the location-specific Vibration Reduction Plan:

- Identify potential problem areas surrounding the localized project work area.
- Determine existing conditions before construction begins.
- Notify nearby residents and property owners that a vibration-generating activity is imminent.
- Inform the public about the project and potential vibration-related consequences.
- Schedule work to reduce adverse effects.
- Design construction activities to reduce vibration.
- Monitor and record vibration from the activity if necessary.
- Respond to and investigate complaints.

- To reduce the effects of construction vibration from pile driving, structure demolition, and pavement breaking for vibration sensitivity zones at 100-foot and 300-foot intervals, the following measures would be included in the Vibration Reduction Plan:
  - Through the local news media and by mail, notify residents within 300 feet of areas where construction activities and pavement breaking would take place at least two weeks in advance of the proposed activity. Residents may wish to secure fragile items that could be damaged by shaking.
  - Arrange for motel rooms for residents living adjacent to the proposed activity when protracted vibrations approaching 0.20 inch per second are expected at their residences at night.
  - Monitor and record peak particle velocities near identified sensitive receptors while the highest vibration-producing activities are taking place (see Appendix K of the Vibration Technical Report).
  - Use rubber-tired vehicles instead of tracked vehicles, when possible, near vibration-sensitive areas.
  - Assure that asphalt paving and bridge forms are smoothed to specified tolerances, especially where there is heavy truck traffic near residences.
  - Perform activities most likely to propagate objectionable vibrations during the day, or at least before most residents retire for the night.

- Restrict pavement breaking to daylight hours.
- Conduct pile driving, as much as possible, during daylight hours.
- Phase demolition, earth-moving, and ground-disturbing operations so as not to occur in the same time period. Unlike noise, the total vibration level produced could be substantially less when each vibration source operates separately.

- Use of Standard-Plan cast-in-drill-hole piles, trench footings, or spread footings are the preferred foundations for locations requiring low-intensity vibration construction (Peak Particle Velocity not to exceed).

Carpinteria

Northbound - Post Mile 3.31to 3.46 <0.25 in/sec at buildings
Northbound - Post Mile 3.66 to 3.73 <0.50 in/sec at buildings
Northbound - Post Mile 3.73 to 3.76 <0.25 in/sec at buildings
Northbound - Post Mile 3.76 to 3.79 <0.50 in/sec at buildings
Southbound - Post Mile 3.68 to 3.72 <0.25 in/sec at buildings
Southbound - Post Mile 3.72 to 3.74 <0.50 in/sec at buildings
Southbound - Post Mile 3.74 to 3.78 <0.25 in/sec at buildings
Southbound - Post Mile 3.90 to 3.95 <0.25 in/sec at buildings
Southbound - Post Mile 3.95 to 4.05 <0.50 in/sec at buildings

Summerland

Northbound - Post Mile 7.84 to 7.89 <0.25 in/sec at buildings
Northbound - Post Mile 7.89 to 7.94 <0.25 in/sec at buildings
Northbound - Post Mile 8.05 to 8.18 <0.25 in/sec at buildings
Northbound - Post Mile 8.20 to 8.24 <0.25 in/sec at buildings
Northbound - Post Mile 8.41 to 8.44 <0.50 in/sec at buildings
Northbound - Post Mile 8.47 to 8.53 <0.50 in/sec at buildings

Sheffield

Northbound - Post Mile 9.09 to 9.14 <0.25 in/sec at buildings
Northbound - Post Mile 9.19 to 9.23 <0.25 in/sec at buildings

Montecito/Santa Barbara

Southbound - Post Mile 9.56 to 9.59 <0.25 in/sec at buildings
Northbound - Post Mile 9.67 to 9.72 <0.25 in/sec at buildings

Northbound - Post Mile 10.18 to 10.20 <0.25 in/sec at buildings

Southbound - Post Mile 10.12 to 10.59 <0.25 in/sec at buildings

Southbound - Post Mile 10.59 to 10.64 <0.50 in/sec at buildings

2.5 Cumulative Impacts

Regulatory Setting

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 the 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.

Project-specific Resources Considered in the Cumulative Impact Analysis

A cumulative impact analysis is required whenever an environmental document is prepared. The purpose of a cumulative impact analysis is to analyze the potential incremental environmental impacts associated with a project in conjunction with past, present, and reasonably foreseeable future projects. As specified in Caltrans/Federal Highway Administration guidance (Guidance for Preparers of Cumulative Impact

Analysis, July 2005), if the proposed project would not result in a substantial direct or indirect impact to a resource, it would not contribute to a cumulative impact on that resource. This cumulative impact analysis includes resources that are substantially affected by the project and resources that are currently in poor or declining health, or that would be at risk even if project impacts would not be substantial.

Based on the above guidance, the following resources were studied and would either not be substantially impacted by the proposed project or were determined not to be in poor or declining health. Therefore, these resources were not included in the cumulative impact analysis for this project.

- Land Use, Growth, and Community Impacts (see Sections 2.1.1 to 2.1.3)
- Farmland/Timberland (see beginning of Chapter 2)
- Wild and Scenic Rivers (see beginning of Chapter 2)
- Traffic and Transportation/Pedestrian and Bicycle Facilities (see Section 2.1.5)
- Cultural Resources (see Section 2.17)
- Hydrology and Floodplain (see Section 2.2.1)
- Geology/Soils/Seismic (see Section 2.2.3)
- Paleontology (see Section 2.2.4)
- Hazardous Waste (see Section 2.2.5)
- Air Quality (see Section 2.2.6)
- Noise (see Section 2.2.7)

Resources to Consider (and their respective study areas)

Traffic and Transportation/Pedestrian and Bicycle Facilities—Traffic studies prepared for the project analyzed the U.S. 101 corridor from the Ventura County line to the City of Goleta. The highway includes ramp intersections that would see changes as part of the project. Some secondary intersections that would not be physically affected by the Caltrans project but could see changes in traffic patterns were also included in the study.

A total of 104 intersections were analyzed within the 27.5-mile traffic study area. The intersections analyzed generally included ramp junction intersections as well as adjacent intersections near the end of the ramp within the traffic study area. This analysis was completed to ensure that the proposed project would not result in substantial changes to traffic levels at ramp junctions and local intersections. Many of the intersections in the study were outside of the project limits. The purpose for an expanded study was to

determine the current conditions and anticipate changes that could be brought about by the project as a result of shifting traffic patterns.

Visual/Aesthetics—The resource study area for aesthetic and visual resources includes views of and from the proposed project limits, largely within the Caltrans right-of-way. Although the project limits are defined by the U.S. 101 corridor between the Bailard Avenue overcrossing in the City of Carpinteria and Sycamore Creek in the City of Santa Barbara, the resource study area for visual/aesthetics is expanded along U.S. 101 from Goleta to the north to the Ventura County line to the south. There are specific locations outside the highway right-of-way where commercial or residential development can be seen along certain frontage roads: Jameson Lane, Padaro Lane, and Via Real. When seen from the highway throughout much of the project area, noticeability of the built character of the adjacent communities is limited due to differences in elevation, walls, and vegetation. The built character of the adjacent communities is most noticeable throughout some areas in Carpinteria, Summerland, and in the vicinity of Cabrillo Boulevard near the bird refuge and zoo. For transportation projects specifically occurring on U.S. 101, the resource area for visual/aesthetics was expanded to include highway projects from Ventura County to Goleta.

Water Quality— The resource study area for water quality is the South Coast Hydrologic Unit, which is made up of small coastal watersheds originating in the southern Los Padres National Forest and draining to the Santa Barbara Coast. Eleven large watersheds sit within the project limits (Carpinteria Creek, Franklin Creek, Santa Monica Creek, Arroyo Paredon, Garrapata Creek, Toro Creek, Greenwell Creek, Romero Creek, San Ysidro Creek, Oak Creek, and Montecito Creek). Most of the watersheds drain directly into the Pacific Ocean, but two watersheds drain into the Carpinteria Marsh.

The main watershed and topography in which this project is situated is the South Coast Hydrologic Unit, made up of small coastal watersheds originating in the southern Los Padres National Forest and draining to the Santa Barbara coast and Pacific Ocean (see Section 2.2.2 Water Quality and Storm Water Runoff).

For geomorphological purposes, waters of the United States delineated in this project fall into three general categories: partially altered creek channels, highly altered creek channels, and human-made drainage features (also see Section 2.2.2 Water Quality and Storm Water Runoff).

Biological Resources—Wetlands and endangered species were included in this category.

Wetlands—There are a number of coastal wetlands in the vicinity of the project, including the Carpinteria Salt Marsh and the Andrée Clark Bird Refuge. These wetlands occur within various watersheds that lie in the project limits (Carpinteria Creek, Franklin Creek, Santa Monica Creek, Arroyo Paredon Creek, Garrapata Creek, Toro Creek, Greenwell Creek, Romero Creek, San Ysidro Creek, Oak Creek, and Montecito Creek). The project is situated in the South Coast Hydrologic Unit, which is made up of small coastal watersheds originating in the southern Los Padres National Forest and draining to the Santa Barbara coast and Pacific Ocean (see Section 2.2.2 Water Quality and Stormwater Runoff). Water flows through steep slopes in the upper watershed, then through mid-elevations which support estate homes and other rural residential or agricultural uses, and finally across flat coastal terraces to the ocean. Coastal wetlands in the vicinity of the project area are associated with the flat coastal terraces in the lower portions of these watersheds. The resource study area consists of coastal terraces in the lower portions of coastal watersheds in the South Coast Hydrologic Unit.

Endangered Species—There are two endangered species in the project limits—tidewater goby and steelhead trout.

- *Tidewater goby (Eucyclogobius newberryi* —Known occurrences in the vicinity of the project include the following locations: lower reaches of Arroyo Paredon Creek, lower reaches of Carpinteria Creek, the Carpinteria Salt Marsh (including near the mouth of Franklin Creek), the Andree Clark Bird Refuge, and Sycamore Creek. Critical habitat for this species exists within the project limits at Arroyo Paredon Creek. The species has been found in the creek immediately downstream of the project area. The limits of critical habitat for the species in Arroyo Paredon Creek are from the ocean to approximately half a mile upstream. The species also occurs in the lower reaches of Carpinteria Creek, which is not critical habitat.

- *Steelhead trout (Oncorhynchus mykiss)*—Steelhead trout are an ocean-going form of rainbow trout native to Pacific Coast streams from Alaska south to northwestern Mexico. The Southern California Distinct Population Segment (DPS) of steelhead trout was listed as federally endangered on August 18, 1997. This Distinct Population Segment includes populations from the Santa Maria River south to the Tijuana River at the U.S.-Mexico border (NOAA 1997). Within the project limits, critical habitat for the Southern California DPS of steelhead trout includes the following creeks: Carpinteria, Arroyo Paredon, Romero, San Ysidro, Montecito, and Sycamore Creeks.

The National Oceanic and Atmospheric Administration's Southern California Steelhead Recovery Plan (2012) groups these creeks regionally as part of the recovery strategy. Creeks within the footprint of the South Coast 101 HOV lanes project fall within the Conception Coast Biogeographic Population Group (BPG), defined in the Recovery Plan. This region encompasses eight small coastal watersheds that drain a 50-mile stretch of south-facing slopes of the Santa Ynez Mountains in southern Santa Barbara County and extreme southwestern Ventura County. The resource study area includes the watersheds within the Conception Coast Biogeographic Population Group. These watersheds are relatively homogenous in slope, aspect, and size with steep upper watersheds and lower watersheds that cut across a relatively narrow coastal terrace.

Current Health and Historical Context

Traffic and Transportation and Pedestrian/Bicycle—Circulation on U.S. 101 in the project limits has been declining over the past 30 years as the numbers of vehicles using the facility have been increasing, but the facility itself has seen limited changes and improvements. As a result, heavy traffic conditions already occur several hours each day during the morning and evening commutes. As indicated in Table 1.1 (Chapter 1), congested conditions are already occurring for 4.5 hours per day and are predicted to reach 11 hours per day by 2040, without the project. Changes are needed to both the mainline and the Cabrillo Boulevard/Hot Springs Road interchange. The recently constructed 101 Operational Improvement Project from Milpas Street to Hot Springs Road improved highway conditions in the immediate vicinity, but not for the entire 10-mile length of the traffic study area. The Santa Barbara/Ventura HOV Lane project in northern Ventura County and the City of Carpinteria will improve conditions south of the project limits. The Linden and Casitas Pass Interchanges project will also provide improvements to U.S. 101 and adjacent local roads in the City of Carpinteria.

Visual/Aesthetics—Much of the area has been greatly influenced by development of some sort. The typical skyline vegetation along the highway and developed areas consists of mature cypress, pine, eucalyptus and palms. Native vegetation is visible mostly on the hillsides and consists of coast live oak woodland, coastal sage scrub, chaparral and riparian plant communities. Vegetation in the form of orchards is present at scattered locations, particularly in the foothills near Summerland and Carpinteria. Some degree of highway median planting is found throughout much of the project's length. At certain locations, particularly through the Padaro and Montecito Assessment Units, the median planting includes mature and skyline trees and dense shrubs. Along other sections of the

highway corridor, the median planting is somewhat sparse and at times has a weedy appearance. In most instances, the median planting, even if sparse, adds to the vegetative character of the corridor as well as reduces views of the opposing lanes of the highway.

The U.S. 101 corridor through southern Santa Barbara County has experienced low to moderate visual change over the last several years, while the Ventura County section of the corridor has experienced a higher degree of change. These changes have resulted from several highway improvement projects that occurred in the cities of Ventura and Oxnard along with numerous local development projects. Population increases have been greater in these two cities.

Except for the 101 Operational Improvement project (Milpas Street to Hot Springs Road) recently completed and the Ortega Hill bike path near Summerland, there have been few highway projects resulting in substantial visual changes within the project limits for the proposed project. For this reason, many of the median and roadside locations contain mature, well-established vegetation. The heavily vegetated stretches of this corridor along with open ocean views provide memorable views for people who travel the highway.

Water Quality—Water quality in the project-affected watersheds continues to decline. Historically, the water quality in these areas has been cumulatively impacted from various impairment sources. Groundwater throughout the project area may contain agricultural chemicals (fertilizers, herbicides and pesticides). The groundwater in the Arroyo Paredon Creek watershed is known to have high levels of nitrates.

Wetlands—There is an overall decline in the quality of the wetlands in the project vicinity due to ongoing development and encroachment. At least 75 percent of Southern California's former coastal wetlands has been lost, and the remainder experiences varying levels of degradation (Wiley and Zembel 1989). In 2007, a study of the health of the state's 44,000+ acres of salt marshes showed that 85 percent of the wetland area was in "good" or "very good" condition. Similarly, approximately 60 percent of the miles of riverine riparian habitat in wadeable streams are considered "healthy." However, statewide surveys of salt marsh and wetlands associated with streams show declining health as a function of increased urbanization (California State of the State's Wetlands Report, 2010).

Some wetlands in the project vicinity are considered high functioning and add value, such as the Carpinteria Salt Marsh and the Andrée Clark Bird Refuge. The Carpinteria Salt Marsh is the largest remnant of the native ecosystem in the region and has the highest occurrence of special-status species in the area. The Carpinteria Salt Marsh supports

several special-status wildlife species, providing shelter, foraging, breeding and rearing habitat. A portion of the marsh is protected as a conservation and research reserve by the University of California Natural Reserve System, and the remainder is overseen by the City of Carpinteria as the Salt Marsh Nature Park. Impacts to the Carpinteria Salt Marsh from agricultural runoff, sedimentation, invasive species, and mosquito abatement threaten its productivity (Santa Barbara Coastal Plan 1982).

The Andrée Clark Bird Refuge is a 42-acre open space that is an artificially modified estuary supporting brackish wetlands. The refuge is managed by the City of Santa Barbara and provides habitat for resident and migratory birds and other sensitive wildlife species. An annual vegetation/silt removal plan approved in 2012 includes the enhancement of 0.89 acre of previously disturbed wetland habitat. Enhancement and restoration will include removing non-native and invasive plant species from disturbed wetland areas and revegetation with wetland/riparian plantings.

Within the project limits, some human-made drainage features built for storm water conveyance are single-parameter wetlands under the Coastal Commission definition. This definition requires the observation of one diagnostic feature of a wetland such as wetland hydrology, dominance by wetland vegetation (hydrophytes), or presence of hydric soils as a basis for asserting jurisdiction under the Coastal Act. These drainage features may provide some level of function and service dependent on their size, hydrologic regime, and composition, but because vegetative cover and bank contours of human-made channels are routinely altered by maintenance activities, they are generally considered low-quality wetlands.

Tidewater Goby (Federally Endangered)**—**Historically, the tidewater goby occurred in at least 135 California coastal lagoons and estuaries ranging from Tillas Slough near the Oregon border south to Agua Hedionda Lagoon in northern San Diego County. The species is currently known to occur in about 112 locations, although the number of sites fluctuates with climatic conditions. According to the U.S. Fish and Wildlife Service, currently the most stable populations are in lagoons and estuaries of intermediate size (5 to 24 acres) that are relatively unaffected by human activities. The highest densities of tidewater gobies are typically present in the fall.

The decline of the tidewater goby is attributed mainly to habitat loss or degradation resulting from urban, agricultural, and industrial development in and around coastal wetlands. At present, the natural diversity and integrity of coastal lagoon and estuary habitats are threatened primarily by habitat modification and loss, discharge of sewage or agricultural effluents, introduction of exotic fish species, habitat channelization, summer

breaching or lagoons, decreased freshwater inflow and excessive sedimentation. No range-wide, long-term monitoring program is currently being conducted for the tidewater goby, and data on population dynamics are limited. As a result, it is difficult to obtain population size estimates for the tidewater goby because of the variability in local abundance. Tidewater goby populations can also vary greatly between years with varying environmental conditions (USFWS 2005).

