Interstate 5/State Route 56 Interchange Project

SAN DIEGO COUNTY, CALIFORNIA
DISTRICT 11 – SD – I-5 (PM 32.7/34.8), SR-56 (PM 0.0/2.5)
EA 177900

Draft Environmental Impact Report/ Environmental Impact Statement

Prepared by the
State of California Department of Transportation

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

May 2012

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General Information about This Document

What's in this document:

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

What you should do:

- Please read this Draft EIR/EIS. The environmental document and associated technical studies are available for review online at http://www.keepsandiegomoving.com/I-5-Corridor/I-5-sr56-intro.aspx and at the following locations:

Caltrans, District 11 Office 4050 Taylor Street San Diego, CA 92110	San Diego Public Library Carmel Valley Branch 3919 Townsgate Drive San Diego, CA 92130	San Diego Public Library Central Branch 820 E Street San Diego, CA 92101

  For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, call or write to Department of Transportation, Attn: Shay Lynn Harrison, 4050 Taylor Street, San Diego, CA 92110 (MS242); (619) 688-0190 Voice, or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

- Attend the public hearing to be held on June 13, 2012.

- Comments regarding the proposed project are welcome; please attend the public meeting and/or send written comments to Caltrans by the deadline.

  Submit comments to:

  Shay Lynn Harrison, Chief Environmental Analysis, Branch C
  California Department of Transportation
  4050 Taylor Street, MS 242
  San Diego, CA 92110

  Submit comments via email to: I-5_SR_56_Interchange_Draft_EIR_EIS@dot.ca.gov.

- Be sure to submit comments by the deadline: July 2, 2012.

What happens next:

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

At a future date, FHWA may publish a notice in the Federal Register, pursuant to Title 23, Section 139(1) of the U.S. Code (USC), indicating that a final action has been taken on this proposed project. If such notice is published, a lawsuit or other legal claim will be barred unless it is filed within 180 days after the date of publication of the notice (or within such shorter time period as is specified in the federal laws pursuant to which judicial review of the federal agency action is allowed). If no notice is published, then the lawsuit or claim can be filed as long as the periods of time provided by other federal laws that govern claims are met.

FHWA-CA-EIS-11-D

SCH# 2005051061
11-SD-5;56-32.7/34.8; 0.0/2.5
EA 177900

Interstate 5/State Route 56 Interchange Project, San Diego County, CA

DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C)
THE STATE OF CALIFORNIA
Department of Transportation
THE U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration
San Diego Association of Governments

COOPERATING AGENCIES
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
Native American Heritage Commission
California Department of Fish and Game

RESPONSIBLE AGENCIES
California Coastal Commission
California Transportation Commission
California Regional Water Quality Control Board
California Public Utilities Commission
City of San Diego
County of San Diego
Office of Historic Preservation

4/24/12
Date of Approval

Laurie Berman
District 11 Director
California Department of Transportation
NEPA/CEQA Lead Agency

The following person may be contacted for additional information concerning this document:

Shay Lynn Harrison
Chief Environmental Analysis, Branch C
California Department of Transportation
4050 Taylor Street, MS-242
San Diego, CA 92110
619-688-0229

Abstract: The proposed project would provide connection between southbound I-5 to eastbound SR-56, and between westbound SR-56 to northbound I-5 in San Diego. The proposed project covers a distance of approximately 4.6 miles. The alternatives under consideration are the Direct Connector Alternative, the Auxiliary Lane Alternative, the Hybrid Alternative, the Hybrid with Flyover Alternative, and the No Build Alternative. Potential benefits include maintaining or improving the existing and future traffic operations over future no build conditions in the I-5 and SR-56 corridors, improving the efficient local and regional movement of people and goods while minimizing environmental and community impacts. Potential proposed project impacts include: visual/aesthetics, cultural resources, paleontology, noise, and natural communities. Please send comments on this document to Shay Lynn Harrison, California Department of Transportation, at the above address, by July 2, 2012.

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EXECUTIVE SUMMARY

Pursuant to National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and in cooperation with the San Diego Association of Governments (SANDAG) and the City of San Diego, the California Department of Transportation (Caltrans) has prepared this Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS). The proposed Interstate 5/State Route 56 (I-5/SR-56) Interchange Project (proposed project) is a joint effort by Caltrans and the Federal Highway Administration (FHWA) and is subject to federal, state, regional, and local laws, regulations, and policies. Therefore, proposed project documentation has been written in compliance with NEPA and CEQA, with Caltrans being the lead agency for both.

FHWA'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 Section 6005 of Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) codified at 23 United States Code [USC] 327(a)(2)(A). Effective July 1, 2007, FHWA has assigned, and Caltrans has assumed, all the U.S. Department of Transportation (USDOT) Secretary's responsibilities under NEPA (refer to Chapter 38 of the Caltrans' Standard Environmental Reference (SER) for more information). Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA (see Section 5.5 for additional information).

Following receipt of public comments on the Draft EIR/EIS and circulation of the Final EIR/EIS, Caltrans would be required to take actions regarding the environmental document. Caltrans would determine whether to certify the EIR and issue Findings and a Statement of Overriding Considerations under CEQA, as well as whether to issue a Record of Decision (ROD) under NEPA.

ES.1 OVERVIEW OF PROPOSED PROJECT AREA

The proposed project area encompasses portions of the north/south I-5 and the west/east SR-56 corridors. The majority of the land surrounding the proposed project area is developed, urban, or preserved as open space. Development is found to the east and west of I-5 and to the north of SR-56. The Carmel Valley Restoration and Enhancement Project (CVREP) is located in a riparian area along Carmel Valley Creek to the south of SR-56 that has been preserved as open space in which revegetation efforts have taken place. The existing project site is constrained geographically by steep slopes and riparian/wetland habitat along Carmel Valley Creek and Los Peñasquitos Lagoon.

ES.2 PROPOSED PROJECT PURPOSE AND NEED

The primary reason for the project is to maintain or improve travel time. The proposed I-5/SR-56 interchange project is needed to properly and effectively connect two major freeways which will help improve regional mobility, inter-regional mobility and relieve local traffic congestion which creates the current and projected travel delays. The proposed project is to improve existing and expected future traffic operations along the I-5 and SR-56 corridors, including Del Mar Heights Road, Carmel Valley Road, Carmel Country Road, and local streets within the Carmel Valley community. The proposed project aims to improve the local and regional movement of people and goods, while minimizing environmental and community impacts for the planning year 2030. The proposed I-5/SR-56 interchange project is needed to properly and effectively connect two major freeways and help relieve regional and local traffic congestion resulting from existing and future (projected) population growth, increased residential development, and increased commercial development within the San Diego region.

Additionally, the proposed I-5/SR-56 interchange project was designed with consideration of the I-5 NCC Project. Caltrans would ensure that no design features of either project, such as retaining walls

and soundwalls, would need to be reconstructed for the second project. Both projects would be independent of each other and either could be constructed without the other.

ES.3 PROPOSED ACTION

The proposed project would improve the movement of vehicles traveling westbound on SR-56 to northbound I-5 as well as vehicles traveling southbound on I-5 to eastbound SR-56. The proposed I-5/SR-56 interchange project would begin south of the western segment of Carmel Valley Road along I-5 at post mile (PM) 32.7 and continue to PM 34.8 north of Del Mar Heights Road. Along SR-56, the proposed project would begin at PM 0.0 at El Camino Real and continue to PM 2.5 east of Carmel Country Road. The length of the proposed project is approximately 2.1 miles on I-5 and approximately 2.5 miles on SR-56, for a collective length of 4.6 miles. The proposed project is located within the City of San Diego in San Diego County, east of the City of Del Mar and south of the City of Solana Beach. See Figures 1-1 and 1-2 for proposed project vicinity and location.

ES.4 ALTERNATIVES CONSIDERED

In addition to the No Build Alternative (Alternative 1), four build alternatives are being considered for the proposed project and are discussed next.

DIRECT CONNECTOR ALTERNATIVE (ALTERNATIVE 2)

The Direct Connector Alternative would involve construction of grade-separated ramps that would directly connect westbound SR-56 to northbound I-5 and southbound I-5 to eastbound SR-56. These direct freeway-to-freeway connector ramps would have two general-purpose lanes.

AUXILIARY LANE ALTERNATIVE (ALTERNATIVE 3)

The Auxiliary Lane Alternative would involve construction of an auxiliary lane along southbound I-5, between the southbound on-ramp at Del Mar Heights Road and the southbound off-ramp at Carmel Valley Road, to help facilitate merging traffic. The southbound off-ramp would be widened to a two-lane freeway exit, and the northbound on- and off-ramps would be widened at Carmel Valley Road.

HYBRID ALTERNATIVE (ALTERNATIVE 4)

The Hybrid Alternative is a combination of the proposed westbound to northbound connector featured in the Direct Connector Alternative and the proposed southbound to eastbound local street movement featured in the Auxiliary Lane Alternative. The Hybrid Alternative would involve construction of a westbound SR-56 to northbound I-5 direct connector having two general-purpose lanes and an auxiliary lane along southbound I-5 between the southbound on-ramp at Del Mar Heights Road and the southbound off-ramp at Carmel Valley Road to reduce merging traffic. Widening also would occur at the southbound I-5 off-ramp (to a two-lane freeway exit) and northbound I-5 off-ramp at Carmel Valley Road.

HYBRID WITH FLYOVER ALTERNATIVE (ALTERNATIVE 5)

The Hybrid with Flyover Alternative is a variation of the Hybrid Alternative. In addition to the construction of a two-lane west-to-north direct connector, a southbound I-5 auxiliary lane between the Del Mar Heights Road on-ramp and the Carmel Valley Road off-ramp, and the widening of the northbound and southbound off-ramps at Carmel Valley Road, the Hybrid with Flyover Alternative would involve the construction of an on-ramp to directly connect eastbound Carmel Valley Road to the eastbound SR-56 fast lane. This feature would allow traffic traveling from southbound I-5 to eastbound SR-56 to bypass the signalized intersection at El Camino Real.

ES.5 JOINT CEQA/NEPA DOCUMENT

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA), 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 (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under NEPA. Caltrans is the lead agency under CEQA. In addition, FHWA'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 the Department under its assumption of responsibility pursuant to 23 USC 327.

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, it is quite often the case that a "lower level" document is prepared for NEPA. One of the most commonly seen joint document types is an Environmental Impact Report/Environmental Impact Statement (EIR/EIS).

Following receipt of comments from the public and reviewing agencies, a Final EIR/EIS will be prepared. Caltrans may undertake additional environmental and/or engineering studies to address comments. The Final EIR/EIS will include responses to comments received on the Draft EIR/EIS and will identify the preferred alternative. Following circulation of the Final EIR/EIS, if the decision is made to approve the project, a Notice of Determination will be published for compliance with the California Environmental Quality Act, and a Record of Decision will be published for compliance with the National Environmental Policy Act.

ES.6 ENVIRONMENTAL CONSEQUENCES

Numerous technical studies have been prepared to determine the proposed project's environmental impacts and are referenced in this document. Table ES-1 summarizes the proposed project's permanent environmental impacts by proposed alternatives.

ES.7 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Avoidance, minimization and/or mitigation measures for the major environmental impacts that would be caused by the proposed project are discussed next.

VISUAL

The mitigation measures described in Section 3.8, Visual/Aesthetics, are intended to establish a unique identity and character for the proposed project design, in keeping with the existing regional character, and helping to mitigate the visual impacts of the proposed project improvements. Although these measures would not eliminate the visual impacts, they would help compensate for them. The design concepts include guidelines for: grading, retaining walls (with two variations for the retaining wall proposed adjacent to southbound I-5), soundwalls, connector bridge structures, the Del Mar Heights Road overpass, slope and gore paving (a gore, gore point, or gore zone is a triangular piece of land found where roads merge or split), plantings, bio-swales, retention and infiltration basins, signage, lighting, and extended maintenance of these measures. The mitigation measures include contour grading, texture and color treatments of structures and gore points, and plantings (including Torrey Pines) along the freeways and within the interchange area. Further details are provided in Section 3.8.4.