In the 2005 Final Recovery Plan for the tidewater goby, the U.S. Fish and Wildlife Service recommended down-listing the status of the species from endangered to threatened (USFWS 2005). When the tidewater goby was proposed for listing as endangered in 1992 (57 FR 58770), California had just experienced what is considered the most severe drought in the history of the state, which lasted for 5 years from 1987 to 1992 (Priest et al., 1993). At the time of listing in 1994, it was believed that only 48 localities remained occupied; additional tidewater goby localities have been identified since the time of listing. Based on the more than doubling of the number of occupied localities since the tidewater goby was listed, the U.S. Fish and Wildlife Service determined that the Service considers the species to be more resilient to disturbance and climatic factors than previously expected. On March 12, 2014, the U.S. Fish and Wildlife Service formally proposed reclassifying the tidewater goby from endangered to threatened under the Endangered Species Act.

Steelhead Trout (Federally Endangered)**—**Estimates of historical (pre-1960s) and more recent (1997) abundance show a steep drop in numbers of spawning steelhead trout for major rivers in the Southern California Distinct Population Segment (DPS). Prior to 1960, steelhead trout were abundant in all of the streams and rivers in the resource study area. An updated status report states that the chief causes for the numerical decline of steelhead trout in Southern California include urbanization, water withdrawals, channelization of creeks, human-made barriers to migration, and the introduction of exotic fishes and riparian plants (NOAA 2013).

In 2011, the National Oceanic and Atmospheric Administration determined that the Southern California Coast steelhead trout DPS should remain classified as an endangered species due to the fact that “the extinction risk of the DPS is essentially unchanged and the threats responsible for its decline remain largely unchanged.” However, the review also noted that a number of recovery-related activities have been undertaken since 2005, which could reduce future threats and lead to increased abundance of steelhead trout populations. Recovery activities include inventories of passage impediments on major watersheds throughout the range of the DPS (Santa Maria/Sisquoc, Santa Ynez, Santa

Ynez Mountains complex, Ventura, Santa Clara, and Santa Monica Mountains complex, San Juan/Arroyo, San Luis Rey), and the construction of fish passage facilities along a number of streams including Ventura River (Robles Diversion Dam), Santa Paula Creek (Harvey Dam), Salsipuedes Creek, San Ysidro Creek, and a number of smaller watersheds along the Conception Coast. In addition, planning for the removal of various dams has advanced substantially, including Matilija Dam in the Ventura River watershed and Rindge Dam on Malibu Creek. Additional fish passage projects are in the planning stages along the Conception Coast, and a number of impediments to fish passage caused by road crossings and other in-stream structures have been eliminated or substantially improved as a result of retrofitting such structures.

Projects to Consider

Table 2.50 contains projects that are reasonably foreseeable in the near future or have recently been completed. Many are Caltrans-proposed projects, and several are railroad improvement projects. The remainder includes projects authorized by or proposed by local agencies.

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Table 2.50 Potential Cumulative Project List

Project Name or Applicant	Project Location (Post Mile)	Project Description	Impacts
Transportation Projects—U.S. 101			
Bailard Overcrossing	PM 1.6	Provide standard clearance at this overcrossing.	Impacts unknown; project in preliminary studies.
U.S. 101 Operational Improvements—Milpas Street to Hot Springs Road	U.S. 101 (PM 10.8 to 12.8)	Completed in fall 2012, this project included 2.0 miles of improvements in the City of Santa Barbara. The project included additional northbound and southbound lanes, local road improvements, and bicycle and pedestrian enhancements.	Mitigation reduced potential visual impacts to a less than significant level.
U.S. 101 Linden Avenue to Casitas Pass Road Interchanges Project	U.S. 101 (PM 2.2 to 3.4)	This 1.1-mile-long project includes reconstruction of two interchanges, replacement of Carpinteria Creek Bridge, and a new Via Real connection south to Bailard Avenue.	Mitigation reduced potential visual impacts to a less than significant level.
Ventura/Santa Barbara 101 HOV Project	U.S. 101 (PM 39.8 Ven. Co to PM 2.2 SB Co)	The project consists of adding a high occupancy vehicle (HOV) lane in each direction between the Mobile Pier undercrossing in Ventura and Casitas Pass Road in Santa Barbara County. The project began construction in spring 2012 and will finish in 2015.	Mitigation reduced potential visual impacts to a less than significant level.
U.S. 101 Rehabilitation Project	U.S. 101 (PM 2.6 to 11.9)	The project proposes to replace the paved structural section of the highway to correct deficiencies indicated in the Pavement Condition Survey. Outside shoulders would be widened to 10 feet wide where feasible. Ramps would be rehabilitated, including removal of existing concrete curbs and concrete gutters. The work would occur within the existing right-of-way and would be performed simultaneously with the South Coast 101 HOV Lanes project.	The project would increase impervious coverage and encroach into wetland buffers. See Table 2.51 for details.
Santa Barbara Curb Ramp Project	U.S. 101 (PM 2.6 to 11.9)	Construct and/or improve 43 curb ramps (some with minor sidewalk extensions) at 20 locations along Routes 1, 101, 154, 192 and 246 in Santa Barbara County.	The project would not add impervious coverage. There would be no direct/indirect impacts to traffic circulation, visual resources, water quality or biological impacts.

Project Name or Applicant	Project Location (Post Mile)	Project Description	Impacts
Butterfly Pedestrian ADA	U.S. 101 (PM 11.0)	Bring the existing pedestrian overcrossing into compliance with ADA by constructing ramps at each entrance. Some landscaping will be removed, including skyline trees. There is room for some replacement landscaping and perhaps small trees, but unlikely any large varieties would go back at that location.	Potential visual impacts; the project adds impervious surface.
Local Infrastructure Improvements (parking, access and bike/pedestrian trail)			
Santa Claus Lane: Streetscape, Beach Access, and Parking	Santa Claus Lane	Santa Barbara County is proposing to construct parking along Santa Claus Lane and improve beach access for vehicles and pedestrians.	Caltrans design efforts will consider the county's proposal to avoid potential conflicts.
Santa Claus Lane Bike Path		The Santa Claus Lane Class I bike path project would connect Santa Claus Lane to Carpinteria Avenue on the southbound side of U.S. 101. This project would close the coastal trail gap between Santa Claus Lane and the Carpinteria Marsh.	The project would likely impact wetlands due to conflicts with Carpinteria Marsh.
Carpinteria Rincon Trail	Carpinteria Avenue to Rincon Beach County Park	A paved bicycle/pedestrian trail intended to close the coastal trail gap between Carpinteria Avenue and the new Class I trail along U.S. 101 at Rincon.	About 0.95 acre of vegetation communities would be permanently impacted (0.41 acre of coastal sage scrub and 0.52 acre of coastal bluff scrub). An additional 0.26 acre of coastal sage scrub and 0.38 acre of coastal bluff scrub would be removed temporarily.

Project Name or Applicant	Project Location (Post Mile)	Project Description	Impacts
Railroad Improvements			
LOSSAN North	Multiple locations	The project consists of 39 individual railroad improvements between the San Luis Obispo train station and the Los Angeles Union Station, a total length of 222 miles. The project includes track upgrades, signal upgrades, new sidings and siding extensions, construction of second main tracks, curve realignments, grade separations, and station improvements in order to increase capacity and cost-effectiveness, reduce running time, and improve safety of intercity passenger rail.	Potential impacts will not be known until site-specific studies are completed.
San Luis Obispo - Santa Barbara Track Upgrades	Between SLO and Santa Barbara, mile post 248.44 to mile post 355.80	The railroad project would upgrade 107.36 miles of track from Class 3 to Class 4 track standards (per Federal Railroad Administration).	Potential impacts will not be known until site-specific studies are completed.
South San Luis Obispo to Goleta Continuous Centralized Traffic Control	Between SLO and Goleta	This railroad project would link the previously established Centralized Traffic Control (CTC) between South San Luis Obispo and Goleta, establishing continuous CTC throughout the LOSSAN corridor from San Luis Obispo to San Diego.	Potential impacts will not be known until site-specific studies are completed.
Goleta Service Track Extension	Goleta Station	The railroad project would extend the existing service track at Goleta station, add a new power-operated Number 20 turnout at the current stub end, and relocate the existing train wash.	Potential impacts will not be known until site-specific studies are completed.
Ortega Railroad Siding	In the vicinity of Padaro Lane	The south end of the Ortega railroad siding was removed due to disrepair. The remaining portion is now used as a stub track for maintenance equipment. The project would reconstruct and lengthen this siding to 9,240 feet. Power-operated Number 24 turnouts would be installed and control points.	Potential impacts will not be known until site-specific studies are completed.
Sandyland Siding	Mile post 373.25 to Mile post 378.10, north of the existing Carpinteria station	The railroad project would add a new 11,000-feet long siding and would incorporate the Carpinteria siding built earlier. It would involve widening two pre-stressed concrete box bridges, one 36 feet and the other one 65 feet. The siding would feature power-operated Number 24 turnouts and control points.	Potential impacts will not be known until site-specific studies are completed.

Project Name or Applicant	Project Location (Post Mile)	Project Description	Impacts
Carpinteria Siding	Begin at mile post 377.5 and end at mile post 378.1	The railroad project would construct a new sideing at the Carpinteria station. The siding would be 2,640 feet long and would include Number 24 power-operated turnouts, as well as a new passenger platform to facilitate use of both tracks.	Potential impacts will not be known until site-specific studies are completed.
Rincon Siding	Begin at approximately mile post 380.3 south to mile post 381.3	The proposed railroad siding would be constructed to the south of the Carpinteria siding. There appears to be sufficient clearance beneath the U.S. 101 overpass in addition to sufficient right -of-way. The siding would be roughly one-mile long.	Potential impacts will not be known until site-specific studies are completed.
Residential and Commercial Projects—Carpinteria			
Lagunitas Mixed Use	6380 Via Real	This mixed-use project consists of 85,000 square feet of commercial office building space and 73 residential units (36 condominiums and 37 single-family dwellings.	Site design, landscaping, and architectural features as required by permit reduce potential visual impacts.
Dahlia Court Apartments	1300 Dahlia Court	Construction is underway to add 33 affordable housing units to the existing 54 units. A 4,347-square-foot community center is also being added.	Increased local traffic.
Casas de las Flores Apartments	4096 Via Real	Forty-three affordable housing units will be constructed on the former Camper Park site (70-space mobile home park).	None.
Albertsons Expansion	1013 Casitas Pass Road	There is a 20,000-square-foot expansion of the Albertsons Grocery Store.	Increased local traffic.
Green Heron Springs	1300 and 1326 Cravens Lane	Demolition of existing building and construction of 30 new condominiums and renovation of an existing circa-1904 2-story farmhouse.	Project is proposed with the balancing of resources approach to create a win-win for housing and resources.
Mission Terrace Estates	1497 Linden	Construction is underway on a 27-unit housing project that includes 24 single-family market rate units and 3 affordable single-family units.	Increased local traffic.
Residential and Commercial Projects—Santa Barbara County			
Miramar Hotel	1555 S. Jameson Way	Renovation of an abandoned resort. The project was reduced over the previous approval. Proposal is for 186 rooms and no tennis court. The project has been delayed due to the economic downturn.	Increased traffic.

Project Name or Applicant	Project Location (Post Mile)	Project Description	Impacts
Residential and Commercial Projects—City of Santa Barbara			
Beachfront Hotel Development	433 E. Cabrillo Blvd and 103 S. Calle Cesar Chavez	A 50- to 60-room development plan for an upscale hotel and spa accommodations with parking and a working building.	Increased local traffic.
Paseo de la Playa	101 Garden Street	This project consists of 3 sites: a 45,125-square-foot commercial building on one site and 107 residential units on the remaining sites (affordable and market rate).	Increased local traffic.
Sustainable Mixed-Use	412 Anacapa Street	Proposal to subdivide existing 13,500-square-foot lot into 3 lots and build a 3-story sustainable mixed-use building on each new parcel. There will be a total of 4,074 square feet of commercial and 7,113 square feet of residential space and a total of 10 parking spaces.	Increased local traffic.
Mixed-Use Development	630 Anacapa Street	This project proposes to merge 2 lots and build a 3-story mixed-use building with below-grade parking. The project includes 6 separate commercial spaces and 3 studio apartments.	Increased local traffic.
Mixed-Use Development	528 Anacapa Street	This project proposes to demolish an existing 3,300-square-foot commercial building and build a mixed-use building in approximately 20,000 square feet (5,000 commercial/15,000 residential) on a 65,000-square-foot parcel.	No impacts.
Redevelop/Mixed-Use	617 Bradbury Avenue	This revised project proposes to demolish a single-family residence and build a new 5,978-square-foot mixed-use development that includes 918 square feet of commercial area and about 3,400 square feet of residential area.	No impacts.
Mixed-Use Development	825 De La Vina Street	Proposal for a mixed-use project that includes 1,606 square feet of commercial space, a 14,750-square-foot parking lot, and 7 residential condominiums averaging approximately 1,200 square feet each.	Increased local traffic.
Youth Hostel	12 E. Montecito Street	Proposal to build an 11,091-square-foot commercial youth hostel.	None.
McReynolds – City Ventures	535 E. Montecito Street	This project proposes to build 48 residential units on 10,285 square feet of land.	Increased local traffic.

Project Name or Applicant	Project Location (Post Mile)	Project Description	Impacts
Redevelop Gas Station property to mixed-use	1298 Coast Village Road	Proposal to demolish an existing gas station and build a 17,490-square-foot mixed-use building, including 5,215 square feet of commercial space and 12,275 square feet of residential space. A total of 36 parking spaces are proposed.	Potential hazardous waste impacts.
Commercial Building	718 E. Mason Street	Proposal to build a new 2,414-square-foot commercial building with office and warehouse space.	No impacts.
Residential and Commercial Projects—City of Santa Barbara			
Residential	1032 E. Mason Street	This project proposes to build six 2-story residential complexes on an existing 24,979-square-foot lot.	Increased local traffic.
Small Mixed Use Complex	517 Chapala	This project would build six residential condominiums totaling 10,147 square feet and 2 commercial condominium spaces totaling 2,729 square feet. One residential unit would be affordable.	Increased local traffic.
Cottage Hospital Foundation Workforce Housing	601 Micheltorena Street	This project proposes to demolish the former St. Francis Hospital and build workforce housing consisting of 115 residential condominiums on 5.94 acres of a 7.39-acre site.	Increased local traffic.
Commercial Buildings	406/408 Quarantina Street	This proposed project would demolish a single-family residence and build a 2,653-square-foot commercial building. Adjacent to that a new 2,717-square-foot commercial building is proposed.	Increased local traffic.
Mixed Use	116 E. Yanonali Street	Project proposes to demolish an existing warehouse/office and build a 13,203-square-foot mixed-use building, including 8,588 square feet of residential use and 4,615 square feet of commercial space.	Increased local traffic.
Mixed Use	416 E. Cota Street	This proposed project would merge three existing lots, demolish a commercial building, and build 57 residential units on 39,603 square feet.	Increased local traffic.
Residential/Daycare Facility	421 E. Cota Street	Proposal to demolish an existing building and build 8 residential apartments and a daycare center.	Increased local traffic.
Redevelopment/Mixed Use	34 W. Victoria Street	Proposal to demolish an existing 20,125-square-foot commercial building on a 1.4-acre site and build 23,125 square feet of commercial/retail space with 37 residential condominiums.	None.
Residential/Open Space	900-1100 Las Positas Road	This project would subdivide a 50-acre parcel into 30 lots; 15 acres will contain 25 single-family homes, while 35 acres will remain open space.	Increased local traffic.

Direct and Indirect Impacts of the Proposed Project that Might Contribute to a Cumulative Impact

Traffic and Transportation/Pedestrian and Bicycle Facilities

The Forecast Operations Report discusses adding local development to the traffic mix and identifies 2040 cumulative-plus traffic conditions. See Figure 2-8, which shows the Future Level of Service results for all of the intersections evaluated for the project. The 2040 volumes include anticipated local land use development.

Project impacts were based on measured operations between the future no-build condition and the future build condition. Given that U.S. 101 freeway operations were shown to improve within the study area as a result of the project, project-specific impacts were primarily focused on the freeway interface with the local agency transportation systems (i.e., ramp intersections and local study area intersections adjacent to ramps).

Impact criteria established as part of the traffic study included the use of local jurisdiction traffic impact criteria (which is typically used for determining impacts associated with development projects). For state-operated facilities, the Caltrans Level of Service (LOS) standard of LOS C was the basis for identifying impacts associated with the project. For locally owned intersections, assessments of impacts were analyzed using the Highway Capacity Manual (HCM) method and the ICU method consistent with each respective local agency's policies. This analysis also took into account a number of factors including signal warrant criteria, the preferred methodology of the jurisdiction that owned and operated the intersection, and other factors.

Combining the impact analysis results described above, Table 2.51 lists all intersections identified with cumulative-plus project impacts. A total of 15 intersections are shown to have cumulative-plus project impacts associated with the South Coast 101 HOV Lanes project.

The cumulative-plus impacts identified in the Forecast Operations Report are largely due to the project's basic purpose to provide long-term corridor congestion relief. Due to redistribution of traffic, the project would result in some changes to local traffic patterns at some ramp junctions of the highway system. The project would enable the highway to better handle the vehicles currently using the corridor, and some intersections could see added delays because improved travel times on the highway would cause vehicles to enter nearby intersections in higher numbers. Other intersection operations would be consistent with the no-build condition or improved. The project would also encourage

future carpooling and facilitate delay reduction for transit services that travel within this corridor.

The final determination by Caltrans was that the impacts identified in the traffic studies do not reach a level of significance that requires mitigation. This determination is rooted in the fact that the purpose and need for the HOV project is to provide significant daily congestion relief in the larger corridor, and the traffic studies demonstrate that this overall congestion relief is achieved by the project (the project is anticipated to result in nearly 14,000 person hours of delay savings daily in 2040). Intersections outside the project limits where some increases in delay are projected to occur under a build scenario are tradeoffs associated with the project and are not significant in comparison to the overall level of congestion relief achieved by the project.

The draft environmental document for the project disclosed that there are some delay increases at a number of local jurisdiction and state-controlled intersections. The amount of added delay associated with these intersections, however, in not significant for two reasons: 1) the added intersection delay is minimal in relation to significant delay reduction benefits associated with the project, and 2) the project is a congestion relief project and is not generating trips (instead it is allows individual motorists to make rational choices to travel at times they may find problematic without the larger corridor congestion relief project). Except for changes proposed at the Hot Springs/Cabrillo Interchange, no additional improvements are proposed as part of this project to address the delay changes associated with future traffic redistribution within or outside the project limits.

Table 2.51 2040 Cumulative-plus Traffic Conditions

ID	Intersection	Control [1]	Location	Total Entering Traffic Volumes				No Build Results		Build Results		Signal Warrant Met? [5]		Project Impact Threshold Criteria
				Existing	No Build	Build	Delta [2]	Delay (seconds) OR V/C [3]	LOS [4]	Delay (seconds) OR V/C [3]	LOS [4]	No Build	Build	
4	SB on/off ramp & SR 150	TWSC	Study Area									No	No	State
	PM Peak			644	644	672	28	30	D	36.3	E			
7	NB on/off ramp & Ballard Ave	TWSC	Study Area									No	No	State
	PM Peak			1,123	1,215	1,390	175	21	C	27	D			
14	Carpinteria Ave & Casitas Pass Rd	Signal	Study Area									N/A	N/A	City of Carpinteria
	PM Peak			1,805	2,193	2,329	136	29.9	C	37.4	D			
18	Linden Ave & Sawyer Ave	TWSC	Project Area									No	No	State
	AM Peak			944	1,066	1,277	211	25.8	D	41.3	E			
33	SB on/off ramp & Sheffield	TWSC	Project Area									No	No	State
	AM Peak			390	483	579	96	19.9	C	29.3	D			
49	SB on ramp & Milpas St	Signal	Study Area									N/A	N/A	State
	AM Peak			1,910	1,968	2,605	637	30	C	48.4	D			
	PM Peak			2,625	2,625	2,862	237	64.2	E	60.6	E			
55	NB on ramp & Castillo St	Signal	Study Area									N/A	N/A	State
	PM Peak			2,205	2,571	2,605	34	129.4	F	131.4	F			
57	SB on/off ramp & Castillo St	Signal	Study Area									N/A	N/A	State
	PM Peak			2,557	3,092	3,117	25	52.6	D	55.7	E			
59	SB on/off ramp & Carrillo St	Signal	Study Area									N/A	N/A	State
	AM Peak			3,435	3,677	3,689	12	56.8	E	62.7	E			
	PM Peak			3,778	4,141	4,164	23	33.6	C	35.6	D			
60	Carrillo St & Castillo St	Signal	Study Area									N/A	N/A	City of SB
	AM Peak			2,742	2,995	3,082	87	0.757	C	0.779	C			
64	SB on/off ramp & Mission St	Signal	Study Area									N/A	N/A	State
	AM Peak			2,705	2,817	2,838	21	34.5	C	35.9	D			
	PM Peak			2,473	2,793	2,883	90	53.1	D	65	E			
65	Mission St & Castillo St	Signal	Study Area									N/A	N/A	City of SB
	PM Peak			2,451	2,887	3,001	114	0.787	C	0.849	D			
79	SB on ramp & State St & Rt 154	TWSC	Study Area									N/A	N/A	State
	AM Peak			1,941	2,054	2,081	27	101.1	F	112.4	F			
	PM Peak			1,635	1,818	1,867	49	96.9	F	119.4	F			
90	NB on/off ramp & Los Carneros Rd	Signal	Study Area									N/A	N/A	State
	AM Peak			1,596	1,942	2,045	103	33.9	C	40	D			
106	Milpas St & Quinientos St	Signal	Study Area									N/A	N/A	City of SB
	PM Peak			2,518	3,118	3,181	63	0.866	D	0.909	E			

[1] TWSC - Two Way Stop Control, AWSC - All Way Stop Control

[2] As defined by difference between 2040 build and 2040 no build volume sets

[3] Delay is based on HCM 2000, Chapter 16 and 17 methodology. V/C based on Transportation Research Board Special Report 209

[4] HCM LOS is reported for the worst movement at TWSC intersections and for the overall intersection at AWSC and signalized intersections

[5] Based on Peak Hour Warrants (Signal Warrant #3) as described in California Manual on Uniform Traffic Control Devices at unsignalized intersections

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Visual Resources/Aesthetics

The transportation projects considered in this section include those located on U.S. 101 in northern Ventura and Santa Barbara counties, which would be built or finished within approximately five years from the start of construction of the proposed project. These transportation projects are considered for their likelihood to permanently impact visual resources along U.S. 101 in the South Coast region.

The U.S. 101 corridor between the City of Goleta and south into Ventura County has several major projects either currently under construction or planned for construction. The recently completed U.S. 101 Cathedral Oaks/Hollister Avenue overcrossing and Milpas Street Interchange to Hot Springs/Cabrillo Interchange projects and the Ventura/Santa Barbara HOV project currently under construction, as well as future projects including the Linden Avenue and Casitas Pass Road Interchanges and Rehabilitation projects, would increase the visual scale of the highway corridor and its urban character.

Though each of those projects would individually minimize or mitigate visual impacts, residual adverse effects would remain. The changes proposed as part of the South Coast 101 HOV Lanes project would further contribute to an alteration of visual character along the route. Project features, which include additional lanes to the freeway, vegetation removal, larger bridge structures, two new interchanges, and a number of soundwalls would produce substantial visual changes to the overall corridor, despite extensive planting and special design treatment. Although each of those projects would individually minimize and/or mitigate visual impacts, the cumulative visual effect of those projects combined with this South Coast 101 HOV Lanes project would be substantial.

The two local projects being considered for cumulative impacts would add architectural and landscape elements in their designs to minimize potential visual impacts and better fit the communities. In spite of these features, these projects would either maintain or increase the visibility of developed visual character along the highway.

Although the implementation of the mitigation and minimization measures previously listed in Section 2.1.6 and Appendix F would reduce the project's visual impact as seen from U.S. 101 and the surrounding communities, extensive visual impacts would remain, regardless of the project alternative. Mitigation measures, combined with proposed project features such as replacement landscaping and aesthetic treatments to walls, would lessen the adverse visual change to the corridor. However, because of the inherent

alteration of scale, increase of hard surface, and loss of vegetative character, substantial adverse cumulative visual impacts would occur in this corridor.

Water Quality

Water quality impacts were added to the cumulative analysis section after public circulation of the draft environmental document.

The project would increase areas of impervious coverage, which potentially increases the volume and velocity of storm water flow to downstream receiving water bodies. Also, pollutant loading may also be increased. The added impervious area is directly related to the potential permanent long-term water quality impacts. The increase of impervious surface area from future off-highway development may adversely affect long-term water quality by increasing the amount of storm water runoff, transportation-related pollutants, and associated targeted design constituents entering the storm drain system. New development would have to comply with existing regulations regarding construction practices that minimize risks of erosion and runoff (refer to Section 2.2.2). The goal for this and other projects is to minimize impacts by treating existing and proposed runoff to the maximum extent practicable. The potential short-term and long-term impacts are discussed in Section 2.2.2 (Water Quality).

Table 2.52 was added to compare the project's new net impervious coverage area to the existing impervious coverage in the larger watersheds within the project area. Although several additional Caltrans projects were added to the list of projects in Table 2.50, only the U.S. 101 Rehabilitation project in combination with the HOV Lanes project was included in Table 2.52. Table 2.52 shows the total increase and percentage of increase in net new impervious areas per large watershed. As a result of increased impervious surfaces, storm water runoff volumes and velocities in the project area are expected to increase with construction of the South Coast 101 HOV Lanes project and the Highway 101 Rehabilitation project, which is currently undergoing the scoping process but is being developed for a section of the project limits (post miles 2.6 to 11.9). In the evaluation of the larger watersheds in the project limits, the increased flows from the Caltrans-proposed projects would be less than significant and would not contribute to cumulative impacts. And, with the project's incorporated minimization measures (refer to Section 2.2.2 and Appendix F), the proposed South Coast 101 HOV Lanes project would not have a cumulatively considerable contribution to the cumulative effects related to water quality.

Biological Resources

Wetlands

This project in combination with several other projects identified in Table 2.50 will potentially have a cumulative impact to wetlands. Alternative 1 (the preferred alternative) would permanently impact 0.23 acre of wetlands and temporarily impact 0.045 acre of wetlands. The project's impacts will be offset by a 3 to 1 replacement of higher value wetlands in addition to other measures listed in Section 2.3.2 and Appendix F. Therefore, the project's contributions to cumulative impacts for wetlands are relatively minor. It is anticipated that other listed projects in Table 2.50 with potential to impact wetlands will also be mitigated appropriately. Because impacts from projects such as the Highway 101 Rehabilitation project, the Santa Claus Lane Bike trail, and Ortega Siding cannot be quantified until the designs are further along, it is difficult to assess the overall cumulative impacts that could result collectively.

Tidewater Goby

There is a Biological Opinion and incidental take permit for the Linden-Casitas project for tidewater gobies at Carpinteria Creek for the proposed work associated with the U.S. 101 bridge replacement. There is also a Biological Opinion and incidental take permit for tidewater gobies in Arroyo Paredon Creek as part of the South Coast 101 HOV Lanes project. The formal Section 7 process with the U.S. Fish and Wildlife Service concluded that with the agreed upon avoidance and minimization measures in place for both projects, neither Caltrans project is likely to jeopardize the continued existence of tidewater gobies at either creek or to adversely affect critical habitat for the species. Therefore, when considering both projects from a cumulative perspective, there would not be a significant effect.

Steelhead Trout

There is a Biological Opinion and incidental take permit for the Linden-Casitas project for steelhead trout at Carpinteria Creek for the proposed work associated with the U.S. 101 bridge replacement. There is also a Biological Opinion and incidental take permit for steelhead trout in Romero Creek, San Ysidro Creek, and Arroyo Paredon Creek as part of the South Coast 101 HOV Lanes project. The formal Section 7 process with the U.S. Fish and Wildlife Service concluded that with the agreed upon avoidance and minimization measures in place for both projects, neither Caltrans project is likely to jeopardize the continued existence of steelhead trout or to adversely affect critical habitat for the species. Therefore, when considering both projects from a cumulative perspective, there would not be a significant effect.

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Table 2.52 Comparison of the Net New Impervious Existing Impervious Area for Large Watersheds (South Coast 101 HOV Lanes and 101 Rehabilitation Project)

Waterbody	Watershed Area	Watershed Impervious Area	U.S. 101 Existing Impervious Area	HOV Project Preferred Alt Increased Impervious Area		U.S. 101 Existing + HOV Post-Development Impervious Area		Rehab Project Increased Impervious Area		HOV + Rehab Cumulative Post-Development Impervious Area		Preliminary TBMP Tributary Areas	Notes
	acres	acres	acres	acres	% Increase	acres	% Watershed	acres	% Increase	acres	% Watershed		
Carpenteria Creek	9820	72.2	15.1	0	0	15.1	0.15	0	0	15.1	0.15	18.1 ac	Offsite at Bailard Ave OC
Franklin Creek	2530	282.9	12.7	5.4	0.21	18.1	0.72	0.3	0.01	18.4	0.73	2.8 ac	
Santa Monica Creek	2450	45.3	0.2	0.1	0	0.3	0.01	0	0	0.3	0.01	11.3 ac	
Arroyo Paredon	2810	55.9	7.2	3.8	0.14	11	0.39	0.3	0.01	11.3	0.4		
Garrapata Creek	370	11.3	5	2.6	0.7	7.6	2.05	0.1	0.03	7.7	2.09		
Toro Creek	2380	38.3	3.7	1.9	0.08	5.6	0.24	0.1	0.01	5.7	0.24	4.5 ac	
Greenwell Creek	280	12.9	3.4	1.8	0.64	5.2	1.86	0.3	0.09	5.5	1.95	1.5 ac	
Romero Creek	3820	117.3	4.4	2.3	0.06	6.7	0.18	0.5	0.01	7.2	0.19		
San Ysidro Creek	2490	39.3	1.3	0.7	0.03	2	0.08	0.1	0	2.1	0.08		
Oak Creek	980	77.9	2.8	1.5	0.15	4.3	0.44	0.1	0.01	4.4	0.44		
Montecito Creek	4330	125.9	1.8	0.9	0.02	2.7	0.06	0.3	0.01	3.0	0.07		
All Other (Small) Locations (South Coast HOV)			37.4	21.0								6.5 ac	
Total for HOV			95.0	42.0								44.70	

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Avoidance, Minimization, and/or Mitigation Measures

The measures to be incorporated as part of the cumulative review are noted in the applicable sections in Chapter 2 and in Appendix F of the final environmental document.

Traffic and Transportation and Pedestrian/Bicycle—Section 2.1.5

Visual/Aesthetics—see below.

Water Quality and Storm Water Runoff—Section 2.2.2

Biological Resources:

Wetlands—Section 2.3.2

Threatened and Endangered Species—Section 2.3.4

Visual/Aesthetics

- All soundwalls shall include aesthetic treatment such as texture and/or color to blend with the community character.
- To avoid blocking prime ocean views, it is recommended the following soundwalls not be built in Summerland:
  - Along northbound U.S. 101 from about 200 feet west of Greenwell Road to the Summerland Fire Station
  - Along northbound U.S. 101 about 0.2 mile east of Greenwell Road to approximately Greenwell Road
  - Along northbound U.S. 101 from the Evans Avenue undercrossing to the Evans Avenue northbound on-ramp
  - Along northbound U.S. 101 from the beginning of the Evans Avenue northbound on-ramp to about 50 feet west of the beginning of the Evans Avenue northbound on-ramp
- To balance the need for noise attenuation and maintaining partial ocean views, a clear panel should be used along the top portion (10 feet or more above the ground) of a proposed soundwall in Summerland at the following location:
  - Along northbound U.S. 101, from about 50 feet west of the beginning of the Evans Avenue northbound on-ramp to about 650 feet west of the beginning of the Evans Avenue northbound on-ramp

- All proposed concrete barriers shall include aesthetic treatment such as texture and/or color appropriate for the setting.
- Drainage structures visible from public areas shall be designed to visually blend in with the setting as much as possible.
- Changes to existing bridge structures shall reflect the visual character of the existing structures in terms of materials, color, style, and the existing human scale of the area.
- Open-style bridge railing shall be used on all new or modified bridge structures, except at locations where solid barriers are needed to provide added noise attenuation.
- If new traffic management system elements such as radar, cameras, and other equipment are added to the project, all visible components shall be located in the least obtrusive locations possible and colored to reduce visibility.
- Aesthetic treatments and design such as textured surfaces, architectural relief, and color application shall be incorporated into all new bridge structures.
- Any new signage would be located so that it minimizes view blockage of the Pacific Ocean to the greatest extent feasible, considering the necessary function of the sign.
- All new lighting shall minimize excess light and glare by careful placement of the poles, height and position of luminaires, and the use of shielded lenses where feasible.
- All areas where existing ramps and other paved surfaces are removed and where new landscaping is proposed shall be made suitable for planting.
- Existing trees and shrubs shall be preserved to the greatest extent possible.
- Existing healthy palm trees that would be affected by the project shall be transplanted to other areas within the project where feasible.
- Planting shall be included with all soundwalls to the greatest extent possible.
- Planting shall be included with all retaining walls to the greatest extent possible.
- New landscaping shall minimize view blockage of the Pacific Ocean.
- Plants with the potential of becoming skyline trees would be used as much as possible without blocking views of the Pacific Ocean.

- Existing Memorial Oaks would be preserved to the greatest extent feasible, respective of the selected project alternative.
- All new oak trees planted as part of the Memorial Oak tree mitigation measure shall be propagated from the existing Memorial Oak trees.
- All new non-oak planting near the Memorial Oaks shall be species that are easily differentiated from the Memorial Oaks, in terms of their visual character (form, size, color, and or texture).
- Concrete median barrier and new soundwalls in the immediate vicinity of the Memorial Oaks shall include aesthetic treatment unique to the Memorial Oaks area.
- The landscaping plan shall include historically successful plant species throughout the corridor.
- All aesthetic planting shall use larger-container-size plant material where appropriate. Trees shall be planted, at minimum, from 15-gallon containers.
- All permanent storm water treatment measures would be designed to visually fit with the ornamental or natural landscaped roadsides to the greatest extent feasible considering their intended function. Swales, ditches and basins should appear as natural as possible. Built structures would be architecturally treated, colored or hidden from view with planting.
- If required, new access denial fencing along the southbound on- and off-ramp at Los Patos Way and Hermosillo Drive shall be ornamentally treated.