NOISE

The proposed project would include noise abatement in the form of soundwalls at several locations. Locations of the preliminarily recommended soundwalls are shown on the proposed project features maps (Figures 2-4a through 2-7f). With the Direct Connector alternative, six soundwalls are preliminarily recommended and two more are conditionally recommended. See Tables 3.16-9a - 3.16-9c for a summary of soundwalls considered for the Direct Connector Alternative. With the Auxiliary Lane Alternative, three soundwalls are preliminarily recommended and three more are conditionally recommended, which were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. See Tables 3.16-10a - 3.16-10c for a summary of soundwalls considered for the Auxiliary Lane Alternative. With the Hybrid and Hybrid with Flyover alternatives, four soundwalls are preliminarily recommended and two more are conditionally recommended, which were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. See Tables 3.16-11a - 3.16-11c for a summary of soundwalls considered for the Hybrid Alternative and see Tables 3.16-12a - 3.16-12c for a summary of soundwalls considered for the Hybrid with Flyover Alternative.

PALEONTOLOGY

Caltrans has developed a set of guidelines to reduce impacts to paleontological resources. These recommendations suggest avoidance of the resource area by the proposed project and implementation of mitigation measures during construction. To avoid impacting paleontological resources within the proposed project area, it would be necessary to greatly reduce the volume of proposed mass grading activities under all alternatives. Nevertheless, even though particular segments of the study corridor would have the potential to experience negative impacts to paleontological resources, these impacts would be minimized by implementation of monitoring, fossil salvage, macrofossil and microfossil analysis, fossil preparation, report preparation, and curation. See Section 3.13 for additional discussion.

NATURAL COMMUNITIES

Compensatory mitigation for impacts to sensitive upland habitats is expected to be completed at the Dean Mitigation Parcel on the slopes of San Dieguito Lagoon, immediately east of I-5 in a former tomato field. Specifically, permanent impacts to coastal sage scrub and southern maritime chaparral would be completed on Caltrans mitigation property on the slopes of San Dieguito Lagoon at a proposed 2:1 ratio, subject to discussions with the resource agencies. See Section 3.18 for additional discussion.

ES.8 COORDINATION WITH PUBLIC AND OTHER AGENCIES

Pursuant to NEPA and CEQA, a Notice of Intent (NOI) and Notice of Preparation (NOP) were prepared for the proposed project. The NOI was published in the Federal Register on April 29, 2005 (Figure 5-1). The NOP was issued by the State Clearinghouse on May 13, 2005, and the review was completed on June 13, 2005 (Figure 5-2). Table 5-1 summarizes the comments received in response to the NOI and NOP. A Public Scoping Meeting was held on March 17, 2005, from 5:00 to 8:00 p.m., to give the community an opportunity to review and comment on the proposed project. The meeting was conducted in an “open house” format. Caltrans, SANDAG, and the City of San Diego representatives were in attendance to answer questions regarding proposed project activities, studies, and the schedule. Notices were e-mailed to the resource agencies and postal mailed to elected representatives and the public. The Notice of Public Meeting was published in the *San Diego Union-Tribune* and the *San Diego Daily Transcript* on March 3, 2005.

COMMUNITY COORDINATION

In addition to the formal CEQA and NEPA public involvement discussed above, numerous community and project development team meetings also have been held. A Steering Committee was formed for the proposed project. Ongoing Steering Committee meetings provide a forum for input from community representatives, Community Planning Board members, the City of San Diego, Caltrans, and other stakeholders. These meetings are an opportunity for the exchange of information and discussion about what will be considered when determining design alternatives during the environmental approval process. As stated on the City of San Diego Web page, "the purpose of the Steering Committee is to obtain the interests of the communities that will be affected by the design of the I-5/SR-56 Freeway Connectors." Representatives from Carmel Valley, Del Mar Mesa, Torrey Hills, and Torrey Pines community planning group (including the Portofino Community HOA), together with representatives from the City of San Diego, Caltrans, SANDAG, and the proposed project team meet on a periodic basis to discuss the progress of the I-5/SR-56 freeway connectors project and obtain feedback from the community. Steering Committee meetings are held quarterly. Steering Committee meetings have been held since February 19, 2002 and are ongoing.

More information about the Steering Committee, including meeting minutes, is available online at: http://www.keepsandiegomoving.com/I-5-corridor/I-5-project-5-56.

AGENCY COORDINATION

For the proposed I-5/SR-56 interchange project, Caltrans and SANDAG have coordinated with representatives of resource and regulatory agencies to enhance the overall quality of the decisions made throughout the environmental review process. This coordination has included the following regulatory agencies: U.S. Fish and Wildlife Service; California Coastal Commission; California Resources Agency; California Department of Parks and Recreation; California Department of Water Resources; California Department of Fish and Game, Region 5; California Office of Emergency Services; Native American Heritage Commission; the State Historic Preservation Officer; California Highway Patrol; California Air Resources Board; California Environmental Protection Agency – Transportation Projects; California Integrated Waste Management Board; the California Regional Water Quality Control Board, Region 9; Native American tribes; and the Cities of San Diego and Del Mar.

Because much of the proposed project would be in previously disturbed areas and not in environmentally sensitive areas, few environmental permits and approvals would be required. The necessary permits and approval are summarized in Table ES-2.

Table ES-2. Necessary Permits and Approvals

Agency	Permit/Approval	Status
FHWA	PMP (Project Management Plan)	Pending
City of San Diego/California Coastal Commission	Coastal Development Permit Federal Consistency Determination	Pending
USFWS	Section 7 Consultation	Pending
SHPO / Caltrans	Section 106 – No Adverse Affect	02/02/12 Completed
California Transportation Commission	Funds Appropriation and New Freeway Access	Pending
California Public Utilities Commission	Utility Construction Permit Request	Pending
City of San Diego	Freeway Agreement	Pending

Source: Compiled by AECOM in 2011

At the time of preparation of the Draft EIR/EIS, no unresolved issues exist for the proposed project. The proposed project is the subject of controversy for some local residents.

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Table ES-1. Summary of Potential Permanent Impacts by Alternative, Other Considerations, and Cost Summary

Impact Area			Alternatives				
			No Build (Alternative 1)	**Direct Connector (Alternative 2)**	**Auxiliary Lane (Alternative 3)**	**Hybrid (Alternative 4)**	**Hybrid with Flyover (Alternative 5)**
HUMAN ENVIRONMENT							
3.1	**Land Use**	Consistency with state, regional, and local plans and programs	None/consistent, except inconsistent with RTP and RTIP	None/consistent	None/consistent	None/consistent	None/consistent
3.2	**Growth**		Planned growth not accommodated	Planned growth accommodated	Planned growth accommodated	Planned growth accommodated	Planned growth accommodated
3.3	**Community Cohesion and Character**		No impact	Positive impact to community cohesion Community character impacted by construction and visual	Positive impact to community cohesion Community character impacted by construction and visual	Positive impact to community cohesion Community character impacted by construction and visual	Positive impact to community cohesion Community character impacted by construction and visual
3.4	**Relocations and Real Property Acquisition**		No relocations; No acquisitions	No relocations; Partial residential acquisitions: 27 Partial business acquisitions: 12	No relocations; Partial residential acquisitions: 15 Partial business acquisitions: 4	No relocations; Partial residential acquisitions: 15 Partial business acquisitions: 12	One business relocated; Partial residential acquisitions: 15 Partial business acquisitions: 15
3.5	**Environmental Justice**		No impact	No disproportionate impact	No disproportionate impact	No disproportionate impact	No disproportionate impact
3.6	**Utilities**		Relocation of utility facilities, including the AT&T transcontinental fiber-optic line				
	Emergency Services		None	No impacts	No impacts	No impacts	No impacts
3.7	**Traffic and Transportation** Vehicular travel times in minutes (2030):	**Local** W to N in AM/ S to E in PM	46–57	30–36	46–57	37–45	37–45
		Local S to E in AM/ W to N in PM	36–38	27–32	33–40	29–35	29–35
		Freeway W to N in AM/ S to E in PM	51	19	39	37	33
		Freeway S to E in AM/ W to N in PM	33	19	27	26	25
	Pedestrian and Bicycle Facilities		No Improvements	Pedestrian improvements would be made at the Del Mar Heights Road overcrossing. Carmel Valley Road bikeway access would be maintained.			
3.8	**Visual/Aesthetics**		No impact	High degree of visual impact	Moderate visual impact	Moderately high degree of visual impact	Moderately high degree of visual impact
3.9	**Cultural Resources**		No impact	No adverse effect	No adverse effect	No adverse effect	No adverse effect
PHYSICAL ENVIRONMENT							
3.10	**Hydrology and Floodplains**		No impact	No impact	No impact	No impact	No impact
3.11	**Water Quality and Stormwater Runoff**		No soil would be disturbed. No additional impervious surface is proposed.	The proposed disturbed soil area is 91.2 acres. An additional 38.1 acres of impervious surface is proposed.	The proposed disturbed soil area is 30.6 acres. An additional 12.4 acres of impervious surface is proposed.	The proposed disturbed soil area is 64.0 acres. An additional 27.2 acres of impervious surface is proposed.	The proposed disturbed soil area is 78.8 acres. An additional 31.1 acres of impervious surface is proposed.
3.12	**Geology/Soils/Seismic/ Topography**		None	Minor impacts with implementation of construction BMPs			
3.13	**Paleontology**		No impact	Impacts to deposits with high resource sensitivity	Impacts a smaller portion of deposits with high resource sensitivity	Impacts a smaller portion of deposits with high resource sensitivity	Impacts a smaller portion of deposits with high resource sensitivity
3.14	**Hazardous Waste and Materials**		No impact	Potential contaminated groundwater and lead paint disturbance due to construction activities	Potential lead paint disturbance	Potential contaminated groundwater and lead paint disturbance due to construction activities	Potential contaminated groundwater and lead paint disturbance due to construction activities
3.15	**Air Quality**		No exceedances	No exceedances	No exceedances	No exceedances	No exceedances
3.16	**Noise** Number of receptors that approach or exceed FHWA noise abatement criteria:		No effect caused by project; however, 57 receptors are currently impacted	86	67	71	81
3.17	**Energy**		Stop-and-go traffic conditions decrease fuel efficiency	Long-term net savings in energy use, as energy savings in operation because of increased efficient flow of traffic that would offset the energy used for construction. Specifically, the build alternatives would improve connectivity and reduce congestion on the freeway mainlines, ramps, and surrounding local streets and intersections, decreasing vehicle operating time and fuel consumption.			

Impact Area			Alternatives				
			No Build (Alternative 1)	Direct Connector (Alternative 2)	Auxiliary Lane (Alternative 3)	Hybrid (Alternative 4)	Hybrid with Flyover (Alternative 5)
BIOLOGICAL ENVIRONMENT							
3.18	**Natural Communities**	**Southern Maritime Chaparral** (Temporary/ Permanent)	No impact	0.07/0.0 acres	No impact	No impact	No impact
		Disturbed Southern Maritime Chaparral (Temporary/ Permanent)	No impact	0.39/0.03 acres	No impact	0.07/0.0 acres	0.07/0.0 acres
		Coastal Sage Scrub (Temporary/ Permanent)	No impact	0.31/0.56 acres	0.24/0.09 acres	0.28/0.56 acres	0.29/0.56 acres
		Disturbed Coastal Sage Scrub (Temporary/ Permanent)	No impact	5.41/7.62 acres	0.45/1.19 acres	3.85/2.73 acres	3.84/2.72 acres
		Wildlife Corridors	No impact	No impact	No impact	No impact	No impact
3.19	**Wetlands and Other Waters**		No impact	No impact	No impact	No impact	No impact
3.20	**Plant Species**	**Wart-stem lilac**	No impact	No impact	No impact	No impact	No impact
		Sea dahlia	No impact	No impact	No impact	No impact	No impact
		Del Mar Mesa sand aster	No impact	Temporarily impact 10 0individual plants	No impact	No impact	No impact
3.21	**Animal Species** (Temporary/ Permanent acreage of suitable habitat)	**San Diego coast horned lizard**	No impact	6.2/8.2 acres	0.7/1.3 acres	4.2/3.3 acres	4.2/3.3 acres
		San Diego pocket mouse	No impact	6.2/8.2 acres	0.7/1.3 acres	4.2/3.3 acres	4.2/3.3 acres
		San Diego desert woodrat	No impact	6.2/8.2 acres	0.7/1.3 acres	4.2/3.3 acres	4.2/3.3 acres
3.22	**Threatened and Endangered Plant Species**	**Del Mar manzanita**	No impact	No impact	No impact	No impact	No impact
		Encinitas baccharis	No impact	No impact	No impact	No impact	No impact
	Threatened and Endangered Animal Species	**Pacific pocket mouse**	No impact	No impact	No impact	No impact	No impact
		Western snowy plover	No impact	No impact	No impact	No impact	No impact
		California least tern	No impact	No impact	No impact	No impact	No impact
		Southwestern willow flycatcher	No impact	No impact	No impact	No impact	No impact
		Least Bell's vireo	No impact	No impact	No impact	No impact	No impact
		Coastal California gnatcatcher	No impact	No impact	No impact	No impact	No impact
		Light-footed clapper rail	No impact	No impact	No impact	No impact	No impact
3.23	**Invasive Species**		Minor impacts	Construction impacts including ground disturbance and native species removal can assist the spread of invasive species			
3.24	**Cumulative Impacts**		No Impact	Potential visual, noise, paleontology, and natural communities	Potential visual, noise, paleontology, and natural communities	Potential visual, noise, paleontology, and natural communities	Potential visual, noise, paleontology, and natural communities
OTHER CONSIDERATIONS							
Right-of-Way Acquisition			None	5.502 acres	1.136 acres	3.488 acres	3.492 acres
COST SUMMARY[1] (in millions)							
Total Project Cost			None	$250–$270	$95–$115	$160–$180	$205–$225