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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 California Department of Transportation (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 primary 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, would 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 report must be prepared. Each significant effect on the environment must be disclosed in the environmental impact report and mitigated if feasible. In addition, the California Environmental Quality Act Guidelines list a number of *mandatory findings of significance* that also require the preparation of an environmental impact report. There are no types of actions under the National Environmental Policy Act that parallel the findings of mandatory significance under the California Environmental Quality Act. This chapter discusses the effects of this project and California Environmental Quality Act significance.

3.2 Discussion of Significant Impacts

3.2.1 No Effects

As discussed in Chapter 2, the project would have no impacts on the following resources:

- Farmlands/Timberlands—Although farmland exists in Santa Barbara County and next to the project, the project itself will not affect farmland. The project would be built mostly within the existing right-of-way and would not acquire private property except for temporary construction easements and subsurface easements. There would be no easements required on farmland. No timberlands exist in or near the project.
- Energy—Caltrans incorporates energy efficiency, conservation, and climate change measures into transportation planning, project development, design, operations, and maintenance of transportation facilities, fleets, buildings, and equipment to minimize use of fuel supplies and energy sources and reduce greenhouse gas emissions (see later in Chapter 3). When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.
- Wild and Scenic Rivers—There are no federally designated rivers in the project limits.
- Relocations—No businesses or residences would be acquired as part of this project. The project would be built within the existing public right-of-way, except for temporary construction easements and several subsurface easements required for footings related to soundwalls and retaining walls.
- Plant Species—According to the Natural Environment Study (January 2012), no special-status plant species were found in the biological study area for the project.

No critical habitat for federally or state listed plant species occurs within the project limits.

3.2.2 Less than Significant Effects of the Proposed Project

As discussed in Chapter 2, the project would have less than significant impacts on the following resources:

- Consistency with Local Coastal Plans
- Community Character and Cohesion
- Recreation
- Utilities/Emergency Services
- Traffic/Transportation Facilities (including Pedestrian and Bicycle)
- Hydrology/Floodplains
- Hazards and Hazardous Materials
- Geology
- Air Quality

Please refer to the respective subchapters in Chapter 2 for a detailed discussion of these resources.

Noise

When determining whether a noise impact is significant under the California Environmental Quality Act, the baseline noise level is compared with the predicted build noise level. Under the California Environmental Quality Act, evaluating the significance of noise impacts is completely independent of the noise abatement criteria analysis used by Caltrans (based on Federal Highway Administration guidance and the 2006 Noise Protocol) as discussed in detail in Section 2.2.7. The noise evaluation under the California Environmental Quality Act involves looking at the existing noise setting and determining 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.

Existing conditions are noisy due to the high traffic volumes passing through the corridor. Traffic volumes through the U.S. 101 corridor have been increasing steadily for over 30 years. Construction of the proposed project would result in minimal increases to noise

levels in the surrounding area. Specifically, the only areas of the project where noise levels increase (slightly) would be in areas where widening occurs to the outside. Comparisons are made looking at existing baseline noise levels and the build noise levels. The Noise Study Report assessed the potential impacts associated with the project. Table 2.36 (see Section 2.2.7) shows the existing and predicted noise level increases for the 104 noise receptors. The maximum increase at any one receptor site (R1 through R104) for any of the build alternatives would be 3 decibels by the year 2040. This 3-decibel increase between the existing noise levels and any of the build alternatives would be barely perceptible to the human ear. The same holds true for any sensitive receptors in the project limits because there are no locations that experience more than a 3-decibel level increase. Therefore, under the California Environmental Quality Act, no significant noise impacts would occur as a result of the project and no mitigation is required. As discussed in Section 2.2.7 (per Caltrans Noise Abatement Criteria), because noise levels at 28 locations would approach or exceed the noise abatement criteria of 67 decibels, noise abatement is recommended.

3.2.3 Significant Environmental Effects of the Proposed Project

Cultural Resources

Caltrans concluded in a Finding of Adverse Effect (February 2011) and in a Revised Finding of Adverse Effect (September 2011) that the proposed project would have an adverse effect on the National Register-eligible Via Real Redeposited Midden. Comprehensive studies suggest that the National Register-eligible portion of the site is not only located below the level of proposed U.S. 101 construction but is also located outside the state right-of-way—and therefore outside the Area of Direct Impact. Although Caltrans does not anticipate impacts to the redeposited midden, we nevertheless deem it prudent to consider the remote possibility of discoveries during construction. In the unlikely event that archaeological resources are encountered during construction, the *Treatment and Data Recovery Plan for the South Coast 101 HOV Lanes Project, Santa Barbara County, California* will be implemented, in accordance with the June 20, 2013 *Programmatic Agreement between the California Department of Transportation and the California State Historic Preservation Officer Regarding the South Coast 101 HOV Lanes Project, U.S. Route 101, Santa Barbara County, California* (see Appendix D, *State Historic Preservation Officer Correspondence*).

Paleontology

Mitigation measures, specifically monitoring, salvage of fossil specimens, and data recovery during construction excavation for this project, would reduce the adverse impact to a less than significant level.

Water Quality/Storm Water Runoff

The project would add 42 acres (Alternative 1—preferred alternative) of impervious surface (pavement). Alternative 2 would have added close to 52 acres. The project is being designed to minimize an increase in storm water discharge by installing appropriate permanent storm water treatment measures and drainage facilities to store and infiltrate the increased runoff within the right-of-way. In addition, there would be measures to reduce potential impacts to stream channels and temporary impacts to water quality (see Sections 2.3.1 and 2.3.2).

Biological Resources

The project would have temporary and permanent impacts on riparian habitat, Coastal Commission-defined wetlands, U.S. Army Corps of Engineers Jurisdictional wetlands, and other waters of the United States. Creek diversion and de-watering during construction could result in incidental take of federally endangered steelhead trout and tidewater goby (see Sections 2.3.1, 2.3.2, and 2.1.1.2). The project includes avoidance, minimization and mitigation measures to reduce impacts to biological resources (see Sections 2.31, 2.32, 2.33, 2.3.4, and 2.3.5). Appendix F of the final environmental document provides a summary of all avoidance, minimization and mitigation measures.

3.2.4 Mandatory Findings of Significance

Given the high scenic value and visual character of the Santa Barbara coastline and surrounding communities, the ongoing cumulative effect of this project, other highway projects, and ongoing urban development continue to reduce the area's visual character. Mitigation would not be effective in reducing visual impacts to a level of insignificance (see below).

3.2.5 Unavoidable Significant Environmental Effects

The project's visual impacts as seen from U.S. 101 and surrounding communities would be significant regardless of the selected alternative. The inclusion of the avoidance, minimization, and mitigation measures listed in Sections 2.1.6, 2.4, 2.5 and 3.3 would reduce the visual impacts, but even with inclusion of these measures the impacts would not be able to be fully mitigated. The measures combined with proposed project features

include the replacement of landscaping where feasible and aesthetic treatments to walls, which would lessen the adverse visual change to the corridor. However, the overall significant impacts would remain due to the inherent alteration of scale, increase of hard surfaces, and loss of vegetative character.

Concerning cumulative visual/aesthetics, the U.S. 101 corridor between the City of Goleta and south into Ventura County has several major projects either currently under construction or planned for construction as funding becomes available. The recently constructed Milpas to Hot Springs operational improvement project, the current construction of the Ventura County/Santa Barbara 101 HOV project, the proposed Linden Avenue and Casitas Pass Road interchanges project in Carpinteria, and the recently scoped U.S. 101 Rehabilitation project would increase the visual scale of the highway corridor and its urban character. Although each of the projects would individually minimize or mitigate visual impacts, the cumulative visual effect of those projects combined with the proposed HOV lanes project would be substantial.

3.2.6 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 (GHG), 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 by the United Nations and World Meteorological Organizations 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 (GHG) generated by human activity including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2 –tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of greenhouse gas emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles make up the largest source of greenhouse gas-emitting sources. The dominant greenhouse gas emitted is CO_2, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: "Greenhouse Gas Mitigation" and "Adaptation." "Greenhouse Gas Mitigation" is a term for reducing greenhouse gas emissions to reduce or "mitigate" the impacts of climate change. "Adaptation" refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

There are four primary strategies for reducing greenhouse gas 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.

Regulatory Setting

This section outlines both state and federal efforts to comprehensively reduce greenhouse gas emisisons from transportation sources.

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.

Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board 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.

Executive Order S-3-05 (June 1, 2005): The goal of this executive order is to reduce California's greenhouse gas emissions to: 1) year 2000 levels by 2010, 2) year 1990 levels by 2020 and 3) 80 percent below the year 1990 levels 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

AB 32 (AB 32), Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall greenhouse gas emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that the California Air Resources Board create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard for California. Under this executive order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97 (Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research to develop recommended amendments to the California Environmental Quality Act guidelines for addressing greenhouse gas emissions. The amendments became effective on March 18, 2010.

Senate Bill 375 (SB 375), Chapter 728, 2008, **Sustainable Communities and Climate Protection:** This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, **2009 California Transportation Plan**: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Federal

Although climate change and greenhouse gas reduction are a concern at the federal level, currently no regulation or legislation has been enacted specifically addressing greenhouse gas emissions reductions and climate change at the project level. Neither the U.S. Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level greenhouse gas analysis.[12] The FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process, from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into

[12] To date, no national standards have been established regarding mobile source greenhouse gases, nor has U.S. EPA established any ambient standards, criteria or thresholds for greenhouse gases resulting from mobile sources.

many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

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 (October 5, 2009) 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 national strategy for adaptation to climate change.

The U.S. Environmental Protection Agency's (EPA) authority to regulate greenhouse gas emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that greenhouse gases meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the U.S. Environmental Protection Agency finalized an endangerment finding in December 2009. Based on scientific evidence, it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing act and EPA's assessment of the scientific evidence that form the basis for Environmental Protection Agency's regulatory actions. The U.S. EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) issued the first of a series of greenhouse gas emission standards for new cars and light-duty vehicles in April 2010.[13]

The U.S. EPA and the National Highway Traffic Safety Administration 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

[13] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle greenhouse gas regulations.

The final combined standards that made 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 implemented by this program are expected to reduce 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 August 28, 2012, the U.S. EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of greenhouse gas emissions.

The complementary U.S. EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO_2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy-duty vehicles.

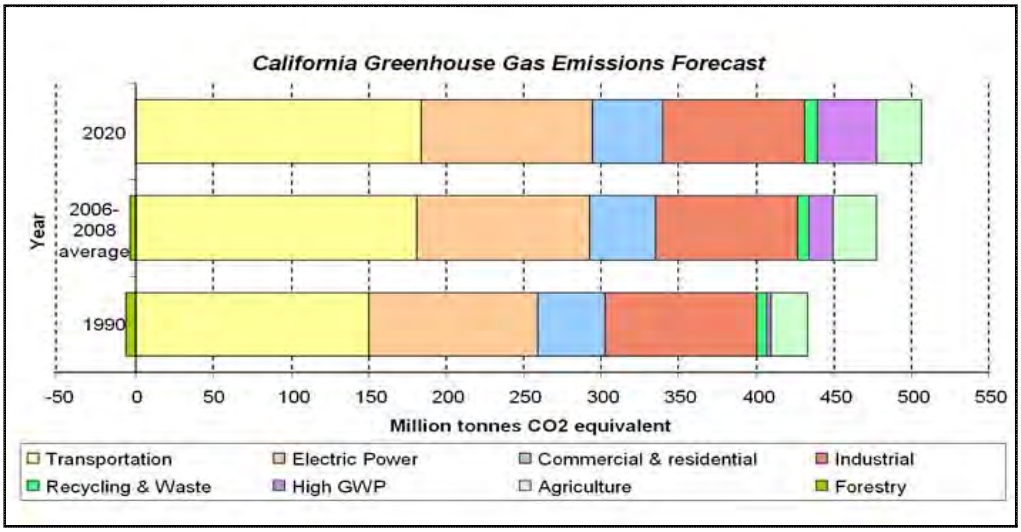
Project Analysis

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 change in emissions when combined with the contributions of all other sources of greenhouse gases.[14] In assessing cumulative 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

[14] 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* (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).

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 mandated by AB 32 includes the main strategies California will use to reduce greenhouse gas emissions. As part of its supporting documentation for the draft Scoping Plan, the California Air Resources Board released the greenhouse gas inventory for California (forecast last updated: October 28, 2010, see Figure 3-1). The forecast is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the greenhouse gas inventory for 2006, 2007, and 2008.



Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

Figure 3-1 California Greenhouse Gas Forecast

Caltrans and its parent agency, the Transportation 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, Caltrans has created and is implementing the Climate Action Program that was published in December 2006 (see Climate Action Program at Caltrans (December 2006)).[15]

[15] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/StateWideStrategy/CaltransClimateActionProgram.pdf

One of the main strategies in the Caltrans 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 carbon dioxide (CO_2), may be reduced.

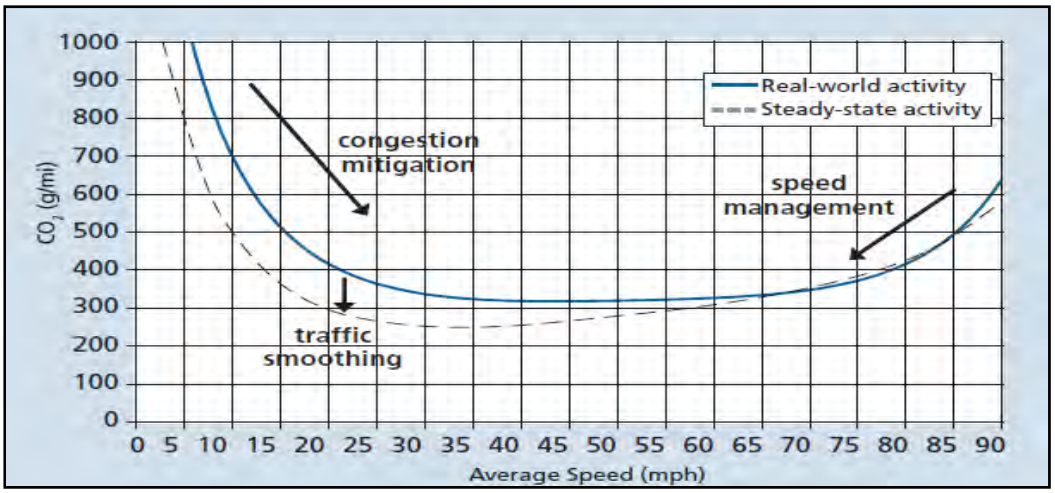


Figure 3-2 Possible Effect of Traffic Operation Strategies in Reducing CO_2 Emission[16]

The proposed project is part of an overall package known as *101 In Motion* (see Section 1.1, Background), which consists of five elements that, together, will implement a multi-modal strategy to accommodate future travel demand while facilitating a modal shift to carpooling, transit, and passenger rail. The project is consistent with and included within the Santa Barbara County Association of Governments approved 2040 Regional Transportation Plan and Sustainable Communities Strategy adopted August 15, 2013. The purpose of the project is specifically to facilitate modal shift to carpooling by adding HOV lanes that provide travel time incentives for carpools. The project would increase roadway capacity as well as vehicle speeds from existing conditions as shown in Section 2.1.5 (Traffic and Transportation) and Tables 2.15 through 2.17.

[16] Traffic Congestion and Greenhouse Gases**:** Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010)<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>

An analysis was conducted for greenhouse gases. The dominant pollutant in greenhouse gases is carbon dioxide (CO_2), which makes up more than 80 percent of these pollutants. Estimated annual carbon dioxide emissions were modeled using CT-EMFAC 2007. Average daily traffic was the same for the No-Build Alternative and the build alternative. Annual average daily traffic includes 8 percent truck traffic.

The results indicate only a rough estimate of emissions based on projected daily vehicles miles traveled. Table 3.1 displays carbon dioxide emissions in tons per year for the build and no-build alternatives.

Table 3.1 Estimated Carbon Dioxide Emissions in Tons per Year for Build and No-Build Alternatives

Scenario	CO_2 (Tons per Year)
2009	4,715.80
2040 Build	7,902.20
2040 No-Build	6,570.40

Based on full Average Daily Traffic
Source: Caltrans Central Region Environmental Engineering

According to the EMFAC modeling results, both the build and no-build alternatives would create more greenhouse gases (CO_2) than the existing condition. In addition, the above numbers indicate the no-build alternative would result in less carbon dioxide than the build alternative. This is due to higher predicted traffic volumes and speeds allowed by the two additional lanes that the project would add to the highway. The lowest emission factors for carbon dioxide occur at about 45 to 50 miles per hour. As speeds both increase and decrease from this point, emission factors for carbon dioxide 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 carbon dioxide emissions.

Based on the project-specific peak-period analysis, the proposed project would have a negligible impact on air quality and relieve a great deal of congestion on the existing through-lanes of the highway while also improving low-speed and idling emissions. Increases in the 2040 build-condition emissions versus the 2040 no-build condition with respect to carbon dioxide is attributable to the addition of the HOV lanes, which allow

higher traffic volumes (re-directed trips back onto the highway system) throughout the corridor and improvement in average vehicle speeds. Optimum vehicle speeds for the combustion of fossil fuels and the subsequent release of emissions occurs at 45 miles per hour. Carbon dioxide emission curves increase from that point as vehicles travel faster.

Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate carbon dioxide emissions from mobile sources, the model does have limitations when it comes to accurately reflecting carbon dioxide emissions due to impacts on traffic. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008) and a 2009 University of California study[17], brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle's CO_2 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 idling) 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 EPA and the CARB is underway on modal-emission models, neither agency has yet approved a modal emissions model that can be used to conduct this more accurate modeling.

The California Air Resources Board (CARB) is currently not using EMFAC to create its inventory of greenhouse gas emissions. It is unclear why the CARB has made this decision. Its website states only the following:

> REVISION: Both the EMFAC and OFFROAD Models develop CO_2 and CH_4 [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.[18]

Other Variables

With the current science, project-level analysis of greenhouse gas emissions has limitations. Although a greenhouse gas analysis is included for this project, there are

[17] Matthew Bartha, Kanok Boriboonsomsin. 2009. *Energy and emissions impacts of a freeway-based dynamic eco-driving system.* Transportation Research Part D: Transport and Environment Volume 14, Issue 6, August 2009, Pages 400–410

[18] http://www.arb.ca.gov/msei/offroad.htm

numerous key greenhouse gas variables that are likely to change dramatically during the design life of the proposed project and would thus dramatically change the projected CO_2 emissions.

First, vehicle fuel economy is increasing. The EPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012 ," 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 at a record high.[19] Corporate Average Fuel Economy (CAFE) standards remained the same between model years 1995 and 2003 and subsequently began setting increasingly higher fuel economy standards for future vehicle model years. The EPA estimates that light-duty fuel economy rose by 16 percent from 2007 to 2012. Table 3.2 shows the increases in required fuel economy standards for cars and trucks between model years 2012 and 2025 as available from the National Highway Traffic Safety Administration for the 2012-2016 and 2017-2025 CAFE Standards.

Table 3.2 Vehicle Fuel Economy—Required Miles Per Gallon by Year

	2012	2013	2014	2015	2016	2018	2020	2025
Passenger Cars	33.3	34.2	34.9	36.2	37.8	41.1-41.6	44.2-44.8	55.3-56.2
Light Trucks	25.4	26	26.6	27.5	28.8	29.6-30.0	30.6-31.2	39.3-40.3
Combined	29.7	30.5	31.3	32.6	34.1	36.1-36.5	38.3-38.9	48.7-49.7

Source: EPA 2013, http://www.epa.gov/fueleconomy/fetrends/1975-2012/420r13001.pdf

Second, near-zero carbon vehicles will come into the market during the design life of this project. According to the 2013 Annual Energy Outlook (AEO2013):

[19] U.S. EPA 2013c. Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2012. Available:< http://www.epa.gov/fueleconomy/fetrends/1975-2012/420r13001.pdf>. Accessed: February 12, 2014.

> "LDVs that use diesel, other alternative fuels, hybrid-electric, or all-electric systems play a significant role in meeting more stringent GHG emissions and CAFE standards over the projection period. Sales of such vehicles increase from 20 percent of all new LDV sales in 2011 to 49 percent in 2040 in the AEO2013 Reference case."[20]

The greater percentage of alternative fuel vehicles on the road in the future will reduce overall greenhouse gas emissions as compared to scenarios in which vehicle technologies and fuel efficiencies do not change.

Third, California has recently adopted a low-carbon transportation fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became effective on January 12, 2010 (codified in title 17, California Code of Regulations, Sections 95480-95490). Beginning January 1, 2011, transportation fuel producers and importers must meet specified average carbon intensity requirements for fuel in each calendar year.

Lastly, 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, the Congressional Budget Office found the following results based on data collected from California (U.S. Congressional Budget Office 2008):[21]

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 from 2003 to 2008 as average prices for the most-fuel-efficient automobiles have risen, showing an increase in demand for the more fuel-efficient vehicles. More recent reports from the Energy Information Agency[22] and Bureau of Economic Analysis[23] also show slowing re-growth of vehicle sales in the years since its dramatic drop in 2009 due to the Great Recession as gasoline prices continue to climb to $4 per

[20] http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf
[21] U.S. Congressional Budget Office. 2008. Effects of Gasoline Prices on Driving Behavior and Vehicle Market. January 2008. Available: < http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/88xx/doc8893/01-14-gasoline prices.pdf>. Accessed: February 12, 2014.
[22] http://www.eia.gov/oiaf/aeo/tablebrowser/aeo_query_server/?event=ehExcel.getFile&study=AEO2013&region=0-0&cases=ref2013-d102312a&table=114-AEO2013&yearFilter=0
[23] Historical Vehicle Sales: www.bea.gov/national/xls/gap_hist.xls

gallon and beyond (U.S. Energy Information Administration 2013: Table 53, U.S. Bureau of Economic Analysis 2014).

Limitations and Uncertainties with Impact Assessment

Taken from pages 5-22 of the National Highway Traffic Safety Administration Final Environmental Impact Statement for MY2017-2025 CAFE Standards (July 2012), Figure 3-3 illustrates how the range of uncertainties in assessing greenhouse gas impacts grows with each step of the analysis:

> "Moss and Schneider (2000) characterize the "cascade of uncertainty" in climate change simulations (see Figure 3-3). As indicated in Figure 3-3, the emission estimates used in this EIS have narrower bands of uncertainty than the global climate effects, which are less uncertain than regional climate change effects. The effects on climate are, in turn, less uncertain than the impacts of climate change on affected resources (such as terrestrial and coastal ecosystems, human health, and other resources. Although the uncertainty bands broaden with each successive step in the analytic chain, all values within the bands are not equally likely; the mid-range values have the highest likelihood." (National Highway Traffic Safety Administration 2012:5-21)[24]

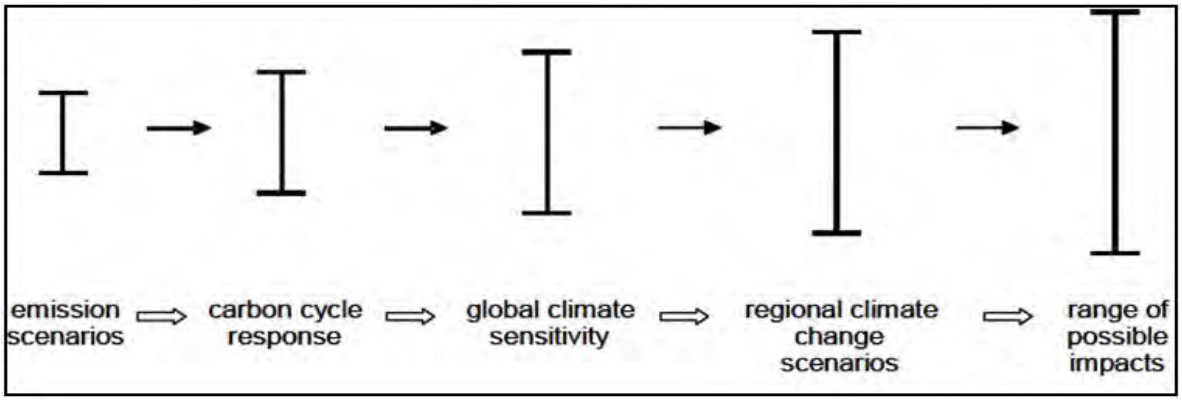


Figure 3-3 Cascade of Uncertainties

[24] National Highway Traffic Safety Administration. 2012. Corporate Average Fuel Economy Standards: Passenger Cars and LIght Trucks Model Years 2017-2025. Final Environmental Impact Statement. July 2012. Docket No. NHTSA-2011-0056. Available:<http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/FINAL_EIS.pdf>. Accessed: February 12, 2014.

Much of the uncertainty in assessing an individual project's impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory or other framework in place that would allow for a ready assessment of what any modeled increase in CO_2 emissions would mean for climate change given the overall California greenhouse gas emissions inventory of approximately 430 million tons of CO_2 equivalent. This uncertainty only increases when viewed globally. The IPCC has created multiple scenarios to project potential future global greenhouse gas emissions as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce greenhouse gas emissions. Non-mitigation IPCC scenarios project an increase in global greenhouse gas emissions by 9.7 up to 36.7 billion metric tons CO2 from 2000 to 2030, which represents an increase of between 25 and 90 percent. (Intergovernmental Panel on Climate Change 2007b)[25]

The assessment is further complicated by the fact that changes in greenhouse gas emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locale for some type of greenhouse gas emissions, rather than causing "new" greenhouse gas emissions. It is difficult to assess the extent to which any project level increase in CO_2 emissions represents a net global increase, reduction, or no change; there are no models approved by regulatory agencies that operate at the global or even statewide scale.

Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction greenhouse gas 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

[25] 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.

during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

Measures to address construction emissions have been included into the project, including:

- All portable construction equipment should be registered with the state's portable equipment registration program or permitted by the District by September 18, 2008.
- Diesel construction equipment meeting the California Air Resources Board's Tier 1 emission standards for off-road heavy-duty diesel engines should be used. Equipment meeting Tier 2 or higher emission standards should be used to the maximum extent feasible.
- The engine size of construction equipment should be the minimum practical size.
- The number of construction equipment vehicles operating simultaneously should be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.
- Construction equipment should be maintained in tune per the manufacturer's specifications.
- Construction equipment operating onsite should be equipped with 2 to 4 degree engine timing retard or pre-combustion chamber engines.
- Catalytic converters shall be installed on gasoline-powered equipment, if feasible.
- Diesel catalytic converters, diesel oxidation catalysts and diesel particulate filters as certified and/or verified by the Environmental Protection Agency or California Air Resources Board should be installed on equipment operating onsite.
- Diesel powered equipment should be replaced by electric equipment whenever feasible.
- Idling of heavy-duty diesel trucks during loading and unloading should be limited to 5 minutes; auxiliary power units should be used whenever possible.
- To the extent possible, route and schedule construction traffic to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.

- Gasoline-dispensing equipment must have local air district permits, be certified by the California Air Resources Board, and operated in accordance with local air district rules and the Air Board certification requirements. Periodic maintenance and testing are specified under the California Air Resources Board executive order that was issued for the certification and by many local air district rules. Equipment repairs and testing must be performed by trained personnel with proper certifications by the manufacturers and, depending on the air pollution control district, by the International Code Council. In addition, local air pollution control districts generally require records of all repair and testing activities to be maintained onsite.

California Environmental Quality Act Conclusion

As discussed above, both the future with-project and future no-build show increases in carbon dioxide emissions over the existing levels, the future build carbon dioxide 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 carbon dioxide 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 the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies

Caltrans continues to be actively involved on the Governor's Climate Action Team as the California Air Resources Board works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in Assembly Bill 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzengger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in greenhouse gas emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain carbon dioxide reduction goals: system monitoring and evaluation; maintenance and preservation; smart land use and demand management; and operational improvements as shown in Figure 3-4.

Figure 3-4 Mobility Pyramid

Caltrans 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. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans supports efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of the fuel economy standards is held by the U.S. Environmental Protection Agency and the California Air Resources Board.

Caltrans is also working toward enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391(Liu 2009) requires the State's long-range transportation plan to meet California's climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas emissions. The California Transportation Plan defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the California Transportation Plan is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the California Transportation Plan 2040 will identify the statewide transportation system needed to achieve maximum feasible greenhouse gas emission reductions while meeting the state's transportation needs.

Table 3.3 summarizes statewide efforts that Caltrans is implementing to reduce greenhose gas emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 3.3 Climate Change/CO_2 Reduction 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	.007	2.17
Mainstream Energy & GHG 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, CalEPA, 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 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	.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	1.2 036	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					2.66	18.67

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

The following measures will also be included in the project to reduce the greenhouse gas emissions and potential climate change impacts from the project:

- Caltrans Standard Specification Provisions restricts idling time for lane closure during construction to 10 minutes in each direction; in addition, the contractor must comply with Santa Barbara County Air Pollution Control District's rules, ordinances, and regulations in regard to air quality restrictions.
- The project would incorporate the use of energy efficient lighting, such as LED (light-emitting diode) traffic signals.
- Initially, mature landscaping will be removed where necessary to construct the project. However, planting will occur to offset this removal.
- Disturbed areas will be planted with a variety of native and drought-tolerant trees and shrubs in ratios sufficient to replace the air quality and cooling benefit of trees removed by construction of the project. Any native trees removed as part of the project will be replaced at a 3:1 ratio resulting in continued increases to the biomass within the project limits. Additional trees will be planted as space allows to further increase those benefits. Street trees will be planted from large-sized containers to accelerate reestablishment of the greenhouse gas sink and to shade the pavement. Riparian planting will also be included to maintain shade along creek corridors.
- Slope, drainage channels, and other disturbed areas will be seeded with native and drought-tolerant shrubs, perennials and grasses.

To the extent that it is applicable or feasible, the following measures will be incorporated into the project:

- 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 with "smart" irrigation technology for plants dependent on actual climate conditions
- Pesticide use and reduction goals restriction
- Fly ash in all concrete poured on the project
- Recycled water for irrigation within the Santa Barbara city limits (and elsewhere if available)

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 will 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.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011[26], outlining the federal government's progress in expanding and strengthening the nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide level to develop strategies to cope with impacts to habitat and

[26] http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation

biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then-Governor Arnold Schwarzenegger signed Executive Order S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This executive order set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state, and federal public and private entities to develop the California Climate Adaptation Strategy (Dec. 2009), which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to Executive Order S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Sciences was directed to prepare a Sea Level Rise Assessment Report[27] to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.

[27] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at: http://www.nap.edu/catalog.php?record_id=13389.

- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by the Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the state's infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academy of Sciences Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. The Department is an active participant in the efforts being conducted in response to Executive Order S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

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.

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

The Ocean Protection Council adopted statewide sea level rise guidelines and developed interim guidance in March 2011 from published sea level rise scenarios from a 2010 National Research Council study. Using these adopted guidelines, the statewide sea level rise scenarios were developed by the California Climate Action Team. This team included Caltrans, 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 allows 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 from 2000 levels, using the March 2011 guidelines.

Assuming a 55-inch sea level rise, Caltrans prepared mapping to show those areas at risk[28].

The 100-year flood elevations base flood elevation from flood insurance studies published by the Federal Emergency Management Agency were used as the base elevations 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

Mapping prepared by Caltrans is based on data used by the California Climate Action Team that developed interim sea level rise scenarios for the state. The mapping determined three locations within the project limits that would be at risk with a 55-inch sea level rise and no areas at risk of coastal erosion predicted to occur by 2100 (see Figures 3-5, 3-6, and 3-7).

The first location is within the City of Carpinteria centered along the Carpinteria Salt Marsh (post mile 3.0 to post mile 4.8). Because the bulk of the potential flooding is expected to be in the salt marsh and within limited neighborhoods, relocating the freeway is not feasible. The freeway would need to be raised about 6 feet by a viaduct to prevent additional flooding upstream and profile transitions on each end would need to be 0.2 of a mile long. A viaduct could be proposed for the freeway to raise it above the anticipated sea level but would be prohibitively expensive. Raising the freeway using earthen fill would be less expensive than building a viaduct. However, raising the road with earthen fill would likely act like a dam and result in upstream flooding, plus additional impacts.

[28] Caltrans acknowledges that an update to this guidance was released in March 2013 which uses updated analysis from the 2012 National Research Council study (http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/). The March 2013 OPC update cited a 16.6 to 65.8 inch increase in mean sea level by 2100 from 2000 levels. As the impacts were estimated here for a 55 inch sea level rise and given the range of uncertainty of future sea-level rise estimates, Caltrans has decided to keep the original sea-level rise analysis using the 55 inch rise estimates.

In this scenario, the following existing ramps in Carpinteria would need to be closed: Santa Monica northbound ramps, Carpinteria Avenue southbound off-ramp, and Santa Claus southbound off-ramp. Constructing a viaduct in this area would have substantial temporary impacts to wetlands and riparian habitat.

The second location that may be subject to additional flooding risk is where Arroyo Paredon Creek crosses the freeway from post mile 5.5 to post mile 5.7. This location is an extremely short section of freeway that would need additional profile transition lengths on each approach to the flooded section to match the raised viaduct creek crossing.

The third location that may be subject to additional flooding risk is near the Andrée Clark Bird Refuge in the City of Santa Barbara (post mile 11.6 to post mile 12.3). In this location, the freeway would need a raised viaduct. The existing Salinas ramps would need to be closed and the Los Patos ramps would also need to be closed.

In addition to the potential impact to the highway, local streets, neighborhoods, farmland, park and recreational areas, Union Pacific Railroad tracks, numerous businesses, and bird refuge and salt marsh may be affected by projected sea level rise. In Carpinteria, nearly all of the neighborhoods southeast of 7th Street to the salt marsh could be inundated by sea level rise. In addition to these areas, homes and businesses along Carpinteria's beachfront north to the farmland across U.S. 101 along Via Real may also be affected by sea level rise. In Montecito, a few homes along the coastline and the stretch between Fernald Point Lane and the area just east of Posilipo Lane could be affected.

Beachfront homes from west of the Four Seasons Resort to about Eucalyptus Lane may be affected by sea level rise. North of U.S. 101 in Santa Barbara, portions of the Montecito Country Club and Municipal Tennis Court could be affected by sea level rise.

The Andrée Clark Bird Refuge could overflow on the sections of East Cabrillo Boulevard, Santa Barbara Zoological Gardens, and over the Union Pacific Railroad tracks.

On Los Patos Way, a few businesses may also be affected if sea water spreads from the refuge (see Table 3.4).