Notes:
1 The values listed are 2011 costs.
Source: Compiled by AECOM in 2011

CHAPTER 1
PROPOSED PROJECT

1.1 INTRODUCTION

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA) and in coordination with the San Diego Association of Governments (SANDAG) and the City of San Diego, has prepared this Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the proposed Interstate 5 (I-5)/State Route 56 (SR-56) Interchange Project (proposed project). The Draft EIR/EIS complies with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) by addressing proposed project compliance with all state and federal laws and regulations.

On July 1, 2007, Caltrans was assigned by FHWA environmental review and consultation responsibilities under NEPA pursuant to 23 United States Code (USC) 327. Caltrans is the lead agency under both CEQA and NEPA.

The proposed I-5/SR-56 interchange project would begin south of the western segment of Carmel Valley Road along I-5 at post mile (PM) 32.7 and continue to PM 34.8 north of Del Mar Heights Road. Along SR-56, the proposed project would begin at PM 0.0 at El Camino Real and continue to PM 2.5 east of Carmel Country Road. The length of the proposed project is 2.1 miles on I-5 and 2.5 miles on SR-56, for a collective length of 4.6 miles. The proposed project is located within the City of San Diego in San Diego County, east of the City of Del Mar and south of the City of Solana Beach. Figures 1-1 and 1-2 show the proposed project location and vicinity maps, respectively.

The proposed project was identified as west-to-north and south-to-east freeway connectors in SANDAG's 2030 San Diego Regional Transportation Plan (RTP). Approved in 2007, the *2030 San Diego RTP: Pathways for the Future* was developed to meet the region's long-term mobility needs, better connect transportation and land use policy decisions, and create a transportation network that would serve the people of the region well into the 21st century. SANDAG adopted the *2050 San Diego RTP*: *Our Region, Our Future* on October 28, 2011. It includes a Sustainable Communities Strategy (SCS) element required by Senate Bill 375. This new element of the RTP provides strategies such as development patterns, transportation infrastructure investments, and transportation policies to help reach greenhouse gas (GHG) reduction targets. The proposed I-5/SR-56 project is identified in the 2050 RTP as providing west-to-north and south-to-east freeway connectors. The 2050 RTP was approved by FHWA and FTA on December 2¸ 2011. The 2010 Regional Transportation Improvement Program (RTIP) is a multi-billion dollar, 5-year program of major highway, transit arterial, and nonmotorized projects funded by federal, state, *TransNet* local sales tax, and other local and private funding covering the fiscal years (FY) 2010 to FY 2014. The proposed project was programmed in the 2010 RTIP through Amendment No. 7. The proposed project is sponsored by Caltrans, FHWA, and SANDAG as part of the 2004 TransNet Extension (see Section 1.4.3, Legislation, Programs, and Plans). The City of San Diego is a project proponent.

The I-5/SR-56 interchange was initially studied in the 1980s. Caltrans concluded at the time that north-facing ramps were not warranted because of cost and forecasted usage (approximately two-thirds of the SR-56 traffic uses the south-facing ramps). This study was based on 2020 traffic forecasts, which assumed no development in the North City Future Urbanizing Area (NCFUA). In November 1998,

voters approved Proposition M (later amended by Proposition C in 2010) for development of the NCFUA, resulting in increased development and commensurate demand at the I-5/SR-56 interchange. At that time, the City of San Diego asked Caltrans to revisit the need for freeway-to-freeway connections based on the updated traffic forecasts. As discussed above, SANDAG's *2030 San Diego RTP: Pathways for the Future* identified the proposed I-5/SR-56 interchange project. Additionally, both the proposed I-5/SR-56 interchange project and the I-5 North Coast Corridor (NCC) Project were two of the projects identified for funding through the TransNet Extension.

These events triggered SANDAG and Caltrans to begin studies for both projects. The expansion of the I-5 NCC Project is independent from the proposed I-5/SR-56 interchange project; construction of the I-5 NCC Project expansion would not preclude the construction of the I-5/SR-56 interchange. Likewise, the proposed I-5/SR-56 project is independent from the I-5 NCC Project. For further information regarding the background of the proposed I-5/SR-56 interchange project, refer to Section 1.4, Project Background.

Caltrans is helping to implement SANDAG's vision of providing an efficient and integrated transportation system that facilitates the movement of people and goods within the San Diego region. The proposed I-5/SR-56 interchange project includes improvements to traffic operations along the I-5 and SR-56 corridors between Del Mar Heights Road, Carmel Valley Road, and Carmel Country Road. The proposed project aims to relieve the local traffic congestion caused by regional traffic using Carmel Valley surface streets to avoid the interchange congestion or travel north on I-5.

The proposed project may include improvements to surface streets, the addition of auxiliary lanes along I-5 and SR-56, interchange improvements, and/or new freeway-to-freeway connector ramps. Four proposed build alternatives and one No Build Alternative were developed by the project development team (PDT) and are presented and discussed in this Draft EIR/EIS. Caltrans and the PDT wanted the design of the alternatives to be a joint effort between the agencies and the public. As such, a Steering Committee with representatives from the City of San Diego, SANDAG, and four local communities (Carmel Valley, Del Mar Mesa, Torrey Hills, and Torrey Pines) was formed to provide public input for these alternatives at periodic meetings, held from February 2004 through November 2009. The five alternatives represent what the PDT believes are a reasonable range of alternatives consistent with the Purpose and Need for the proposed project. Over 30 alternative concepts were considered before screening narrowed the range into a reasonable range of five. Refer to Chapter 5, Comments and Coordination, for further details on the public participation process.

In addition to the No Build Alternative, this Draft EIR/EIS analyzes improvements to the interchange through direct freeway-to-freeway connectors (Direct Connector Alternative), auxiliary lanes (Auxiliary Lane Alternative), a hybrid of these two alternatives (Hybrid Alternative), and a hybrid with an on-ramp separation structure (Hybrid with Flyover Alternative). See Chapter 2, Project Alternatives, for details regarding the four proposed build alternatives, as well as a number of alternatives that were considered and rejected by the PDT and Steering Committee.

1.1 PROJECT PURPOSE

The primary purpose of the proposed project is to maintain or improve the existing and future traffic operations along the I-5 and SR-56 corridors, including Del Mar Heights Road, Carmel Valley Road, Carmel Country Road, and local streets within the Carmel Valley community. The proposed project aims to improve the local and regional movement of people and goods, while minimizing environmental and community impacts for planning year 2030.

The objectives of the proposed project are as follows:

- maintain or improve 2030 forecasted traffic levels of service (LOS) as compared to the existing LOS and 2030 No Build Alternative LOS;
- maintain or reduce off-peak and peak-hour delay for SR-56 traffic moving to and from the north on I-5 as compared to the No Build Alternative;
- maintain or reduce peak-hour travel times at the El Camino Real and SR-56 ramp termini as compared to the No Build Alternative;
- maintain or reduce peak-hour travel times at the Carmel Valley Road and I-5 ramp termini as compared to the No Build Alternative;
- maintain or reduce traffic volumes along local streets during peak hours as compared to the No Build Alternative;
- maintain or reduce travel times on I-5 and SR-56 mainlines during peak hours as compared to the No Build Alternative;
- provide a facility that is compatible with anticipated future transit and other modal options; and
- maintain the facility as an effective link in the intraregional and interregional movement of people and goods.

1.2 PROJECT NEED

The proposed I-5/SR-56 interchange project is needed to properly and effectively connect two major freeways and help relieve regional mobility, interregional mobility and local traffic congestion resulting from current and future (projected) population growth, increased residential development, and increased commercial development within the San Diego region.

1.2.1 TRAFFIC DEMAND AND CAPACITY

Typically, freeway-to-freeway interchanges have grade-separated direct connectors for all of the directional movements. Because SR-56 does not extend west of I-5, this would traditionally result in four direct connectors serving westbound SR-56 to northbound I-5, southbound I-5 to eastbound SR-56, northbound I-5 to eastbound SR-56, and westbound SR-56 to southbound I-5. However, in the case of the I-5/SR-56 interchange, only two of these connections (northbound I-5 to eastbound SR-56 and westbound SR-56 to southbound I-5) are currently served by direct connectors. Traffic that needs to go from SR-56 west to I-5 north or I-5 south to SR-56 east must exit the freeway at Carmel Valley Road/El Camino Real and travel through two or three signalized intersections. This causes congestion at the ramp intersections serving these freeway-to-freeway movements along El Camino Real and Carmel Valley Road. This condition not only causes delays for regional travelers on the freeway system, but the additional regional traffic on the local streets reduces the capacity of the intersections to accommodate local traffic. During peak hours, drivers use alternate routes, including El Camino Real, Carmel Valley Road, and Carmel Creek Road, to avoid traffic congestion at the I-5/SR-56 interchange, resulting in congestion and further delay on all the roadways during peak hours. For interim improvement, the City of San Diego constructed a widening of the westbound SR-56 off-ramp, which has improved traffic flow at the intersection of El Camino Real and Carmel Valley Road.

The analyses for the proposed project are based on the 2030 population and traffic projections (see Section 3.7.3.1 for a detailed discussion). The San Diego region is anticipated to grow 32 percent by 2030. Traffic projections indicate that this would result in an approximately 30 percent growth in traffic demand in the proposed project area. According to the 2030 RTP, the San Diego region's population currently generates approximately 16.7 million daily trips by motorized vehicle per day, and by 2030, the population is projected to generate 22 million daily trips by motorized vehicle per day. The congestion from this projected rise in interregional travel and regional development would push vehicles off freeways and onto local streets and adjacent neighborhoods, resulting in increased traffic volumes. The increased congestion on local streets would negatively impact the surrounding neighborhoods by further delaying traffic movement.

Table 1-1 shows the existing and forecasted 2030 traffic travel times, along with Figure 1.2-1 and Figure 1.2-2 for the no project proposed improvements. The travel times were assessed using Del Mar Heights Road and SR-56 at Carmel Valley Road roundtrips as the points of origin and/or destination. The forecasted increases indicate the need for improvements to existing facilities, to maintain or improve regional and local traffic movement in the future. A trip that normally would take 6 minutes on direct connectors now takes 18 to 30 minutes on local streets; without improvements, that same trip is anticipated to take 36 to 57 minutes by 2030.