Table 3.4 Impacts to U.S. 101 from a 55-Inch Sea Level Rise

Reconstruction Post Mile to Post Mile	Proposed Additional Construction	Estimated Additional 2011 Cost at $500 per square foot
2.8 to 5.0 Carpinteria	118-foot-wide viaduct/bridge	$685 million
5.3 to 5.9 Arroyo Paredon Creek	118-foot-wide viaduct/bridge	$187 million
11.4 to 12.5 Andrée Clark Bird Refuge	118-foot-wide viaduct/bridge	$343 million

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 Pacific Institute Organization provided in Figures 3-5, 3-6, and 3-7—relative to freeway improvements for 2050 (see Table 3.5).

New flooding limits are projected are centered along the Carpinteria Salt Marsh (post mile 4.3 to post mile 4.6). A viaduct/bridge could be built with profile transitions on each end. The Carpinteria Avenue southbound off-ramp could be raised; however, Carpinteria Avenue just beyond the ramp could be under a foot of water or more and would need to be raised.

Constructing a viaduct/bridge would increase environmental impacts to wetland and riparian habitat. No additional flooding on U.S 101 at the Arroyo Parida (Paredon) or Cabrillo undercrossing is expected with a 16-inch sea level rise. The Los Patos ramps would be underwater.

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**GIS data obtained from the Pacific Institute Organization

Figure 3-5 Sea Level Rise by 2100

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**GIS data obtained from the Pacific Institute Organization

Figure 3-6 Sea Level Rise by 2100

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**GIS data obtained from the Pacific Institute Organization

Figure 3-7 Sea Level Rise by 2100

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Table 3.5 Impacts to U.S. 101 from a 16-inch Sea Level Rise

Reconstruction Post Mile to Post Mile	Proposed Additional Construction	Estimated Additional 2011 Cost at $500/square foot
4.1 to 4.7 Carpinteria	118-foot-wide viaduct	$373 million
5.3 to 5.9 Arroyo Paredon Creek	none	$0
11.4 to 12.5 Andrée Clark Bird Refuge	none	$0

Design Life of the Proposed Project

The project would be built in phases based on funding availability. Assuming bridge construction would be completed by 2030, the design life of bridges built as part of this project is 50 years. Using the predicted change in sea level rise along the project limits, the design life of the built bridges would exceed the useful life by 2100.

Redundancy of Routes

In general, the state highway system is limited in its adaptive capacity because of its longitudinal nature and its hard infrastructure. Looking at the state highways as a system, however, some locations are served by multiple routes such as State Route 99 and Interstate 5 in Central and Northern California and Interstate 5 and Interstate 405 in Southern California. However, even in cases where the state highway system does have parallel routes, it is important to keep in mind that the need to move travelers and goods was the reason for building parallel routes.

In the project vicinity, U.S. 101 does not have a comparable parallel route in the event U.S. 101 is inundated from sea level rise. The only other alternative highway that runs parallel to existing U.S. 101 within the project limits is State Route 192. Two-lane State Route 192 is about 0.2 mile to 1.8 miles north of U.S. 101 and crosses the base of the Santa Ynez Mountain Range. Beyond State Route 192, the nearest comparable route is Interstate 5 about 60 miles east of the project site. Other routes leading to the interior portion of the Central Valley from the southern edge of Santa Barbara are State Route 150, State Route 33, and State Route 126. State Route 154 intersects U.S. 101 about 6.5 miles north of the project limits and travels over the San Marcos Pass and through the Santa Ynez Valley. From the U.S. 101 and State Route 154 intersection in Santa Barbara, State Route 154 extends about 33 miles before it reconnects with U.S. Route 101 in Los Olivos.

Goods Movement and Interstate Commerce

U.S. 101 is a critical highway for the movement of commercial goods and travelers. There is no other comparable route that serves the coastal community along the Central Coast. Although State Route 192 runs parallel to U.S. 101, the two-lane highway does not have the traffic capacity, is not feasible for truck traffic due to the winding nature of the highway, has a multitude of stop lights, and would not provide adequate movement of goods and services. No other comparable route or highway exists within the project area.

Evacuations and Emergency Services

U.S. 101 is vital for the efficient movement of emergency service providers. As previously discussed, the alternate route does not provide the ability and capacity to allow emergency service providers to effectively navigate State Route 192 in a timely manner. The other limiting conditions on the route are the following: minimal number of shoulders wide enough to accommodate vehicles pulling over and a minimal amount of queuing (lining up) space at intersections. These conditions would cause a huge increase in emergency response times resulting in substantial delay and would not be effective in the event of emergency evacuations. No other suitable alternative exists for U.S. 101 if the freeway were inundated by flooding or sea level rise within the project area.

Long-Term Coordination and Other Considerations

Sea level rise is far from the only predicted climatic or weather-induced change to the physical environment. Various scenarios of future climate also include higher temperatures, more intense storms that could lead to increased storm surge and wave heights as well as changes to precipitation patterns and intensities.

Sea level rise would likely lead to multiple changes to the physical environment beyond a simple increase in elevation. Higher water levels could also do the following: increase coastal bluff erosion rates; change environmental characteristics that affect material durability such as pH and chloride concentrations; lead to increased groundwater levels; and change sediment movement both along the shore and at estuaries and river mouths.

Currently, the level of uncertainty regarding these other aspects of future climate change is too great to assess with any degree of confidence. As such, Caltrans is continuing to partner with other state, federal, and research entities to better understand and predict magnitudes and severity. Without statewide planning

scenarios for relative sea level rise and other climate change impacts, Caltrans is not able to determine what change, if any, is needed in design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will review its current design standards to determine what changes, if any, may be warranted to protect the transportation system from sea level rise.

Ongoing, long-term coordination with local, state, and federal agencies would need to occur to ensure a comprehensive approach to addressing sea level rise. Caltrans recognizes that its facilities are not entities unto themselves. Where Caltrans facilities connect or interface with local agency facilities, there must be effective long-term coordination on sea level rise impacts and means of addressing those impacts as the science surrounding sea level rise continues to develop. Caltrans will continue to coordinate with affected local agencies to determine whether any planning efforts or future improvements are being considered to accommodate sea level rise.

As planning efforts move forward, it will be important to identify which sea level rise scenarios are included in that planning process so that effective negotiations can be undertaken to meet common objectives.

3.3 Mitigation Measures for Unavoidable Significant Impacts under the California Environmental Quality Act

Visual

To maintain the visual quality of the U.S. 101 corridor and to provide a project consistent with community visual resource objectives, the following actions are recommended:

- All soundwalls would include aesthetic treatment such as texture and/or color to blend with the community character.
- To avoid blocking prime ocean views, it is recommended the following soundwalls not be constructed in Summerland:
    - Along northbound U.S. 101 about 200 feet west of Greenwell Road to the Summerland Fire Station
    - Along northbound U.S. 101 from the Evans Avenue undercrossing to the Evans Avenue northbound on-ramp
    - Along northbound U.S. 101 from the beginning of the Evans Avenue northbound on-ramp to about 50 feet west of the beginning of the Evans Avenue northbound on-ramp

  - Along northbound U.S. 101 from the beginning of the northbound Evans Avenue off-ramp to the Evans Avenue undercrossing
  - Along northbound U.S. 101 about 50 feet west of the beginning of the Evans Avenue northbound on-ramp to about 500 feet west of the beginning of the Evans Avenue northbound on-ramp

- All proposed concrete median barrier would include aesthetic treatment such as texture and/or color appropriate for the setting.
- Drainage structures visible from public areas would be designed to visually blend in with the setting as much as possible.
- Modifications to existing bridge structures would reflect the visual character of the existing structures in terms of materials, color, style, and the existing human scale of the area.
- Open-style bridge railing would be used on all new or modified bridge structures.
- If new traffic management system elements such as radar, cameras, and other equipment are added to the project, all visible components would be located in the least obtrusive locations possible and colored to reduce visibility.
- Aesthetic treatments and design such as textured surfaces, architectural relief, and color application would be incorporated into all new bridge structures.
- Any new signage would be located so that it minimizes blocking the view of the Pacific Ocean to the greatest extent feasible, considering the necessary function of the sign.
- All new lighting would minimize excess light and glare by careful placement of the poles, height and position of luminaires (complete lighting units), and the use of shielded lenses where feasible.
- All areas where existing ramps and other paved surfaces are removed and new landscaping is proposed would be made suitable for planting.
- Existing trees and shrubs would be preserved to the greatest extent possible.
- Existing healthy palm trees that would be affected by the project would be transplanted to other areas within the project where feasible.
- Planting would be included with all soundwalls to the greatest extent possible.

- Planting would be included with all retaining walls to the greatest extent possible.
- New landscaping would minimize view blockage of the Pacific Ocean to the greatest extent possible.
- Plants with the potential of becoming skyline trees should be used as much as possible without blocking views of the Pacific Ocean.
- Existing Memorial Oaks would be preserved to the greatest extent feasible, respective of the selected project alternative.
- All new oak trees planted as part of this Memorial Oak tree mitigation measure would be propagated from the existing Memorial Oak trees.
- All new non-oak planting in the vicinity of the Memorial Oaks would be species that are easily differentiated from the Memorial Oaks in terms of their visual character (form, size, color, and or texture).
- Concrete median barriers and new soundwalls in the immediate vicinity of the Memorial Oaks would include aesthetic treatment unique to the Memorial Oaks area.
- The landscaping plan would include historically successful plant species throughout the corridor.
- All aesthetic planting would use larger-container-size plant material. Trees would be planted from, at minimum, 15-gallon containers.
- All permanent storm water treatment measures would be designed to visually fit with the ornamental or natural landscaped roadsides to the greatest extent feasible considering their intended function. Swales, ditches and basins should appear as natural as possible. Built structures would be architecturally treated, colored or hidden from view with planting.

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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.

Santa Barbara County, the Cities of Carpinteria and Santa Barbara, and the Santa Barbara County Association of Governments are active participants in the planning, development, and funding of the proposed project.

101 In Motion

The current project stems from a large community and multi-agency (including Caltrans) consultation effort known as *101 In Motion* that is based on a policy directive to find long-term solutions to the growing congestion problem along the U.S. 101 corridor in southern Santa Barbara County. Under the sponsorship of the Santa Barbara County Association of Governments over a multi-year period, the *101 In Motion* team worked to develop a package of solutions to achieve broad-based community support. Since the initiation of *101 In Motion* in November 2003, the Santa Barbara County Association of Governments staff and the consulting team actively met and worked with the community to provide education about the process, the results of the analyses during each step, and the consensus recommendations:

- Community workshops—5
- Activity center booths—13
- Community presentations—54
- Countywide Stakeholders Advisory Committee meetings open to the public—11
- Meetings of the Technical Advisory Committee, with representation from the cities, county, Santa Barbara Metropolitan Transit District, Caltrans, Santa Barbara Air Pollution Control District, California Highway Patrol, and Ventura County Transportation Commission—31

- Unanimous adoption of the final consensus package by the SBCAG Board on October 20, 2005

Notice of Preparation and Scoping Meetings

A Notice of Preparation for this project was circulated for 30 days, beginning May 1, 2009. The packets were mailed to the State Clearinghouse and directly to the appropriate agencies—agencies with jurisdiction, responsible agencies and interested agencies. Packets were also mailed to members of the public, historical societies and preservation groups, and Chumash groups and individuals who had expressed interest in the project.

Three separate scoping information meetings/open houses were held. The meetings were held from 5:30 p.m. to 7:30 p.m., with a presentation at 6:30 p.m. The dates and locations of the meetings were as follows:

July 7, 2009—Canalino Elementary School in Carpinteria

July 8, 2009—Montecito Country Club in Montecito

July 16, 2009—Summerland Presbyterian Church (scheduled after the Summerland Citizens Association requested a third meeting)

The meetings in Carpinteria and Montecito were announced by postcards mailed to addresses within 1,000 feet of the project limits as well as property owners along the project route that live outside the immediate project area. Also, meetings were announced in four newspapers: *Daily Sound* (June 27, 2009); *Ventura County Reporter* (June 25, 2009); *Coastal View News* (June 25, 2009), and *El Mexicano* for Spanish-speaking members of the public (June 24, 2009 and July 7, 2009).

The purpose of the meetings was to present the project purpose and need; identify initial scope expectations, and to obtain the public's ideas, comments, and concerns about this proposed project; and to introduce the public to members of the project team. Caltrans, local agency representatives, and Santa Barbara County Association of Governments staff members were present to answer specific questions about the project. A court reporter and a Spanish translator were also available.

California Coastal Commission

In response to Caltrans' Notice of Preparation for the project (May 12, 2009), the Coastal Commission replied by letter on May 29, 2009 identifying information needs,

jurisdictional species, critical habitat in the project area, and the National Oceanic and Atmospheric Administration contact for the project (biologist Matthew McGoogan).

Caltrans environmental staff holds quarterly coordination meetings with Coastal Commission staff as a way to report on the status of various projects going on in the district and to establish schedules. Staff met and discussed the status of the proposed project as well as other projects located in Santa Barbara County on the following dates, beginning with the Notice of Preparation coordination:

January 12, 2009
June 30, 2009
March 1, 2011
October 3, 2011
March 5, 2012
November 5, 2012
May 14, 2013
November 4, 2013
May 12, 2014

In addition to the above Coastal Commission Coordination meetings, over the last year, there have been coordination meetings held with the various agencies involved in the Local Coastal Plan Amendment for the City of Carpinteria. Coordination for the amendment has involved numerous meetings with the Coastal Commission and the City of Carpinteria as well as the Santa Barbara County Association of Governments. The meetings discussed both the South Coast 101 HOV Lanes project and Linden Avenue and Casitas Pass Road Improvements project because the Local Coastal Plan Amendment covers both. The meetings typically discussed proposed language for the amendment.

The following meeting dates have occurred:

February 4, 2013
March 4, 2013
April 2, 2013
May 6, 2013
June 3, 2013
July 22, 2013
August 12, 2013
September 9, 2013
October 28, 2013
November 18, 2013
November 30, 2013
December 18, 2013

November 2011 Public Information Meetings/Open House

Three separate information meetings were held to provide a project update, plus an overview of alternatives under study, preliminary findings for soundwall locations that have been considered, and outlines of other environmental and technical studies. The importance of the public input process once the draft environmental document is

released was also emphasized. The meetings were held from 5:30 p.m. to 8:00 p.m., with a presentation at 6:30 p.m.

The dates and locations of the meetings were as follows:

- November 15, 2011—Montecito Country Club in Montecito
- November 16, 2011—Carpinteria High School in Carpinteria
- November 17, 2011—QAD in the community of Summerland

Caltrans, local agency representatives, and Santa Barbara County Association of Governments staff members were present to answer specific questions about the project. No formal public hearing process occurred, and no public comments were taken for the record.

The meetings were announced by postcards mailed to addresses within approximately 1,000 feet of the project limits as well as property owners along the project route that live outside the immediate project area. In addition, meeting announcements were placed in the following newspapers: *Daily Sound* (November 8, 2011), *Montecito Journal* (November 2, 2011), and *Coastal View News* (November 3, 2011).

Public Circulation of Draft Environmental Impact Report/Environmental Assessment

The Draft Environmental Impact Report/Environmental Assessment for the South Coast 101 HOV Lanes project was circulated for public review and comment between March 23, 2012 and July 9, 2012. The original comment deadline was May 25, 2012; however, based on requests made by the California Coastal Commission and Santa Barbara County, the comment period was extended to July 9, 2012.

Two public hearings were held to further solicit public comment on the document. Both meetings were held from 5:00 p.m. to 8:30 p.m. The dates and locations of the meetings were as follows:

- April 24, 2012—Montecito Country Club in Montecito
- April 25, 2012—Carpinteria High School in Carpinteria

The meetings were well attended. A court reporter was available at both public hearings listed above. The reporter transcribed oral comments to text for those who elected to use this format instead of submitting their comments in writing.

The meetings were announced by postcards mailed to addresses within 1,000 feet of the project limits as well as property owners along the project route that live outside the immediate project area. In addition, meeting announcements were placed in the following newspapers: *Santa Barbara Independent* (March 29, 2012), *Daily Sound* (March 23 and April 17, 2012), *Montecito Journal* (April 13, 2012), *Montecito Messenger* (March 23, 2012), and *Coastal View News* (March 29, 2012).

Refer to Appendix M (Volume IV) for a more detailed breakdown of comments and responses as well as the entire set of comments and responses.

Community Coordination

Multiple community outreach meetings (more than eight meetings each) were also conducted with the Montecito Association 101 Subcommittee and the Summerland Citizens Association. Coordination also occurred with the Carpinteria Valley Association, the Padaro Lane Homeowner's Association, the Coast Village Road Business Association, and the Save Our Village homeowners group.

Montecito Association Involvement

As a result of the association's ongoing concerns about how the proposed project would affect its community, substantial coordination with the Montecito Association took place over the past four years. This group was outspoken about the proposed removal of two left ramps as well as removal of mature vegetation that would produce negative changes to the aesthetics. In addition to meetings intended for the general public, Caltrans scheduled several meetings specifically directed toward the Montecito Association. All meetings are listed below:

Spring 2009—A project overview and update were presented to the Montecito Association.

July 2009—Three public scoping meetings were held during release of the Notice of Preparation (refer to above description).

Spring 2010—A Montecito Association subcommittee was formed.

Spring 2010 through Spring 2013—Caltrans and the Montecito Association met at least 10 times.

May 2011—The Montecito Association subcommittee proposed the J Modified configuration for the Cabrillo Boulevard/Hot Springs Road interchange.

July 2011—Caltrans presented the J Modified configuration findings to the Montecito Association subcommittee; Caltrans developed configurations F Modified and M Modified.