Table 1-1. Existing and Forecasted 2030 Travel Times

Routes	Direction of Travel in AM and PM	Travel Times (minutes)	
		Existing	No Build
Local Street Routes	West to North in AM/South to East in PM	18–30	46–57
	South to East in AM/West to North in PM	20–24	36–38
Freeway Routes	West to North in AM/South to East in PM	24	51
	South to East in AM/West to North in PM	17	33

Source: Dokken 2010b and LLG 2009

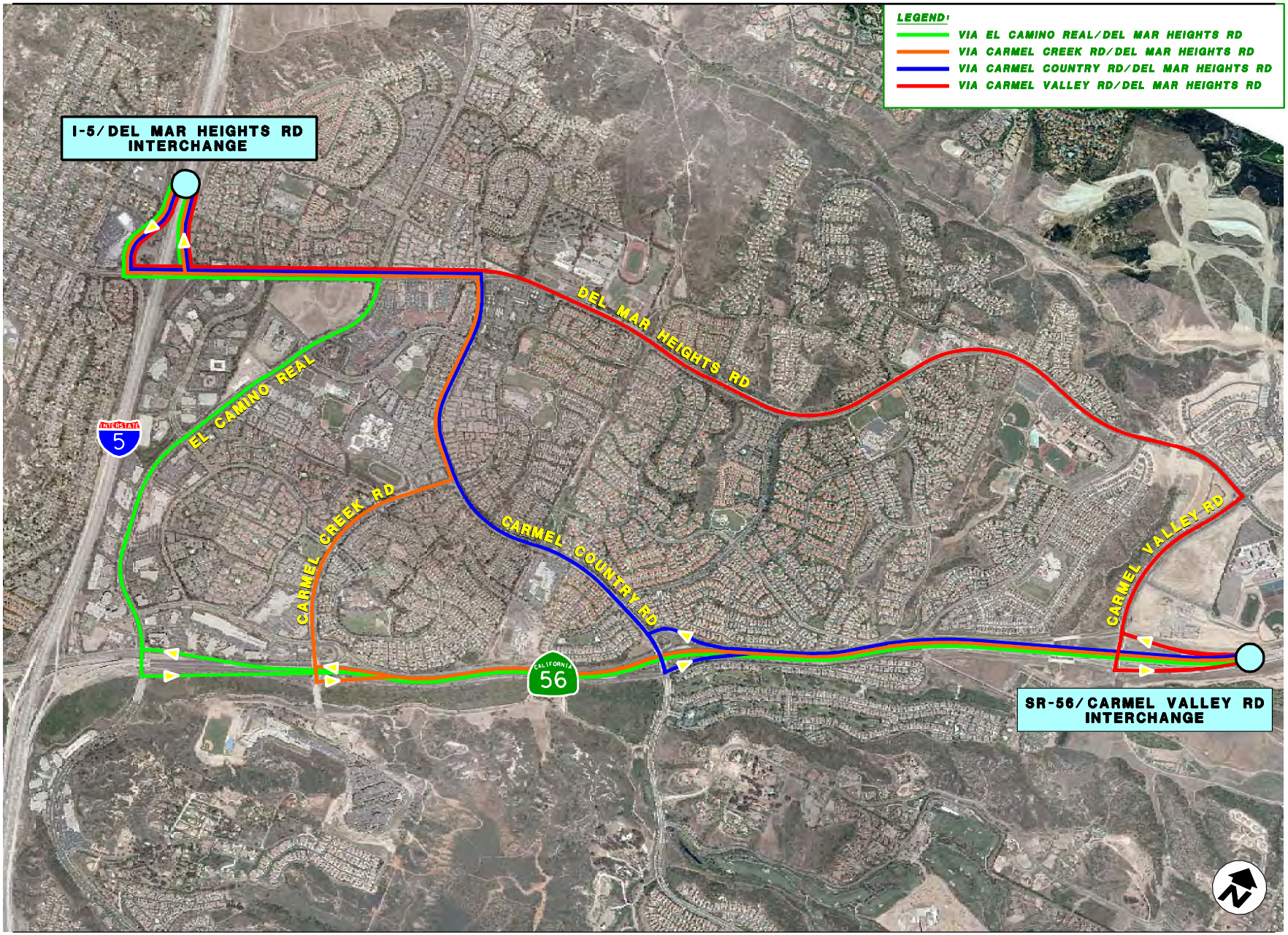
As shown in Table 1-1, the existing travel time on local street routes for west-to-north morning and south-to-east evening peak hours is 18 to 30 minutes. For south-to-east morning and west-to-north evening peak hours, the existing travel time is 20 to 24 minutes.

By the year 2030, if no improvements have been made to the proposed project area, the projected travel time on local street routes for west-to-north morning and south-to-east evening peak hours shows an increase of 46 to 57 minutes. For south-to-east morning and west-to-north evening peak hours, the projected travel time shows an increase of 36 to 38 minutes.

As shown in Table 1-1, the existing travel times on freeway routes for west-to-north morning and south-to-east evening peak hours are 24 minutes. Additionally, the existing travel time for south-to-east morning and west-to-north evening peak hours is 17 minutes.

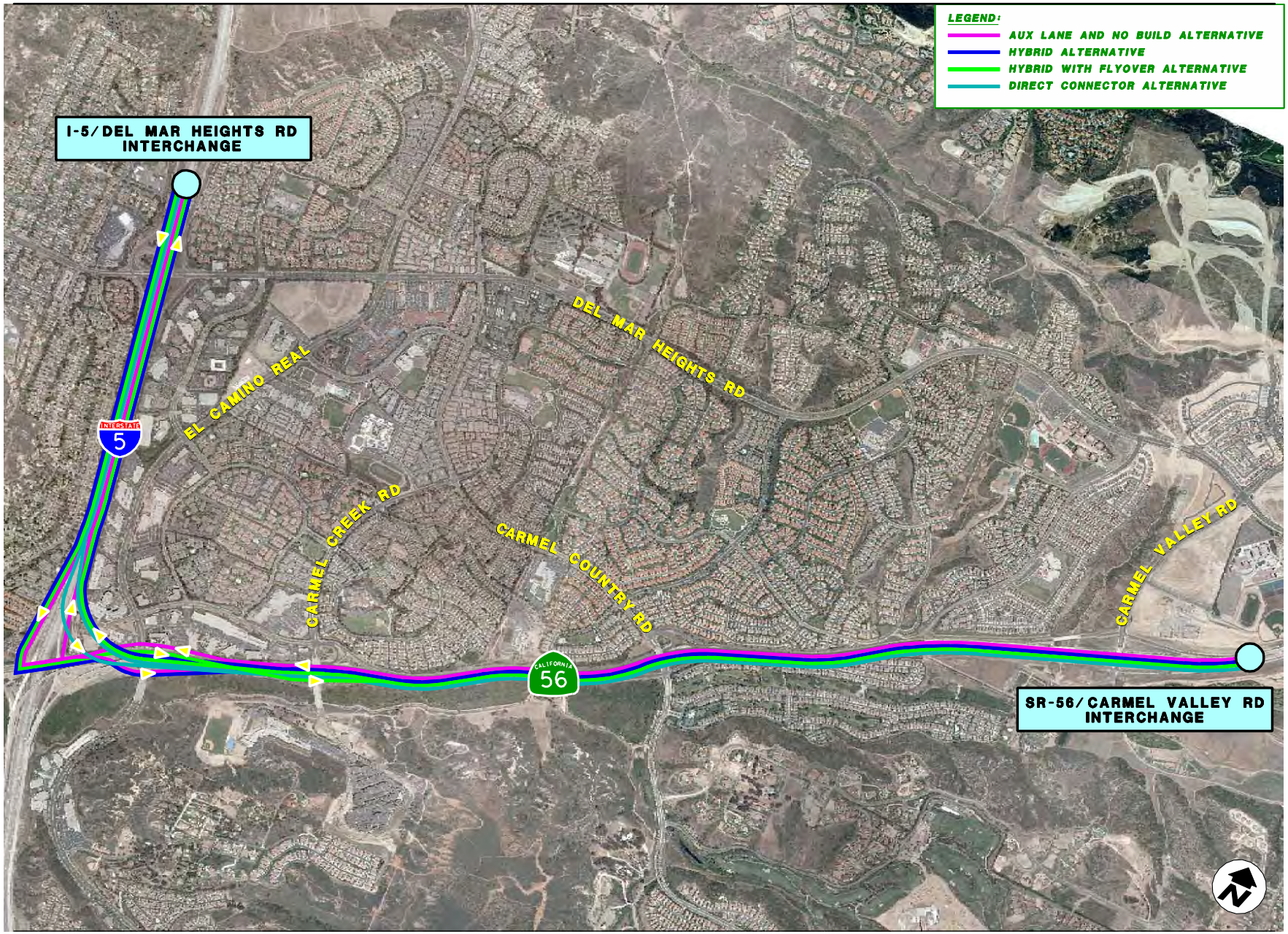
By 2030, if no improvements are made to the proposed project area, the projected travel time on freeway routes for west-to-north morning and south-to-east evening peak hours would increase to 51 minutes. For south-to-east morning and west-to-north evening peak hours, the projected travel time would increase to 33 minutes.

Typically, regional traffic forecast models are updated every 3 to 4 years to reflect changes in assumptions about future land use, planned infrastructure, and modal options mix. The model forecasts, which form the basis for the proposed project scope and performance analyses presented in this Draft EIR/EIS, and associated technical studies are based on SANDAG's Series 10 regional traffic forecast model. There was a 10-15% decrease in the traffic volumes, which does not warrant a change in the project's geometrics. Therefore, the difference between the Series 10 and Series 12 traffic forecasts is not considered to be significant. See Section 3.7.3.1 for information regarding the use of Series 10 versus Series 12 regional traffic model.



Source: Dokken 2011

Figure 1.2-1
Travel Time Study Local Routes



Source: Dokken 2011

Figure 1.2-2
Travel Time Study Freeway Routes

Because of continuing regional growth and demands for increased mobility, traffic volumes represented in terms of average daily trips (ADT) are expected to increase along the I-5 and SR-56 corridors without a project (No Build Alternative), as shown in Figure 1-3 and Table 1-2.

Table 1-2. Existing and Forecasted 2030 Average Daily Trips

Segment	Direction	Existing Average Daily Trips (ADT)	Year 2030 ADT (Difference in ADT from No Build Alternative)				
			No Build Alternative	Direct Connector Alternative	Auxiliary Lane Alternative	Hybrid Alternative	Hybrid with Flyover Alternative
I-5 between Via de la Valle and Del Mar Heights Road	Southbound I-5	112,400	180,690	185,050 (4,360)	180,690 (0)	180,690 (0)	180,690 (0)
	Northbound I-5	110,900	176,350	181,700 (5,350)	176,350 (0)	181,700 (5,350)	181,700 (5,350)
I-5 between Del Mar Heights Road and Carmel Valley Road	Southbound I-5	112,600	179,550	188,050 (8,500)	179,550 (0)	179,550 (0)	179,550 (0)
	Northbound I-5	113,500	172,940	183,200 (10,260)	172,940 (0)	183,200 (10,260)	183,200 (10,260)
SR-56 between El Camino Real and Carmel Creek Road	Eastbound SR-56	46,200	76,270	84,000 (7,730)	76,270 (0)	76,270 (0)	76,270 (0)
	Westbound SR-56	45,000	70,850	79,460 (8,610)	70,850 (0)	79,460 (8,610)	79,460 (8,610)
SR-56 between Carmel Creek Road and Carmel Country Road	Eastbound SR-56	40,100	67,570	79,030 (11,460)	71,070 (3,500)	71,600 (4,030)	71,600 (4,030)
	Westbound SR-56	39,500	63,110	76,330 (13,220)	65,210 (2,100)	76,330 (13,220)	76,330 (13,220)
SR-56 between Carmel Country Road and Carmel Valley Road	Eastbound SR-56	34,600	62,170	67,300 (5,130)	62,170 (0)	62,170 (0)	62,170 (0)
	Westbound SR-56	33,100	56,240	62,500 (6,260)	56,240 (0)	62,500 (6,260)	62,500 (6,260)

Source: Dokken 2010b and LLG 2009

The existing ADT along southbound and northbound I-5 between Via de la Valle and Del Mar Heights Road are 112,400 and 110,900, respectively. The existing ADT along southbound and northbound I-5 between Del Mar Heights Road and Carmel Valley Road are 112,600 and 113,500, respectively. By 2030 with no improvements, the projected ADT along southbound and northbound I-5 shows an increase to 180,690 and 176,350 between Via de la Valle and Del Mar Heights Road, and 179,550 and 172,940 between Del Mar Heights Road and Carmel Valley Road, respectively.

The existing ADT along eastbound and westbound SR-56 between El Camino Real and Carmel Creek Road are 46,200 and 45,000, respectively. The existing ADT along eastbound and westbound SR-56 between Carmel Creek Road and Carmel Country Road are 40,100 and 39,500, respectively. The existing ADT along eastbound and westbound SR-56 between Carmel Country Road and Carmel Valley Road are 34,600 and 33,100, respectively. By 2030 with no improvements, the projected ADT along eastbound and westbound SR-56 shows an increase to 76,270 and 70,850 between El Camino Real and Carmel Creek Road, 67,570 and 63,110 between Carmel Creek Road and Carmel Country Road, and 62,170 and 56,240 between Carmel Country Road and Carmel Valley Road, respectively. Refer to Table 1-2 for a comparison of the existing and projected ADT for the No Build, Direct Connector, Auxiliary Lane, Hybrid, and Hybrid with Flyover Alternatives in 2030.

As a result of forecasted increases in future ADT and travel times, congestion will continue to degrade at the I-5 and SR-56 interchange with no improvements.

Because vehicular traffic within the proposed project area consists of regional traffic (originating from or bound for locations outside of the proposed project area) and local traffic (originating from or bound for locations within the proposed project area), the proposed I-5/SR-56 interchange project aims to ensure that regional and interregional traffic movements stay on I-5 and SR-56 while local traffic movements remain on El Camino Real, Carmel Valley Road, Carmel Creek Road, and Del Mar Heights Road. Traffic demand has exceeded capacity in some locations within the project area and this would continue to trend negatively as volumes, delays and congestion become significantly worse on freeway and surface streets without any improvements. Furthermore, the forecasted increase in traffic volumes indicates that improvements to the existing facilities would be needed to maintain or improve highway operations in the future.

1.2.2 ROADWAY DEFICIENCIES

Although SR-56 is classified in the County of San Diego Circulation Element as a Prime Arterial east/west corridor between I-5 and Interstate 15 (I-15), the existing I-5/SR-56 interchange network requires drivers to exit the freeway to travel from southbound I-5 to eastbound SR-56 and from westbound SR-56 to northbound I-5. The lack of direct freeway travel between I-5 and SR-56 forces drivers to use Carmel Valley Road and El Camino Real for access. As discussed above, this has caused congestion and increased traffic on local surface streets because drivers avoid the interchange. Forecasts determined by Highway Capacity Manual (HCM) methodology predict that local street traffic volumes would more than double (i.e., increasing by 17,000 to 25,000 ADT) by 2030 along Del Mar Heights Road east of I-5, if no improvements are made. Additionally, traffic volumes are anticipated to double (increasing by 16,000 ADT) at seven of the 19 local street interchange ramps within the proposed project limits.

With existing and projected traffic volumes creating traffic congestion along local surface streets in the proposed project area, the ability for the existing interchange configuration that relies on surface streets to effectively maintain traffic volumes would be reduced over time. The proposed project improvements would form a connection between southbound I-5 and eastbound SR-56 and westbound SR-56 and northbound I-5.

1.2.3 SOCIAL DEMANDS AND ECONOMIC DEVELOPMENT

The need for the proposed project relates to regional growth trends within the Del Mar/Mira Mesa subregional area, the City of San Diego, and the San Diego region as a whole. In 1996 and again in 1998, the citizens of San Diego voted to phase shift the relatively undeveloped section of the NCFUA from “future” to “planned” urbanizing (see Section 1.4, Project Background). This phase shift and associated developments are increasing the population and traffic demand in the region for those drivers using the SR-56 freeway. Additionally, increases in population are anticipated in the next 30 years for the subregional area of Del Mar/Mira Mesa. As shown in Table 1-3, population projections through 2030 show that the subregional area of Del Mar/Mira Mesa would see a population increase of 51,806 people between 2008 and 2030, which equates to a 32 percent increase. Housing is anticipated to increase by 28 percent and employment by 10 percent between 2008 and 2030 in the subregional area. As the overall population of the San Diego region is projected to increase by 24 percent, a 17 percent jobs increase also is anticipated.

Table 1-3. Population, Housing, and Job Growth Projections

Area	2008	2020	2030	Change (%)
POPULATION				
Subregional Area 13 – Del Mar/Mira Mesa	163,648	191,440	215,454	51,806 (32%)
City of San Diego	1,333,617	1,542,528	1,689,254	355,637 (27%)
San Diego Region	3,131,552	3,535,000	3,870,000	738,448 (24%)
HOUSING				
Subregional Area 13 – Del Mar/Mira Mesa	56,475	65,557	72,338	15,863 (28%)
City of San Diego	508,436	577,557	629,475	121,039 (24%)
San Diego Region	1,140,654	1,262,488	1,369,807	229,153 (20%)
JOBS				
Subregional Area 13 – Del Mar/Mira Mesa	112,092	119,137	123,589	11,497 (10%)
City of San Diego	821,521	874,606	928,178	106,657 (13%)
San Diego Region	1,501,080	1,619,615	1,752,630	251,550 (17%)

Source: SANDAG 2010b

1.2.4 MODAL INTERRELATIONSHIPS

Mass transit is a system of large-scale public transportation in a metropolitan area, typically including buses, vanpools, subways, light rail, and trains. Caltrans supports SANDAG's vision to provide an efficient and integrated system of transit, local roadways, highways, and pedestrian and bicycle facilities that facilitate the movement of people and goods within the San Diego region. The Caltrans *I-5 San Diego North Coast Corridor System Management Plan* (CSMP) (Caltrans 2010d) is a comprehensive transportation development and management strategy that is intended to help maximize the mobility, reliability, safety, accessibility, and productivity of the region's multi-modal transportation system, and prioritize projects, strategies, and actions (see Section 1.4.3, Legislation, Programs, and Plans).

One program of regional importance is the Los Angeles to San Diego Rail (LOSSAN), a north/south rail corridor that parallels I-5 (see Section 1.3.5, Other Related Projects). The Amtrak Surfliner provides daily passenger service along the LOSSAN corridor and the North County Transit District (NCTD) Coaster provides commuter service within San Diego County. The Burlington Northern and Santa Fe (BNSF) and Union Pacific (UP) railways transport goods for interstate, intrastate, and international commerce. Although improvements are proposed to the LOSSAN corridor, they would not be able to meet the variety and intensity of future customer demands on the region's transportation system.

Although rail alternatives are not accessible within the proposed project area, the proposed I-5/SR-56 interchange project would interface with and serve to complement mass transit, pedestrian, and bicycle modes of travel in several ways. The discussion below details the proposed project features and related projects within the proposed project vicinity that would be supportive of these other travel modes.

One Park and Ride lot exists within the proposed project limits at the southeast corner of the I-5/SR-56 interchange. The proposed project would offer improved mobility to and from this Park and Ride lot. Park and Ride facilities encourage and support the use of commuter or express bus transit and car/vanpooling for a portion of longer vehicle trips and, consequently, reduce vehicle miles of travel (VMT) within the San Diego region.

1.2.5 OTHER RELATED PROJECTS

SR-56 BIKEWAY

The existing SR-56 bike path ends on the east side of I-5, between El Camino Real and I-5, at the south end of the Carmel Valley Restoration and Enhancement Project (CVREP). (Refer to Section 1.4.2, Project Setting, for further discussion about the CVREP.) Cyclists must use the shoulders of Carmel Valley Road to access the west side of I-5. High traffic volumes coupled with commercial driveways and freeway ramps make it difficult for riders and pedestrians to travel between the two sides of the freeway. Sidewalks are available for pedestrians, but no bicycle paths or lanes exist. Independent of the proposed I-5/SR-56 interchange project, the City of San Diego completed a bike path feasibility study in spring 2007 and is working closely with Caltrans to include improved connections for bicyclists and pedestrians between the east and west sides of I-5 at Carmel Valley Road.

I-5 NORTH COAST CORRIDOR PROJECT

The I-5 North Coast Corridor (NCC) Project is designed to address future freeway congestion and is proposing to add HOV/managed lanes, auxiliary lanes, and a general purpose lane in each direction on I-5 between La Jolla Village Drive in San Diego and Harbor Drive in Oceanside/Camp Pendleton. However, no general purpose lanes are proposed within the area of the direct connectors proposed in this document. These proposed improvements are independent of the proposed project addressed in this document. Although both proposed projects would be coordinated to limit the length of construction, construction of the I-5 NCC Project is not required for the construction of the proposed I-5/SR-56 interchange project. Two projects have independent purpose and need, and one project is not needed for construction of the other project. The I-5 NCC Project Draft EIR/EIS has been circulated for public review, and final project approval is anticipated in early 2013.

LOSSAN RAIL CORRIDOR

The LOSSAN rail corridor connects the major metropolitan areas of southern California and serves some of the most populous places in the state. The LOSSAN board is composed of elected officials representing rail owners, operators, and planning agencies along Amtrak's Pacific Surfliner corridor between San Diego and San Luis Obispo. LOSSAN is staffed by SANDAG. The objective of the agency is to coordinate planning and programs that increase ridership, revenue, reliability, and safety on the coastal rail line from San Luis Obispo to Los Angeles to San Diego. The current LOSSAN EIR/EIS for track project improvements from Union Station, Los Angeles to downtown San Diego, the second busiest intercity rail corridor in the nation. The corridor is used by Amtrak’s Pacific Surfliner service, the Metrolink and Coaster/Sprinter commuter rail services, as well as by the BNSF and UP railways, which provide freight service through the corridor, predominantly from the Ports of Los Angeles and Long Beach.

The original rail line, established in the late 1800s, traverses some of California’s most scenic and environmentally sensitive areas, and is located for extended stretches directly adjacent to the Pacific Ocean. Communities established and grew around the rail line and, as a result of these geographic and social constraints, opportunities for the corridor’s expansion are limited. The existing alignment traverses natural drainages, small creeks, rivers, lagoons, and wetland habitats. The alignment also traverses habitats for threatened and endangered species, numerous 100-year floodplain zones, and areas subject to liquefaction, a conversion of soil to a fluid-like mass during an earthquake or other seismic event.

A Record of Decision (ROD) for the LOSSAN North Rail Corridor Improvements program was issued March 18, 2009, and the Final Program EIR/EIS was released in September 2007 by the Federal Rail Administration (FRA). The purpose was to establish projects for the long-term improvement of the rail corridor to support existing and proposed levels of rail service, including intercity passenger rail, commuter rail, and freight/goods movement. Collectively, the program lays out a vision for the phased enhancement of this heavily used rail corridor. In San Diego, the improvements include at-grade double tracking, trenching, tunneling below grade, curve realignment (straightening), new stations, and other safety and operational enhancements. These rail improvements carry over to all users of the rail corridor, and they benefit commuter rail and freight services, making them more cost effective. The rail improvement projects are in various stages of development and construction, from preliminary engineering/environmental review to Notice of Completion with double tracked segments now open.

PACIFIC HIGHLANDS RANCH

The Pacific Highlands Ranch (PHR) development is a community located east of I-5 and north of SR-56, just east of the community of Carmel Valley. The master plan for PHR includes development of a 2,652-acre area that includes 1,274 acres of open space; 15 miles of pedestrian, bicycle, and equestrian trails; 5,182 homes; five schools; parks; and commercial areas. In 1998, Proposition M was voter-approved and adopted to: (1) change the general plan designation from “future urbanizing” to “planned urbanizing” within the subarea of the NCFUA; and (2) limit the PHR development to a cap of 1,900 dwelling units until the ramps for westbound SR-56 connecting with I-5 northbound and I-5 southbound connecting to eastbound SR-56 are constructed and operational. However, on November 2, 2010, voters amended Proposition M with Proposition C, removing this restriction on the PHR development plan. See Section 1.4.3, Legislation, Programs, and Plans, for more information regarding Propositions M and C.

The PHR development is anticipated to generate 74,220 ADT at full build-out in 2030. This estimate includes trips generated by the dwelling units, a fire or police station, three elementary schools, two high schools, library, agricultural use, commercial use, and industrial park use. Of the 74,220 ADT generated by the PHR development, 4,230 ADT are expected to travel west to north and south to east along the I-5/SR-56 freeways. A combined ADT of 42,220 is anticipated for the proposed direct connectors by 2030. Thus, 10 percent of the total traffic volumes for the proposed project would come from PHR. As such, the PHR development would have little impact on total traffic volumes if the proposed project was constructed.