November 2011—Caltrans held three public information meetings (refer to November 2011 public meetings/open house (previously described above).

March 2012—Caltrans released the Draft Environmental Impact Report/Environmental Assessment for public review; comment period was 109 days.

April 2012—Caltrans held two public hearings (refer to public circulation of the Draft Environmental Impact Report/Environmental Assessment).

May 2013—Caltrans staff gave a presentation to the Santa Barbara County Association of Governments board with a primary focus on two Montecito Association proposals for the Cabrillo Boulevard/Hot Springs Road Interchange (see Volume II, Appendix I).

January 2014—Caltrans staff presented their final information on the left ramp-related topics before the SBCAG board. A vote was taken by the board to have the project move forward (see Volume II, Appendix I).

Cultural Resources

There has been substantial coordination with the State Historic Preservation Officer per Section 106 of the National Historic Preservation Act. The correspondence is summarized as follows (refer to Appendix D for related correspondence):

- Caltrans submitted the Historic Property Survey Report to the State Historic Preservation Officer on November 4, 2010. The document determined the Area of Potential Effects (APE); identified cultural resources located within the Area of Potential Effects, and provided an evaluation of properties for eligibility to the National Register of Historic Places. Caltrans identified one archaeological site within the Area of Potential Effects eligible for listing in the National Register of Historic Places, and 11 historic-period properties within the architectural Area of Potential Effects that have either been listed on or determined eligible for listing in the National Register of Historic Places. The State Historic Preservation Officer concurred on the adequacy of the identification effort and the revised and current eligibility determinations on January 26, 2011. The State Historic Preservation Officer, however, was

unable to agree or disagree with Caltrans' determination of eligibility for three built-environment properties under Criterion C. To resolve this indecision, on February 2, 2011, Caltrans agreed to accept the State Historic Preservation Officer's recommendation to assume eligibility for the three properties under Criterion C for the purposes of this project only. The State Historic Preservation Officer confirmed the agreement in an email dated February 16, 2011.

- Caltrans submitted a Finding of Adverse Effects (February 2011) to the State Historic Preservation Officer on March 3, 2011 and concurrently submitted the finding to members of the Chumash community consultation group and the Historic Landmarks Advisory Committee. The Finding of Adverse Effects concluded that the project would have an adverse effect on the portion of the National Register-eligible archaeological site (Via Real Redeposited Midden, P-42-003943) within the Area of Direct Impact. The Finding of Adverse Effects further concluded that none of the proposed project's alternatives would have any direct or indirect effects on the National Register-eligible built-environment resources, including from the proposed installation of soundwalls, retaining walls, structures, or construction-related ground-borne vibration. The State Historic Preservation Officer concurred with the Finding of Adverse Effects on April 7, 2011.
- Caltrans submitted a Revised Finding of Adverse Effects (September 2011) to the State Historic Preservation Officer on October 3, 2011 following minor project changes during the preparation of the draft environmental document and project mapping. The conclusions of the Revised Finding of Adverse Effects, however, did not change; they are the same findings the State Historic Preservation Officer concurred with April 7, 2011. The State Historic Preservation Officer concurred with the Revised Finding of Adverse Effects on November 16, 2011.
- To resolve the project's adverse effects, Caltrans continued consultation with the State Historic Preservation Officer. Caltrans submitted a Draft Memorandum of Agreement and Data Recovery Plan to the State Historic Preservation Officer on December 6, 2012. Comments received by Caltrans were incorporated into the documents.
- Subsequent project design revisions in the vicinity of the Via Real Redeposited Midden shifted the preferred alternative (Alternative 1) toward the median in an effort to minimize potential impacts to the midden. Based on these design

revisions, Caltrans revised the Draft Memorandum of Agreement and included a Treatment Plan along with the Data Recovery Plan to address not only any impacts to the midden but also any potential archaeological discoveries made during construction. Caltrans submitted the revised Draft Memorandum of Agreement and the Treatment and Data Recovery Plan to the State Historic Preservation Officer on May 2, 2013.

- After additional consultation with the State Historic Preservation Officer on May 28–30, 2013, the Draft Memorandum of Agreement was restructured as a Programmatic Agreement, with the Treatment and Data Recovery Plan appended as Attachment B.
- The State Historic Preservation Officer signed the Programmatic Agreement on June 20, 2013 and the Advisory Council on Historic Preservation acknowledged receipt of the fully executed Programmatic Agreement on December 24, 2013. As a result, adverse effects will now be resolved in accordance with the *Treatment and Data Recovery Plan for the South Coast 101 HOV Lanes Project, Santa Barbara County, California*, which is Appendix B of the June 20, 2103 Programmatic Agreement between the California Department of Transportation and the California State Historic Preservation Officer Regarding the South Coast 101 HOV Lanes Project, U.S. Route 101, Santa Barbara County, California (see Appendix D, State Historic Preservation Officer Correspondence).

Caltrans has conducted a multi-year effort to involve the public, local government, historic preservation community, and Chumash groups and individuals in both the Section 106 process and the broader National Environmental Policy Act process.

Native American Consultation

During the initial stages of the preparation of the Historic Property Survey Report, Native American consultation was initiated with local Chumash individuals and groups. Consultation with interested Native American representatives included mail, telephone calls, copies of cultural resource reports and study summaries, meetings and field reviews, and Native American monitors being present during field excavations. Interested Native American representatives, individuals, and groups were identified by the Native American Heritage Commission. Individuals with knowledge of Barbareño ancestry were identified by John Johnson, curator of the anthropology collection at the Santa Barbara Museum of Natural History. The consultation list was also expanded to include members of the Barbareño and Samala

(Santa Ynez) tribes who have contacted Caltrans and wish to be kept informed about projects within a specific geographic area.

The following coordination occurred:

- August 18, 2008—Caltrans initiated consultation by mailing letters to members of the Chumash community asking if they wanted to be consulted. The letter provided a description of the project and the initial results of previous studies.
- September 10, 2008—Caltrans mailed letters with enclosed copies of the draft archaeological evaluation proposal and analysis of locations with sensitivity for buried archaeological deposits to members of the Chumash community for review. This second letter also advised the consulting group that a project meeting and field review would be held in October. After the archaeological evaluation proposal was sent, a follow-up call ensured receipt of the document, answered initial questions, and provided an opportunity to propose dates for a field review meeting. All individuals on the consultation list were called, and in many cases they provided additional information about sites within the study area.
- October 15, 2008—A project field meeting and information gathering was held near the survey area at Lookout County Park, Summerland. Caltrans staff and Chumash representatives Janet Garcia, Freddie Romero (Picay), Patrick Tumamait, Gilbert Unzueta, Frank Arredondo, and John Ruiz attended. The Chumash representatives and Caltrans staff discussed the project, alternatives, and studies conducted to date. All participants noted the importance of testing for potential buried archaeological sites and the importance of having Native American monitors during the archaeological studies and ground-disturbing activities. Comments made by the consultants during the meeting were integrated into the draft testing proposal. Participants also discussed the designation of the Most Likely Descendant, in the event that human remains were encountered. A draft copy of Caltrans District 5 policies on the treatment of human remains/burials (which conforms to Public Resources Code 5097.9 through 5097.99, as amended by Assembly Bill 2641) was provided to all participants at the meeting for their review and comment.
- October 16, 2008—Caltrans submitted a copy of the revised draft policies on the treatment of human remains/burials to the participants for review and comment. No comments were received.

- February 6, 2009—After incorporating written comments about the testing proposal from the Santa Ynez Band of Chumash Indians Elders Council, Caltrans sent a copy of the final testing proposal to the Chumash consultants, along with a copy of the Archaeological Survey Report.
- February 24–27, 2009—Extended Phase I archaeological excavations took place, with Patrick Tumamait performing the monitoring duties at all test locations. Daily-monitoring record forms were completed and are part of the project archaeological file.
- April 20, 2009—Caltrans mailed a letter to all Chumash consultants that provided an initial summary of the Extended Phase I backhoe trenching program and a project update.
- August 26, 2009—Caltrans mailed a letter detailing the Extended Phase I excavations, recommended National Register of Historic Places findings, and copies of the supporting draft evaluation report to all members of the Chumash consultation group. Comments were received from Freddie Romero (Picay) and Patrick Tumamait regarding the Via Real Redeposited Midden and were incorporated into the final document.
- December 22, 2009—Caltrans mailed a letter to all individuals and groups in the consultation group. The letter included a summary of the study results and the final archaeological evaluation report completed in November 2009.
- March 3, 2011—Caltrans mailed copies of the proposed Finding of Adverse Effect to the Chumash consultation group. In the accompanying letter, Caltrans also notified members of the consultation group that the State Historic Preservation Officer had concurred with the National Register eligibility of the Via Real Redeposited Midden.
- April 12, 2011—Caltrans mailed letters to the Chumash consultation group, notifying the group that the State Historic Preservation Officer concurred with the Finding of Adverse Effect.
- November 30, 2012—Caltrans prepared a Draft Memorandum of Agreement and Data Recovery Plan and submitted them to the Chumash consultation group. Comments received by Caltrans were incorporated into the documents.
- April 16, 2013—Caltrans prepared a revised Draft Memorandum of Agreement and a Treatment and Data Recovery Plan and submitted them to the Chumash consultation group. The transmittal letter notified the Chumash consultation

group that project design revisions had shifted Alternative 1 (the preferred alternative) toward the median in an effort to minimize potential impacts to the Via Real Redeposited Midden. Caltrans also noted that although the presence of other significant archaeological resources was not anticipated, Caltrans determined it was prudent to consider that the remote possibility of discoveries during construction might still exist. The revised Draft Memorandum of Agreement and the Treatment and Data Recovery Plan incorporated new language to address not only impacts to the Via Real Redeposited Midden but also any potential discoveries during construction. The Treatment and Data Recovery Plan also proposed additional construction monitoring in the vicinity of the Via Real Redeposited Midden and in areas of high archaeological sensitivity not accessed during the Extended Phase I excavations. Comments from the Chumash consultation group were incorporated into the revised document.

- June 12, 2013—After additional consultation (May 28–30, 2013) with the State Historic Preservation Officer, the revised Draft Memorandum of Agreement was restructured into a Programmatic Agreement. Caltrans invited the Chumash representatives to sign the proposed Programmatic Agreement.
- June 17, 2013—Chumash consultant Patrick Tumamait signed the Programmatic Agreement as a Concurring Party.
- June 20, 2013 — The State Historic Preservation Officer signed the Programmatic Agreement. As a result, adverse effects will now be resolved in accordance with the *Treatment and Data Recovery Plan for the South Coast 101 HOV Lanes Project, Santa Barbara County, California*, which is Appendix B of the June 20, 2103 *Programmatic Agreement Between the California Department of Transportation and the California State Historic Preservation Officer Regarding the South Coast 101 HOV Lanes Project, U.S. Route 101, Santa Barbara County, California* (see Appendix D, State Historic Preservation Officer Correspondence). Caltrans will continue to afford Native Americans invited to concur in the Programmatic Agreement the opportunity to participate in the implementation of the undertaking.

Native American Heritage Commission

On July 25, 2008, a letter was mailed requesting a search of the sacred lands file as well as contact information for Chumash representatives who might have concerns or knowledge about resources in the project vicinity. The Native American Heritage

Commission responded that their search did not indicate the presence of Native American cultural resources in the immediate project area. They provided a list of 11 Native American individuals and groups who might have concerns about the proposed project or special knowledge of cultural resources in the project vicinity. These individuals and groups were added to the project consultation list.

Santa Barbara County Planning and Development Department

October 12, 2012—Caltrans mailed Glenn S. Russell copies of the following reports and findings: October 2010 Historic Property Survey Report and Attachments A–J; February 2011 Finding of Adverse Effects; September 2011 Revised Finding of Adverse Effects; and State Historic Preservation Officer's concurrence on the Revised Finding of Adverse Effects.

City of Santa Barbara Historic Landmarks Commission

- February 4, 2009—Caltrans mailed an initial project notification letter to City of Santa Barbara urban historian Jake Jacobus to request general information on historic properties within the project limits.
- March 31, 2009—Caltrans made a follow-up telephone call to Jake Jacobus, leaving a message on the answering machine.
- September 29, 2010—Caltrans contacted Jake Jacobus by email for specific information concerning the property at 50 Los Patos Way. Mr. Jacobus responded with information in a return email on October 5, 2010.
- March 3, 2011—Caltrans mailed to Jake Jacobus a copy of the Historic Property Survey Report, copies of correspondence with the State Historic Preservation Officer, and notice of the Caltrans proposed Finding of Adverse Effect for the project.
- April 7, 2011—Caltrans mailed to Jake Jacobus notification of the State Historic Preservation Officer's concurrence with the project Finding of Adverse Effect.
- October 12, 2012—Caltrans mailed the commission copies of the following reports and findings: February 2011 Finding of Adverse Effect; State Historic Preservation Officer letter of concurrence; September 2011 Revised Finding of Adverse Effects; and State Historic Preservation Officer letter of concurrence.

Santa Barbara County Historic Landmarks Advisory Commission

- August 11, 2008—Caltrans mailed an initial project notification letter to Anita Hodosy-McFaul, Secretary of Historic Landmarks Advisory Commission, requesting information on historic properties within the project limits.
- February 12, 2009—Caltrans made a follow-up telephone call to Anita Hodosy-McFaul, leaving a message and also asking specifically for information concerning the Memorial Oaks. Ms. Hodosy-McFaul returned the call, reporting that the Memorial Oaks had never been officially addressed by the Historic Landmarks Advisory Commission and offered to make the commission's files available for research.
- April 13, 2009—Caltrans presented an overview of the project to the regular monthly hearing of the Historic Landmarks Advisory Commission and described the potential for impacts to the Memorial Oaks. Caltrans also notified the commissioners that the public scoping meeting for the project was scheduled for June 2009. Chairman John Woodward reported that he had appointed Bob Duncan as the commission's representative to serve on the Memorial Oaks Focus Review Group, and that Mr. Duncan had already attended the first meeting held on April 7, 2009. Mr. Duncan also attended all of the subsequent meetings, reporting back to the Historic Landmarks Advisory Commission.
- March 3, 2011—For the Historic Landmarks Advisory Commission, Caltrans mailed a copy of the Historic Property Survey Report, copies of correspondence with the State Historic Preservation Officer, and notice of the Caltrans proposed Finding of Adverse Effect to Anita Hodosy-McFaul.
- April 7, 2011—For the Historic Landmarks Advisory Commission, Caltrans mailed notification of the State Historic Preservation Officer's concurrence in the project Finding of Adverse Effect to Anita Hodosy-McFaul.
- October 12, 2012—Caltrans mailed the commission copies of the following reports and findings: February 2011 Finding of Adverse Effect; State Historic Preservation Officer letter of concurrence; September 2011 Revised Finding of Adverse Effects; and State Historic Preservation Officer letter of concurrence.

Local Historical Societies/Historic Preservation Groups

- August 18, 2008—Caltrans sent a letter to the following interested parties, seeking comment and information pertaining to historic-period architectural and engineering resources adjacent to the existing right-of-way:
    - American Institute of Architects, Santa Barbara Chapter, Architectural Archives
    - American Legion Post 49 (Santa Barbara)
    - American Legion Post 62 (Carpinteria)
    - American Society of Civil Engineers, Santa Barbara/Ventura Branch
    - American Society of Civil Engineers, Los Angeles Section, History and Heritage Committee
    - Architecture and Design Collection, University Art Museum, University of California, Santa Barbara
    - Automobile Club of Southern California
    - Carpinteria Valley Historical Society and Museum of History
    - Carpinteria Valley Association
    - Citizens for the Carpinteria Bluffs
    - Citizens Planning Association and Foundation
    - Davidson Library, Special Collections, University of California, Santa Barbara
    - Los Angeles Conservancy Modern Committee
    - Montecito Association
    - Montecito History Committee
    - Pearl Chase Society, Santa Barbara
    - Public History Information Unit, University of California, Santa Barbara
    - Sahyun Library, Santa Barbara
    - Santa Barbara Historical Society
    - Santa Barbara Public Library (Central Library, and Carpinteria, Eastside, and Montecito Branch Libraries)

  - Society of Architectural Historians, Southern California Chapter
  - Summerland Citizens Association
  - Santa Barbara Maritime Museum
  - Santa Barbara Museum of Natural History
  - Santa Barbara Trust for Historic Preservation
  - Ventura County Museum of History and Art

- February 10 to March 31, 2009—Caltrans made follow-up telephone calls to all of the interested parties listed above, asking for both general information on resources in the project area and for specific information on the Memorial Oaks. Caltrans left messages requesting comments and spoke to several individuals at these organizations. Most of the individuals contacted had no comments about historic-period architectural resources, the Memorial Oaks, or the project. One email response was received from the Santa Barbara Public Library providing two sources of historical information, (the Santa Barbara Historical Society and the University of California, Santa Barbara Department of Special Collections). American Legion Post 49 offered to investigate the names of Santa Barbara County World War I soldiers; the Architecture and Design Collection at University of California, Santa Barbara offered to check its files for materials relating to World War I memorials. The Santa Barbara Historical Society, the Carpinteria Valley Historical Society and Museum of History, and University of California, Santa Barbara Davidson Library Special Collections offered to assist with research. The Carpinteria Valley Association provided some information on the Memorial Oaks. The Montecito Committee called for clarification about the study limits.
- March 11, 2011—Caltrans mailed letters to all of the historical groups listed above, notifying them of the State Historic Preservation Officer's concurrence on the determination of National Register eligibility of the Via Real Redeposited Midden and the 11 historic-period architectural properties within the project area of potential effects. The letter also provided copies of Caltrans' correspondence with the State Historic Preservation Officer and Caltrans' proposed Finding of Adverse Effect for the project.
- October 15, 2012—Caltrans mailed letters to all of the historical groups listed above, notifying them of the Revised Finding of Adverse Effects and the State

Historic Preservation Officer's concurrence on the Revised Finding of Adverse Effects.