DEL MAR FAIRGROUNDS AND HORSEPARK

The Del Mar Fairgrounds is an approximately 340-acre fairgrounds and racetrack facility (Fairgrounds) located in the Cities of Del Mar and San Diego in San Diego County; it includes a 65-acre equestrian facility (Horsepark). The Horsepark is located approximately 1.5 miles east of the Fairgrounds, in the San Dieguito River Valley at Via de la Valle and El Camino Real.

The 2008 Del Mar Fairgrounds’ Master Plan and certified Final EIR, adopted by the Fair Board in April 2011, includes both immediate projects and conceptual, long-term projects for the next 25 years. The immediate projects are to provide maintenance and improvement to the existing Fairgrounds facilities, including renovation and modernization of several structures and parking areas, construction of new structures, demolition of structures, and relocation of a maintenance yard and fire station. The long-term projects are conceptual and would provide for maintenance of existing facilities and construction of new structures and trails. The long-term projects will require additional planning to define precise building parameters, and may require additional environmental analysis. Future projects for the Horsepark remain conceptual and, therefore, will be subject to evaluation at a later date and are not be addressed in the EIR.

See Section 2.2 and Table 2-2 for information regarding other transportation projects.

1.3 PROJECT BACKGROUND

1.3.1 PROJECT HISTORY AND STATUS

The history of SR-56 begins with its appearance in the 1958 *Freeways and Expressways Master Plan*, but it was removed from the plan in the 1970s. In the 1980s, residential development in Rancho Peñasquitos and Carmel Valley motivated planners to revive plans to construct SR-56. SR-56 is a four-lane facility that was constructed to reduce traffic congestion on local streets and provide an additional east/west connection from I-5 to I-15 in the northern communities of the City of San Diego, primarily Carmel Valley and Rancho Peñasquitos. SR-56 was completed in three phases, with the eastern end completed in 1993, the western end completed in 1994, and the final middle phase opening to traffic in 2004.

The I-5 junction with SR-56 lies north of Torrey Pines State Reserve, near the City of San Diego communities of Carmel Valley and Torrey Pines and the City of Del Mar. The road that becomes SR-56 is officially named Carmel Valley Road west of I-5. East of I-5, SR-56 is called Ted Williams Parkway.

I-5 and I-15 are principal north/south arterials for San Diego County, linking the Mexican border in the south to Orange and Riverside Counties and beyond to the north. Regionally, I-5 and I-15 serve as commuter links for San Diego County, with significant intraregional, interregional, and international traffic. SR-56 currently serves as one of six east/west Caltrans-operated/owned highway connections between I-5 and I-15 in San Diego County. The portion of I-5 in the proposed project vicinity was originally constructed in 1953, and was added to the California Freeway and Expressway System in 1959. It was widened to eight lanes in 1972.

Interim improvements developed by the City of San Diego (to accommodate increases in traffic resulting from the middle segment of SR-56) were constructed in advance and independent of the current proposed project improvements. These interim improvements specifically addressed the increased traffic volumes to and from SR-56 at the El Camino Real interchange and included widening the SR-56 westbound off-ramp for additional left and through lanes. Future improvements included a SR56 project, listing one general purpose lane addition to SR56 in the 2050 RTP.

Improvements to I-5 from the I-5/Interstate 805 (I-805) merge to Del Mar Heights Road were completed in phases, beginning in 1995, with the final phase completed in April 2007. This project widened I-5 and I-805 to reduce congestion and increase capacity. The project constructed HOV lanes in the northbound and southbound directions, a four-lane SR-56 bypass in the northbound and southbound directions, and northbound I-5 to eastbound SR-56 (north to east) and westbound SR-56 to southbound I-5 (west to south) freeway-to-freeway connectors. Southbound I-5 to eastbound SR-56 (south to east) and westbound SR-56 to northbound I-5 (west to north) freeway-to-freeway connectors were not warranted, as forecasts in the traffic projections were made before the NCFUA phase shift from “future” to “planned” urbanizing, which occurred in 1996 and 1998. The absence of the above connectors requires drivers traveling on southbound I-5 or westbound SR-56 to use Carmel Valley Road and El Camino Real to travel to eastbound SR-56 and northbound I-5, respectively. The phase shift and associated developments are projected to increase the regional population and traffic using SR-56. According to the December 2009 *I-5/SR-56 Interchange Project Traffic Study*, implementation of the phase shift in the NCFUA requires that the I-5/SR-56 west to north connectors be built between 2015 and 2020, to maintain LOS D operating conditions in the I-5/SR-56 interchange area. (Refer to Section 3.7, Traffic and Transportation/Pedestrian and Bicycle Facilities, for further discussion of LOS.)

Because of this increase in congestion, Caltrans pursued further analysis in improving the I-5/SR-56 interchange. As a result, the *Project Study Report* (PSR) for the proposed I-5/SR-56 interchange project was completed in December 2000 (Caltrans 2000) and the *Value Analysis Report* (VA) was

completed in May 2002. Initiation of engineering studies began in October 2003, with environmental studies initiated in December 2004.

1.3.2 PROJECT SETTING

The proposed project area encompasses the north/south I-5 corridor and the west/east SR-56 corridor. The majority of the land surrounding the proposed project area is developed, urban, or preserved as open space. Development is found to the east and west of I-5 and to the north of SR-56. The Carmel Valley Restoration and Enhancement Project (CVREP) is located in a riparian area along Carmel Valley Creek to the south of SR-56 that has been preserved as open space in which revegetation efforts have taken place. The existing project site is constrained geographically by steep slopes and riparian/wetland habitat along Carmel Valley Creek and Los Peñasquitos Lagoon. Figures 1-1 and 1-2 show the proposed project area.

Residential developments lie northwest of the proposed project area, leading upslope from the freeway. The northeast quadrant is developed with commercial/residential structures, including the commercial business center southeast of Del Mar Heights Road. Residential areas are north and east of the commercial area.

The southeastern corridor is an undeveloped open space area that provides riparian/wetland habitat along Carmel Valley Creek within the CVREP. The proposed project area is located immediately to the north of the CVREP. The CVREP was developed to reduce urban runoff and associated sediments, and prevent them from entering Los Peñasquitos Lagoon. It has provided mitigation for transportation projects in the Carmel Valley area, including the I-5/I-805 junction, SR-56 west, and El Camino Real. Carmel Valley Creek drains the surrounding area into Los Peñasquitos Lagoon. Residential areas are south and southeast of the open area.

Los Peñasquitos Lagoon, one of San Diego County's largest wetlands, is southwest of the proposed project area. Los Peñasquitos Lagoon is an approximately 630-acre estuary and coastal wetland. The lagoon includes mudflats, shallow channels, and broad tidal pans forming an extensive marsh area. Both Los Peñasquitos Creek and Carmel Valley Creek flow into the lagoon. The mouth of the lagoon connects to the Pacific Ocean through a tidal channel. Habitats within the lagoon support wildlife species that have the potential to occur within the proposed project area.

Caltrans is aware of these sensitive environmental resources within the proposed project vicinity. Caltrans and FHWA follow environmental policies that recognize the need to protect and enhance the quality of life in accordance with environmental, economical, and social goals. Through collaborative efforts with the federal, state, county, and local agencies, and various conservancy groups, Caltrans is working to identify opportunities to preserve these resources.

The environmental review, consultation, and any other action required in accordance with applicable federal law for the proposed project are being, or have been, carried out by Caltrans under its assumption of responsibility, pursuant to 23 USC 327.

The proposed project is located within the boundaries of the *City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan* (1997a). The MSCP protects and conserves San Diego's natural areas, including sensitive plants and animals, and watersheds. Caltrans is not a signatory on the MSCP, however, Caltrans does review and consider the goals and concepts of the plan when designing and implementing any impact avoidance, minimization, or mitigation measure for the proposed project, to the greatest extent feasible. Caltrans also would use the TransNet Extension to help fund mitigation requirements for impacts associated with habitats existing within the MSCP (see Section 1.4.3, Legislation, Programs, and Plans).

1.3.3 LEGISLATION, PROGRAMS, AND PLANS

TRANSNET EXTENSION (2004)

Approved by San Diego County voters in 2004, the TransNet Extension is a regional half-cent sales tax from 2008 through 2048, to be used for transportation projects. This program is expected to generate approximately $14 billion, to be distributed among highway, transit, and local road projects to reduce traffic congestion in San Diego County. SANDAG administers the funds generated by TransNet (TransNet 2010). The original TransNet program (1988 to 2008) raised $3.3 billion and added to and upgraded the region's highway network, extended rail lines, expanded transit service, and improved and maintained more than 800 local road projects (SANDAG 2010a).

The 2004 TransNet Extension includes an Environmental Mitigation Program (EMP), which is a funding allocation category for the costs to mitigate habitat impacts for regional transportation projects. The EMP is a unique component of the TransNet Extension that funds habitat acquisition, management, and monitoring activities to help implement the MSCP and the Multiple Habitat Conservation Program (MHCP). This funding allocation is tied to mitigation requirements for projects outlined in the 2050 RTP.

PROPOSITION M (1998) AND PROPOSITION C (2010)

On November 3, 1998, Proposition M (Ordinance Number O-18568) passed restricting PHR development to 1,900 dwelling units until the completion of the I-5/SR-56 interchange. The restriction was requested by a neighboring community planning group because of its concern that traffic from PHR would significantly affect surrounding communities (City of San Diego 1998).

On November 2, 2010, San Diego County voters approved Proposition C (passed by 70.85 percent), amending Proposition M and allowing for municipal development in the PHR area of Carmel Valley (County of San Diego 2010b). Proposition C authorizes construction of parks, libraries, trails, and recreation and transportation facilities by removing a development timing restriction contingent on the completion of the proposed I-5/SR-56 interchange project. The change would come after the "City Council approves a program of phased development ensuring facilities are constructed before or concurrent with new development, paid for by developers at no cost to taxpayers" (County of San Diego 2010a).

NORTH COAST CORRIDOR TRANSPORTATION AND RESOURCE ENHANCEMENT PROGRAM AND HIGHWAY PUBLIC WORKS PLAN (TREP/PWP) (2010)

In July 2010, Caltrans and SANDAG prepared the Draft *North Coast Corridor (NCC) Transportation and Resource Enhancement Program and Highway Public Works Plan* (TREP/PWP) to plan for and implement a series of transportation, community, and resource enhancement programs. The plan will meet the region's mobility vision through 2030, while ensuring compliance with the California Coastal Act. The majority of the transportation, community, and resource enhancement improvements associated with the TREP/PWP are located within the California Coastal Zone of northern San Diego County and are subject to the coastal resource protection policies of the California Coastal Act, or as applicable to the highway and community enhancement projects, and the certified Local Coastal Programs (LCP). The TREP/PWP was created to demonstrate NCC program consistency with the California Coastal Act to ensure that program components are implemented to provide for maximum protection and enhancement of public access, recreation, and sensitive coastal resources. Visual impacts to key views of coastal resources within the zone are to be minimized, mitigated, or avoided when reasonable and feasible.

This region's vision is to provide an efficient and integrated system of transit, local roadways, highways, and pedestrian and bicycle facilities that facilitate the movement of people and goods within the NCC. As an alternative to efforts designed to maintain and improve transportation facilities and address coastal resource impacts on a project-by-project basis, the TREP/PWP provides a planning, analytical, and implementation mechanism for reviewing all rail and highway transportation projects and associated community and coastal resource enhancements. Additionally, because both individual rail and highway projects would be subject to the Coastal Commission Federal Consistency review process, the TREP/PWP provides a comprehensive system for conducting a federal consistency analysis. The TREP/PWP is consistent with California Coastal Act mandates that focus on protecting, enhancing, and maintaining coastal resource values, and maximizing public access to coastal resources and recreational facilities.

The TREP/PWP identified the proposed I-5/SR-56 interchange project as being an independent project located within the North Coast Corridor. The proposed project would require a coastal permit and a federal consistency determination from the California Coastal Commission.

I-5 SAN DIEGO NORTH COAST CORRIDOR SYSTEM MANAGEMENT PLAN (2010)

The CSMP (Caltrans 2010d), specified as a Corridor Mobility Improvement Account (CMIA) funded project, addresses the transportation system as a whole and integrates land use to promote multi-modal analysis along the I-5 north coast corridor. Multi-modal analysis focuses on how transit, local roadways, highways, pedestrian and bike routes, and land use work together. As a living document, the CSMP would be revisited and updated to analyze the effect improvements have on mobility because of improvement implementation and/or as new data and technologies become available. Strategies such as infrastructure expansion, operational improvements, intelligent transportation system (ITS) deployments, system preservation, and smart land use work together to address system performance and improve the efficiency of the regional transportation system. This promotes the goal of prioritizing resources to phase improvements across jurisdictions and transportation modes, to achieve enhanced productivity, mobility, reliability, accessibility, and safety. The proposed I-5/SR-56 interchange project is one component of the region's transportation system addressed under the CSMP.

1.4 LOGICAL TERMINI AND INDEPENDENT UTILITY

FHWA regulations (23 Code of Federal Regulations [CFR] 771.111[f]) require that the proposed project:

- Connect logical termini and be of sufficient length to address environmental matters on a broad scope.
- Have independent utility or independent significance (be usable and require a reasonable expenditure even if no additional transportation improvements in the area are made).
- Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

1.4.1 LOGICAL TERMINI

Logical termini are defined as the rational end points for a transportation improvement and environmental impact analysis. The proposed project must have independent utility by being a usable and reasonable expenditure, even if no additional transportation improvements in the area are made. The proposed project area must be of sufficient length to address the environmental issues on a broad scope. In addition, the proposed project cannot restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

The logical termini was chosen so that environmental issues can be treated on a sufficiently broad scope to ensure that the proposed project would function properly without requiring additional improvements elsewhere, and the project would not restrict consideration of alternatives for other reasonably foreseeable transportation improvements. By following this guidance, the proposed interchange improvement project is defensible against claims of project segmentation, and decision makers and the public can better understand the transportation requirements in the proposed project area and gain a better understanding of the proposed project purpose and need.

The proposed project design team considered the context of the local area, socioeconomics, topography, future travel demand, and other infrastructure improvements in the area to ensure that no unexpected side effects would occur that would require additional corrective action. A problem of "segmentation" also may occur when a transportation need extends throughout an entire corridor, but environmental issues and transportation needs only are addressed for a segment of the corridor. Considering these issues, the logical termini for the proposed project is the I-5/SR-56 interchange and the appurtenant roadway transitions before and after the interchange, as explained below.
The logical termini for the proposed project are as follows:

Eastern logical terminus: east of Carmel Country Road on SR-56. This terminus is located approximately 0.75 mile east of Carmel Country Road on SR-56. This terminus was chosen to accommodate the traffic demands on SR-56 that are expected to result from developments in the I-5/SR-56 region. This terminus incorporates the last three interchanges at the western end of SR-56.

Southern logical terminus: I-5 and Carmel Valley Creek at Carmel Valley Road. The proposed project focuses on improving the traffic congestion along Carmel Valley Road traveling north on I-5 and traffic congestion that occurs for the southbound I-5 to eastbound SR-56 movement. The traffic flow south of Carmel Valley Road at I-5 was addressed in the 2004 project with the west-to-south and north-to-east direct connectors. The proposed project design completes those improvements with a full direct-connector system to accommodate connecting traffic from all route directions.

Western logical terminus: I-5 at Carmel Valley Road. This terminus was chosen because the proposed project is focused on improving the congestion that has developed as a result of the construction of SR-56. The western limit of SR-56 ends at I-5. At this geographical locale, west of I-5 at SR-56, the southern boundary where Carmel Valley Creek transitions into a full lagoon is an environmentally sensitive area with state and federally protected plants and animals.

Northern logical terminus: north of Del Mar Heights Road on I-5. This terminus is located approximately 0.75 mile north of Del Mar Heights Road on I-5. The northern limits were chosen to accommodate the geometrics of the Direct Connector Alternative and not preclude the proposed I-5 NCC Project. This terminus includes the Del Mar Heights Road bridge because modifications for the Direct Connector Alternative need to be incorporated with existing structures.

1.4.2 INDEPENDENT UTILITY

The I-5/SR-56 interchange provides a connection between the two major freeways of I-5 and SR-56 in northern San Diego. As discussed previously, only two of the four interchange movements are currently served by grade-separated freeway-to-freeway direct connectors. The absence of these direct connectors (southbound I-5 to eastbound SR-56 and westbound SR-56 to northbound I-5) creates traffic operational deficiencies at the interchange since vehicles must use Carmel Valley Road and the associated entrance and exit ramps to access northbound I-5 from eastbound SR-56 or eastbound SR-56 from southbound I-5. The current interchange configuration leads to congestion at the ramp intersections along Carmel Valley Road and El Camino Real. Furthermore, during times of increased travel demand and congestion at the interchange, local streets in neighboring communities experience increased demand and congestion due to "cut through" travel. Local streets studied as impacted

included El Camino, Real, Carmel Valley Road, Carmel Creek Road, and High Bluff Drive. “Cut through” travel occurs when travelers use local streets to avoid congestion on the freeways. The I-5/SR-56 Interchange Project addresses these operational deficiencies as a stand-alone project through the construction of various interchange improvements, which differ by project alternative and may include new freeway-to-freeway direct connectors, ramp widening, local street improvements, new grade separated on-ramps, or a combination thereof. The I-5/SR-56 Interchange Project does not preclude the construction of other future planned projects such as the I-5 NCC Project (please see section 1.3.5 for additional information) or the future widening of SR-56 to a 6 lane facility.

Forecasts for the No Build Alternative indicate that ramp traffic volumes would approximately double at 7 of the 19 local street interchange ramps within the project limits by the year 2030. The largest traffic volume change would occur at the El Camino Real to eastbound SR-56 on-ramp, where the volume is expected to increase from 16,000 ADT under current conditions to more than 32,000 ADT in the year 2030. In addition, there would be an increase in demand on the “cut through” local street routes within the Carmel Valley community, exemplified by an approximate doubling of traffic volumes for Del Mar Heights Road east of I-5 by the year 2030.

The ability of the existing interchange and surrounding roadway network to accommodate peak hour traffic demand would diminish over time with increasing traffic volumes. If no improvements are made, very congested traffic conditions are expected at the interchange in the year 2030. Carmel Valley Road would be very congested and travelers would experience considerable delay (a failing level of service) between I-5 and El Camino Real. A failing level of service (LOS F) is also predicted at the intersection at Carmel Valley Road and the southbound I-5 ramps would operate at in both the AM and PM peak hours. Del Mar Heights Road would operate at LOS F between the I-5 northbound ramps and High Bluff Road. Drivers would be faced with long delays through these areas due to excessive queuing of vehicles at intersections and reduced operating speeds. In addition, peak hour round-trip travel times between Del Mar Heights Road at I-5 and Carmel Valley Road at SR-56 would approximately double for both the freeway routes and the local street routes by the year 2030.

The project build alternatives would provide varying levels of congestion relief at the interchange and on local streets within Carmel Valley in the year 2030. In the AM and PM peak hours, all four project build alternatives would improve traffic operations at the intersection of El Camino Real and the westbound SR-56 off-ramp, two of the four build alternatives (the Direct Connector and Hybrid with Flyover alternatives) would improve traffic operations at the intersection of El Camino Real and the eastbound SR-56 on-ramp, and two of the four build alternatives (the Direct Connector and Auxiliary Lane alternatives) would improve traffic operations at the intersection of Carmel Valley Road and the southbound I-5 ramps. These key intersections see an improvement in level of service of up to two grade levels, depending on the alternative. In addition, it is anticipated that all four build alternatives would reduce peak hour round-trip travel times for both the freeway routes and local street routes in the year 2030, with as much as 32 minutes of travel time savings.

The capacity improvements associated with the proposed project would alleviate congestion at the I-5/SR-56 interchange ramps and provide reduced demand and congestion within the neighboring community of Carmel Valley. In turn, the project would improve local access between the two freeways and reduce travel times to and from the local area without requiring additional infrastructure. As such, the project has independent utility.

1.4.3 PRECLUSION OF REASONABLY FORESEEABLE PROJECTS (I-5 NORTH COAST CORRIDOR IMPROVEMENTS)

Envisioned long-range improvements to I-5 include a four-lane, managed lanes facility in the median from Oceanside to I-805. On July 7, 2011, Caltrans and FHWA identified the Express Lanes Only (8 + 4 with Buffer/Striping) as the locally preferred alternative for the I-5 NCC project. The future median facility on I-5 would support planned regional bus rapid transit services, including a service route from eastern Oceanside to Sorrento Valley via El Camino Real, I-5, and I-805. Construction of the proposed I-5/SR-56 interchange project would not prevent any proposed alternative locations for the corridor improvement project for managed, general purpose, or auxiliary lanes, but would act to complement the proposed project and add additional efficiencies.

The following is a list of other projects near or along the I-5 corridor that would move forward independently from the I-5/SR-56 Interchange Project and be analyzed within separate environmental documents:

- I-5/Genesee Avenue Interchange Improvements
- I-5/SR-78 Interchange Improvements
- I-5 “Mid-Coast” Freeway Improvements (10+2HOV facility from I-8 to I-805)
- I-805 “North” improvements (8+4HOV/Managed Lanes facility from SR-52 to north of Mira Mesa Boulevard in San Diego)
- Sorrento Valley Road/Roselle Street Improvements
- Encinitas Boulevard Interchange Improvements
- Birmingham Avenue to Leucadia Boulevard Auxiliary Lanes
- LOSSAN Rail Improvements (double tracking of rail corridor between Los Angeles, and San Diego
- I-805 northbound Direct Access Ramps (DAR) at Carroll Canyon Road and HOV lanes between