Visual

Memorial Oaks Focus Review Group

Additional public outreach included the formation of a Memorial Oaks Focus Review Group to gather information and hear community concerns about a group of oak trees planted along a portion of the U.S. 101 corridor in 1928 in memory of Santa Barbara County soldiers who died in World War I. Five meetings were held between April 7, 2009 and May 5, 2010 with the following community participants:

- Vera Bensen, Carpinteria Valley Association
- Bob Duncan, Santa Barbara County Historic Landmarks Advisory Commission
- David Griggs, Carpinteria Valley Historical Society and Museum of History
- Gretchen Johnson, Carpinteria Citizen
- Roxie Lapidus, Carpinteria Valley Association
- William Stewart, Vietnam Veterans of America

Staff from the Santa Barbara County Planning and Public Works Department, the Santa Barbara County Association of Governments, JRP Historical Consulting, LLC, and Caltrans also participated in the meetings. The Memorial Oaks are discussed further in Section 2.1.6.

Biology

National Oceanic and Atmospheric Administration's National Marine Fisheries Service

In response to Caltrans' Notice of Preparation for the project (May 12, 2009), the National Oceanic and Atmospheric Administration National Marine Fisheries replied by letter on May 29, 2009 identifying information needs, jurisdictional species, critical habitat in the project area, and the National Oceanic and Atmospheric Administration contact for the project (biologist Matthew McGoogan). The National Oceanic and Atmospheric Administration determined the project to be complex and recommended that Caltrans begin early consultation with agency staff.

Two field meetings were held with National Oceanic and Atmospheric Administration staff Matthew McGoogan, David Crowder, and Mark Capelli. McGoogan attended the July 16, 2009 meeting, while Crowder and Capelli attended

the August 5, 2009 meeting. Site reviews were conducted at the following locations: Carpinteria Creek, Arroyo Paredon Creek, San Ysidro Creek, Romero (Picay) Creek, and Montecito Creek.

During site visits, it was determined that project build alternatives as proposed would require formal consultation with the National Oceanic and Atmospheric Administration under Section 7 of the Endangered Species Act for potential incidental take of Southern California steelhead trout and for work in critical habitat. On July 16, McGoogan indicated that proposed bridge structure work at San Ysidro, Romero (Picay) and Arroyo Paredon creeks would likely need to be assessed to determine if current and proposed conditions could result in hydraulic barriers to steelhead trout movement and recommended coordinating a field visit with Crowder.

McGoogan also noted that Caltrans would need to include de-watering plans for Arroyo Paredon and Romero (Picay) creeks in a Biological Assessment submittal.

On November 23, 2009, Caltrans called an additional meeting in Santa Barbara with National Oceanic and Atmospheric Administration staff McGoogan, Crowder and Anthony Spina. Maureen Spencer of the Santa Barbara County Flood Control also attended and discussed potential impacts of proposed bridge designs on fish passage. Following the meeting, it was agreed that further communication would be needed to determine the extent of hydraulic analyses needed by the National Oceanic and Atmospheric Administration for critical habitat creeks. Discussions regarding hydraulic analyses between Caltrans' hydraulic engineer Lyn Wickham and National Oceanic and Atmospheric Administration engineer Crowder have been ongoing.

On March 28, 2012, Morgan Robertson and Lyn Wickham met with National Oceanic and Atmospheric Administration Marine Fisheries staff Kristin Mull, Matthew McGoogan and David Crowder in Carpinteria to familiarize Kristin Mull with the following proposed action areas: Arroyo Paredon Creek, Romero Creek, and San Ysidro Creek.

On April 16, 2012, Caltrans received a letter from Kristin Mull requesting additional information about the South Coast Highway 101 HOV Lanes project.

On February 21, 2013, Caltrans submitted a revised Biological Assessment to the National Oceanic and Atmospheric Administration that included additional information requested in the letter of April 5, 2012.

U.S. Fish and Wildlife Service

On June 29, 2009, Caltrans biologist Ms. Morgan Robertson spoke with U.S. Fish and Wildlife Service biologist Steve Kirkland regarding negative survey findings for salt marsh bird's-beak, Gambel's watercress, and other listed plant species. Following a brief discussion of the status of the light-footed clapper rail populations in Carpinteria Marsh, Kirkland concurred that the project would not affect the light-footed clapper rail because the project would avoid the marsh. Robertson also told Kirkland of the survey schedule and negative survey results to date for California red-legged frogs.

On March 24, 2010, Kirkland confirmed that formal consultation under Section 7 of the Endangered Species Act would be required for potential incidental take of the tidewater goby at Arroyo Paredon Creek and could require consultation for work at Franklin Creek.

Between March 15, 2012 and July 7, 2012, Ms. Robertson coordinated with U.S. Fish and Wildlife Service biologist Mark Elvin to answer questions and provide supplemental information to complete formal consultation for the tidewater goby and provide a conference opinion for proposed critical habitat at Arroyo Paredon Creek.

On August 6, 2012, the U.S. Fish and Wildlife Service issued Caltrans a Biological and Conference Opinion for the project (see Appendix H).

California Department of Fish and Wildlife

In response to the Caltrans Notice of Preparation for the project (May 12, 2009), the California Department of Fish and Wildlife (formerly Fish and Game) replied by letter (June 2, 2009) identifying information needs and the Department of Fish and Wildlife contact for the project (California Department of Fish and Wildlife environmental scientist Jamie Jackson).

A field meeting with Jackson, Caltrans biologist Morgan Robertson, Caltrans environmental planner Michael Sandecki, and Caltrans hydraulic engineer Lyn Wickham took place on December 10, 2009. Site reviews were conducted at the following locations: Franklin Creek, Arroyo Paredon Creek, Toro Canyon Creek, Romero (Picay) Creek, San Ysidro Creek, and Greenwell Creek. It was concluded that a 1602 permit (streambed alternation agreement) would be required for work in and adjacent to creeks in the project area. Ms. Jackson noted that Caltrans would need to submit de-watering and diversion plans as part of the 1602 permit application, and that riparian vegetation removal would need to be conducted between September 1 and February 15 to avoid potential effects to nesting migratory birds.

Trees removed between February 16 and August 31 would require surveys for nesting birds and clearance prior to removal. Caltrans discussed plans to replant riparian vegetation impacts at a 3:1 ratio within the project area, but noted that flooding concerns from the Santa Barbara County Flood Control would need to be considered when developing planting plans. Jackson noted that offsite mitigation measures could be considered to benefit Southern California steelhead trout populations. Caltrans also discussed plans for Greenwell Creek that would incorporate bio-engineering techniques, such as brush layering with willows.

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Chapter 5 List of Preparers

This document was prepared by the following Caltrans Central Region staff:

Alhabaly, Allam. Transportation Engineer. B.S., Engineering, California State University, Fresno, School of Engineering; 15 years of experience in environmental technical studies with emphasis on noise studies. Contribution: Review and update of the Noise Study Report.

Appelbaum, Dan. P.E., Transportation Engineer. B.S., Engineering, Worcester Polytechnic Institute, Massachusetts; 23 years of transportation engineering experience. Contribution: Prepared the Preliminary Geotechnical Recommendation Report.

Carr, Paula Juelke. Associate Environmental Planner (Architectural History). M.A., Independent Studies: History, Art History, Anthropology, Folklore and Mythology, University of California, Santa Barbara; B.A., Cultural Anthropology, University of California, Santa Barbara; more than 27 years of experience in California history. Contribution: Prepared Supplemental Historic Resource Evaluation Report 2010 and co-authored Finding of Effect.

Carr, Robert. Associate Landscape Architect. B.S., Landscape Architecture, California Polytechnic State University, San Luis Obispo; 23 years of experience preparing Visual Impact Assessments. Contribution: Prepared the Visual Impact Assessment.

Chafi, Abdulrahim N. P.E., INCE. Ph.D., Environmental Engineering Management, California Coast University; B.S. and M.S., Chemistry, California State University, Fresno. M.S., Civil/Environmental Engineer, California State University, Fresno. Over 17 years of experience performing transportation analysis studies for air quality, noise impact, and water quality. Contribution: Review and update of the Air Quality Analysis.

Dwivedi, Rajeev. Engineering Geologist. Ph.D., Environmental Science, Oklahoma State University; M.S., Civil Engineering, Oklahoma State University; M.S., Geology, Wichita State University; 27 years of environmental technical studies experience. Contribution: Review and update of the Water Quality Assessment Report.

Fouche, John. Senior Transportation Engineer. Registered Professional Engineer. B.S., Civil Engineering; more than 22 years of experience as a design engineer. Contribution: Design Manager.

Fowler, Matt C. Senior Environmental Planner. B.A., Geographic Analysis, San Diego State University; 13 years of experience in environmental planning. Contribution: Oversaw preparation of Environmental Impact Report/Environmental Assessment.

Hoffmann, Yvonne. Associate Environmental Planner. B.S., Natural Resources Planning, Humboldt State University; 13 years of experience preparing environmental documentation and 12 years of experience in city planning. Contribution: Prepared the Environmental Impact Report/Environmental Assessment.

Joslin, Terry L. Archaeologist. Ph.D., Anthropology, University of California, Santa Barbara; 18 years of experience in archaeological studies in California, the Northern Channel Islands, and the Great Basin. Contribution: Prepared the Historic Properties Survey Report, conducted the Native American coordination for the project, and co-authored the Finding of Effect.

Levulett, Valerie A. Senior Environmental Planner. Ph.D., Anthropology, University of California, Davis; 41 years of experience in cultural resource studies and environmental analysis. Contribution: Oversight of technical reports (Vibration, Hazardous Waste, and Cultural Resources).

Leyva, Isaac. Engineering Geologist. B.S., Geology; 23 years of experience in petroleum geology, environmental, and geotechnical engineering. Contribution: Paleontology Report.

Mikel, Karl J. Transportation Engineer. B.S., Environmental Engineering; California Polytechnic University, San Luis Obispo; M.S., Civil and Environmental Engineering, California Polytechnic University, San Luis Obispo; 10 years of experience in environmental engineering. Contribution: Air Quality, Water Quality, Noise, and Vibration Reports.

Robertson, Morgan. Associate Environmental Planner (Natural Sciences). M.S., Wildlife Biology, University of Alaska, Fairbanks; B.S., Biology, University of California, Davis; 19 years of biology experience. Contribution: Natural Environment Study.

Riegelhuth, Peter. Landscape Associate, BLA, Landscape Architecture, California Polytechnic State University, San Luis Obispo, Certified Professional in Erosion and Sediment Control CPESC #5336, 4 years of experience in construction as the District Construction Stormwater Coordinator, 8 years of experience in Design as the District Stormwater/NPDES Permit Coordinator. Contribution: Review and update of the Water Quality Assessment Report and water quality elements of the Environmental Impact Report/Environmental Assessment.

Romero, Ken J. Senior Transportation Engineer. B.S., Civil Engineering, California State University, Fresno; 9 years of environmental technical studies experience. Contribution: Noise Study Report, oversaw preparation of the Air Quality Report, Vibration Report, and Water Quality Report.

Tkach, James. Transportation Engineer. B.S., Soil Science, California Polytechnic State University, San Luis Obispo; Certificate in Hazardous Materials Management, University of California, Santa Barbara; Registered Environmental Assessor; 5 years of experience in project design and construction; more than 24 years of experience in hazardous waste management. Contribution: Initial Site Assessment, Preliminary Site Investigation.

Vierra, Marcia. P.E., Civil Engineer, B.S., Civil Engineering; M.S., Public Administration; more than 22 years of experience as a design engineer. Contribution: Project Engineer.

Wickham, Wendelyn. P.E., Civil Engineer. M.S., Civil Engineering; 21 years of experience in Caltrans hydraulics/floodplain studies. Contribution: Prepared the Location Hydraulic Study and the Floodplain Evaluation Report and Summary.

Wilkinson, Jason. Senior Environmental Planner. B.S., Natural Resource Management, California Polytechnic State University, San Luis Obispo; 7 years of environmental planning experience. Contribution: Prepared the Environmental Impact Report/Environmental Assessment.

Chapter 6 Distribution List

Federal Agencies
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
Advisory Council on Historic Preservation
Department of the Interior
NOAA National Marine Fisheries Service
Federal Highway Administration

State Agencies
State Historic Preservation Officer
California Department of Fish and Wildlife
California Transportation Commission
Boating and Waterways
California Coastal Commission
California Coastal Conservancy
California Energy Commission
Historic Preservation
Department of Fish and Wildlife, Region 5, Habitat Conservation Program
Department of Fish and Wildlife, Environmental Services Division
Housing and Community Development
California Highway Patrol
Air Resources Board, Transportation Projects
Department of Toxic Substances Control
Central Coast Region (3) Water Quality Control Board
State Water Resources Control Board
Governor's Office of Planning and Research
State Lands Commission
Office of Emergency Services
Public Utilities Commission

Local Agencies
Santa Barbara County Association of Governments
Santa Barbara County Public Works Department - Flood Control
City of Carpinteria Planning Commission
Carpinteria City Council
City of Carpinteria Community Development Department
City of Santa Barbara Planning Commission
Santa Barbara City Council
City of Santa Barbara Community Development Department
City of Santa Barbara Transportation and Circulation Committee
City of Santa Barbara Metropolitan Transit District Board
Santa Barbara City Historic Landmarks Commission
Santa Barbara County Historic Landmarks Advisory Commission

Santa Barbara Trust for Historic Preservation
Santa Barbara County Planning and Development Department
Montecito Planning Commission
Montecito Sanitary District
Santa Barbara County Planning Commission

Elected Officials
Lois Capps, U.S. House of Representatives
Hannah-Beth Jackson, State Senator
Das Williams, Assembly Member
Salud Carbajal, Supervisor (District 1)
Janet Wolf, Supervisor (District 2)
Doreen Farr, Supervisor (District 3)

Local Libraries
Santa Barbara Public Library, Carpinteria Branch
Santa Barbara Public Library, Central Library
Santa Barbara Public Library, Eastside Branch
Santa Barbara Public Library, Montecito Branch

Stakeholder Organizations
Amtrak
Montecito Association
Carpinteria Valley Association
Santa Barbara Region Chamber of Commerce
Carpinteria Valley Chamber of Commerce
Santa Barbara Technology and Industry Association
Santa Barbara Downtown Organization
Coast Village Road Business Association
Santa Barbara County Taxpayers Association
Santa Barbara Bicycle Coalition
Coast-Coalition for Sustainable Transportation
Cars Are Basic
PUEBLO
Santa Barbara County Action Network
League of Women Voters
Community Environmental Council
Citizens Planning Association and Foundation
Environmental Defense Center
Santa Barbara Conference and Visitors Bureau
Regional Legislative Alliance of Ventura and Santa Barbara Counties
Santa Barbara County Flower and Nursery Growers Association
American Institute of Architects, Santa Barbara Chapter
American Legion Post 49
American Legion Post 62
American Society of Civil Engineers Santa Barbara/Ventura Branch

Architecture and Design Collection, University Art Museum
Boy Scouts of America, Los Padres Chapter
Carpinteria Valley Historical Society and Museum of History
Citizens for the Carpinteria Bluffs
Davidson Library, Special Collections
Montecito History Committee
Santa Barbara Historical Society
Santa Barbara Maritime Museum
Santa Barbara Museum of Natural History
Santa Barbara Zoo
Pearl Chase Society
Public History Information Unit
Sahyun Library
Summerland Citizens Association
Ventura County Museum of History and Art
Vietnam Veterans of America, Santa Barbara Chapter 218
Santa Ynez Band of Mission Indians
Chumash Newsletter
California State University Channel Islands
Coastal Band of the Chumash Nation
Owl Clan Consultants
Santa Ynez Band Tribal Elders Council
Santa Ynez Band of Mission Indians
Santa Barbara Channel Keeper
Carpinteria Creek Watershed Coalition
Santa Barbara Audubon Society
Sierra Club, Los Padres Chapter

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List of Technical Studies Bound Separately

Air Quality Report and Addendums

Noise Study Report and Addendums

Noise Abatement Decision Report

Vibration Report and Addendum

Water Quality Report and Addendum

Natural Environment Study, and Addendums

Location Hydraulic Study and Addendum

Historical Property Survey Report

Hazardous Waste Reports

- Initial Site Assessment and Addendum
- Preliminary Site Investigation (Geophysical Survey)
- Asbestos and Lead-containing Paint Survey Report
- Site Investigation Report – Geophysical Survey and Potholing
- Underground Storage Tank Removal Report

Scenic Resource Evaluation/Visual Impact Assessment and Addendum

Initial Paleontology Study and Addendum

Community Impact Assessment and Addendum

Growth Study and Addendum

Preliminary Geotechnical Report and Addendum

Traffic Studies: Existing Conditions Operational Analysis (December 15, 2008, Amended December 9, 2011); Travel Forecast Report (February 9, 2009); Forecast Operations Report (October 19, 2009, amended December 9, 2011); and Cabrillo-Hot Springs Interchange Configuration Analysis Technical Memorandums-I/C Modified Configuration Analysis--March 21, 2011 and July 19, 2011, with an addendum prepared March 14, 2014.

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Appendices
(Bound Separately)

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