Source: Dokken 2011

0 3.75 7.5 15 Miles

1" = 7.5 Miles

Figure 1-1
Regional Location Map

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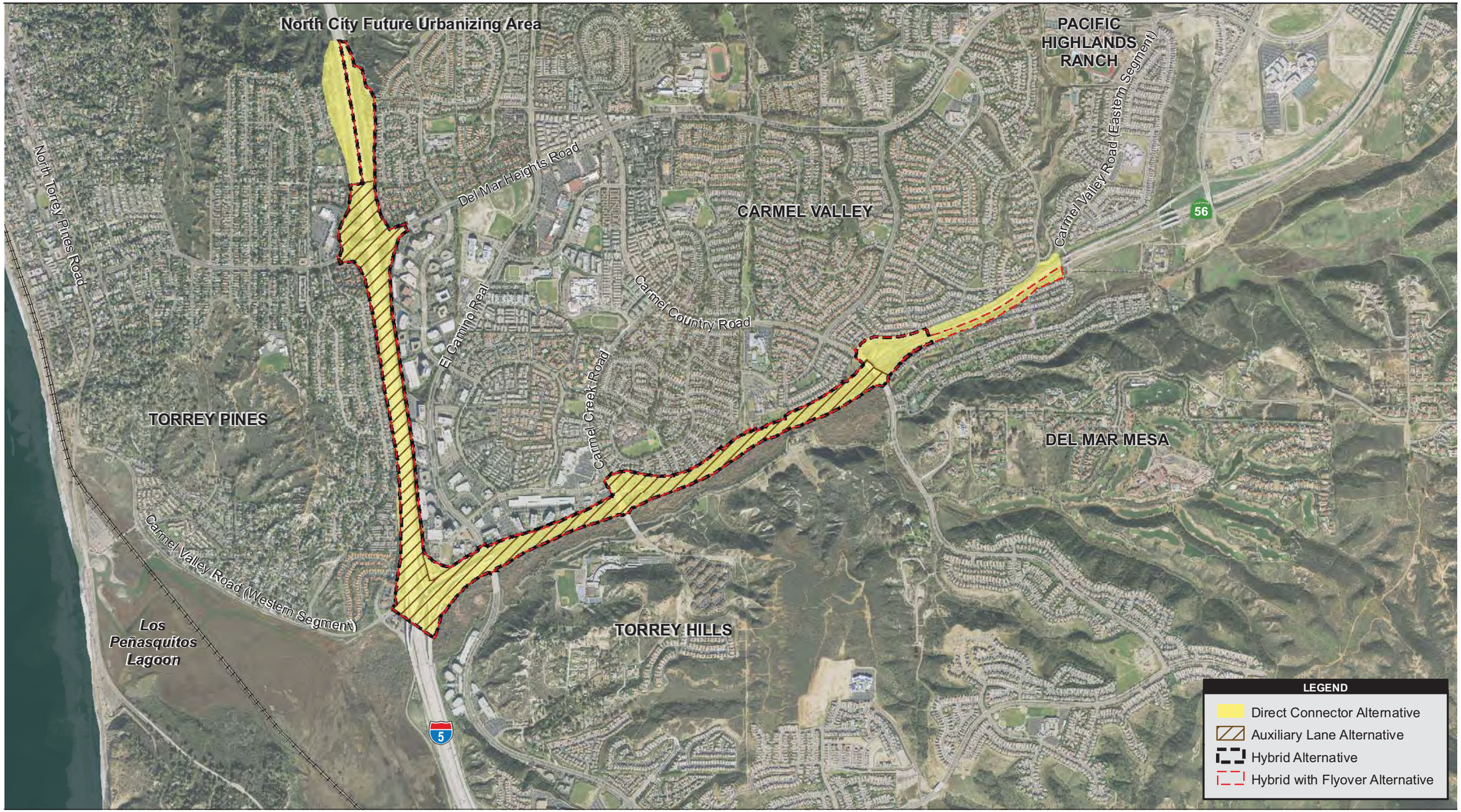
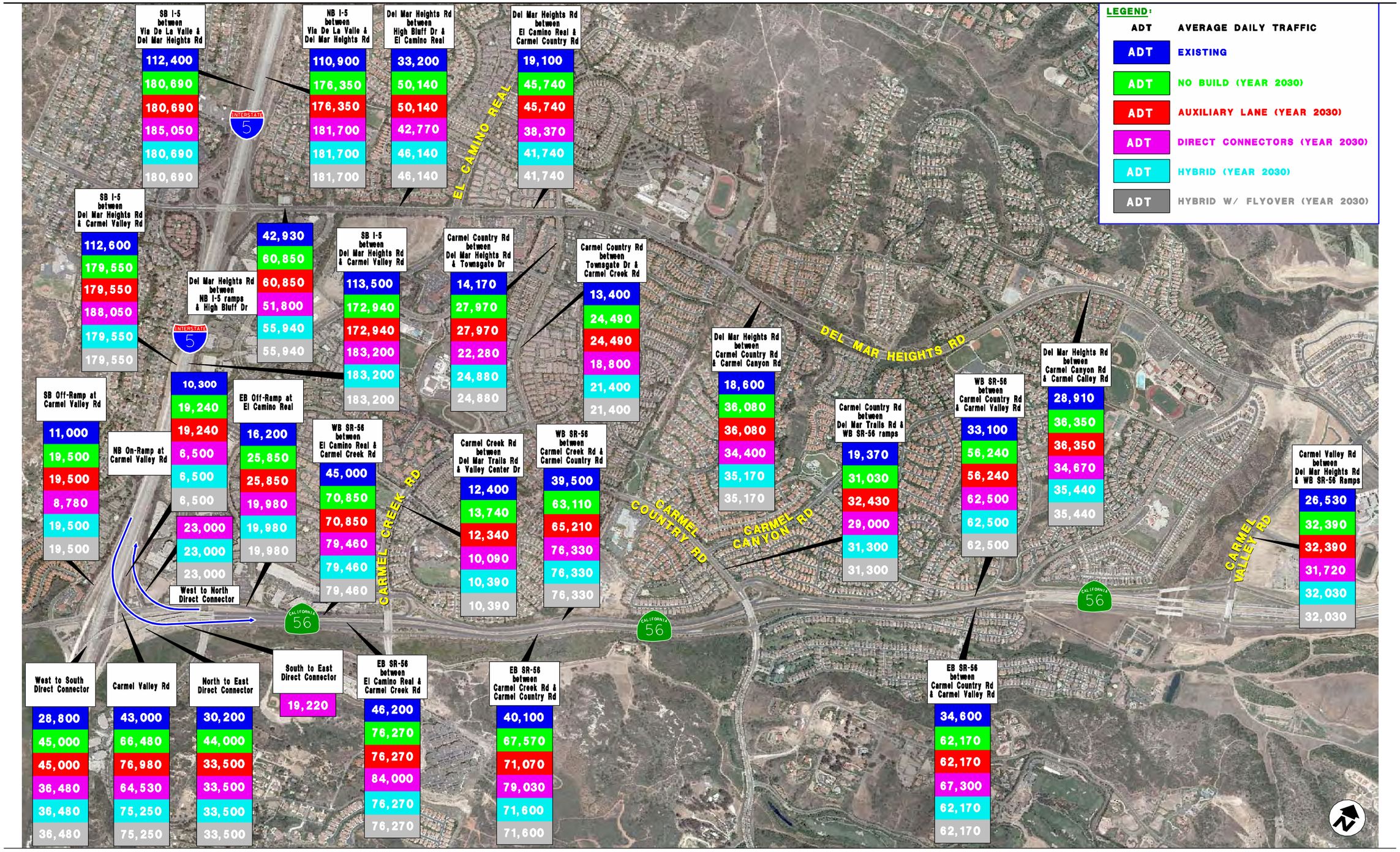


Source: DigitalGlobe 2008; Dokken 2008; SanGIS 2008

1,750 875 0 1,750 Feet

Scale: 1 = 21,000; 1 inch = 1,750 feet

Figure 1-2
Project Vicinity Map



Source: Dokken 2011

Figure 1-3
Existing and Future Average Daily Traffic for the Project Area

CHAPTER 2
PROJECT ALTERNATIVES

This chapter describes the proposed project and the range of alternatives considered by Caltrans, including the four build alternatives and the No Build Alternative that are addressed throughout this Draft EIR/EIS. The alternatives were developed by the project development team (PDT) and included public input from a Steering Committee composed of representatives from the City of San Diego, Caltrans, SANDAG, and four local communities (Carmel Valley, Del Mar Mesa, Sorrento Hills, and Torrey Pines). The alternatives under consideration are the Direct Connector Alternative, the Auxiliary Lane Alternative, the Hybrid Alternative, the Hybrid with Flyover Alternative, and the No Build Alternative.

2.1 PROJECT DESCRIPTION

The primary purpose of the proposed project is to improve the efficient regional and local movement of people and goods, while minimizing environmental and community impacts by maintaining or improving the existing and future traffic operations along the I-5 and SR-56 corridors, and along local streets within the Carmel Valley community. The proposed I-5/SR-56 interchange project is needed to effectively connect two major freeways and help relieve local and regional traffic congestion resulting from existing and future (projected) population growth, increased residential development, and increased commercial development within the local communities.

The estimated cost for the proposed project from 2011, depending on the selected build alternative ranging from $95-270 million, would be reduced $10-70 million if a I-5 NCC Project build alternative were approved and the projects were construction at the same time. Funding for the proposed project would come from several sources, as stated in Amendment No. 7 for the Regional Transportation Improvement Program (RTIP) for 2010. These sources are the Corridors and Borders Infrastructure Program (CBI), High Priority Demonstration Program (DEMO-Sec 115 and DEMO-TEA 21), Interstate Maintenance Discretionary (IM), local funds, and the Surface Transportation Program (STP).

The proposed project is located within the City of San Diego in San Diego County, east of the City of Del Mar and south of the City of Solana Beach. The proposed project would begin south of Carmel Valley Road along I-5 at PM 32.7 and continue to PM 34.8 north of Del Mar Heights Road. Along SR-56, the proposed project would begin at PM 0.0 at El Camino Real and continue to PM 2.5 east of Carmel Country Road. The exact length and specific area of impact would vary, determined by which of the four build alternatives and the one No Build Alternative was selected, all of which are described in Section 2.3, Project Alternatives.

The alternatives considered in this Draft EIR/EIS were identified from the following:

- Project Study Report (Caltrans 2000);
- *Value Analysis (VA) Report* (VMS 2002); and
- June 18, 2009 Steering Committee “Alternatives Under Consideration” (Caltrans 2009c)

The following sections discuss the initial and finalized alternatives that were considered for the proposed I-5/SR-56 interchange project.

2.2 KEY FOCAL POINTS FOR PROJECT ALTERNATIVES

COMMUNITY INTERACTION

A Steering Committee was formed in February 2002, to obtain the interests of the communities that would be affected by the design of I-5/SR-56 freeway improvements. Representatives from the Carmel Valley, Del Mar Mesa, Torrey Hills, and Torrey Pines community planning groups, along with representatives from the City of San Diego, SANDAG, Caltrans, and the PDT, continue to meet on a periodic basis to discuss the progress of the proposed I-5/SR-56 interchange project and receive input from the community. The Steering Committee has played an integral part in the design of the project alternatives. FHWA guidelines for developing transportation alternatives used the following approach while identifying reasonable alternatives:

(a) PDT rigorously explored and objectively evaluated all reasonable alternatives and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.

(b) PDT devoted substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.

(c) PDT included reasonable alternatives not within the jurisdiction of the lead agency, which is Caltrans.

(d) PDT included the alternative of no action, the No Build Alternative.

(e) PDT has not identified a preferred alternative or alternatives in the draft statement but will identify such alternative in the final statement.

(f) PDT will include appropriate mitigation measures not already included in the draft proposed action or alternatives and will document them in the final document.

Caltrans and the PDT acknowledge the Steering Committee's contribution in helping to determine the range of alternatives. The Steering Committee's input has helped Caltrans and the PDT identify the four build alternatives: Direct Connector Alternative, Auxiliary Lane Alternative, Hybrid Alternative, and Hybrid with Flyover Alternative. Further details on the public participation process and the Record of Decisions/Milestones Matrix are discussed in Chapter 5, Comments and Coordination.

The Steering Committee used a screening criteria matrix that was based on key focal points identified by Caltrans to evaluate project alternatives. Caltrans then used the Steering Committee's input to establish the project alternatives, discussed in Section 2.3. The key focal points were:

- Safety
- Environmental Impacts
- Community Impacts
- Economic Impacts
- Freeway Operations
- Local Traffic Operations
- Support of Multi-Modal Use
- Constructability
- Compatibility with Other Highway Improvement Projects
- Right-of-Way Impacts
- Cost
- Design Standards

TRANSPORTATION SYSTEM MANAGEMENT, TRANSPORTATION DEMAND MANAGEMENT, AND MULTI-MODAL ALTERNATIVES

Caltrans supports SANDAG's vision to provide an efficient and integrated system of transit, local roadways, highways, and pedestrian and bicycle facilities that facilitate the movement of people and goods within the San Diego region, through projects such as the SR-56 bike path and the Lomas Santa Fe interchange. The Transportation System Management (TSM) program, Transportation Demand Management (TDM) system, and multi-modal alternatives are approaches that use this vision to improve traffic congestion. Although TSM, TDM, and multi-modal strategies alone could not satisfy the purpose and need of this proposed project, they have been incorporated into the build alternatives for this proposed project. Further details are provided below.

TSM and multi-modal alternatives are strategies that increase the efficiency of existing facilities by providing options such as auxiliary lanes, turning lanes, ramp metering, and traffic coordination. TSM strategies increase the number of vehicle trips a facility can carry without increasing the number of through-lanes. TSM also encourages ridesharing programs, public and private transit, and bicycle and pedestrian improvements as elements of a unified transportation system. Multi-modal alternatives integrate multiple forms of transportation modes—pedestrian, bicycle, automobile, rail, and transit. The proposed I-5/SR-56 interchange project is one component of the region's transportation system and would interface with and serve to complement carpool, vanpool, mass transit, pedestrian, and bicycle modes of travel. The environmental studies for TSM and multi-modal alternatives are affiliated with the Regional Transportation Planning process, currently the 2050 Regional Transportation Plan.

The 2050 RTP lays out a plan for investing an estimated $214 billion in local, state, and federal transportation funds expected to come into the region over the next 40 years. The largest proportion of the funds will go toward transit, which will receive 36 percent of the funds in the first 10 years, with 34 percent going to highway improvements (largely for the addition of high occupancy vehicle lanes to existing freeway corridors), and 21 percent to local roads and streets. The percentage dedicated to transit will grow each decade, up to 44 percent from 2021 to 2030, 47 percent in the third decade, and 57 percent in the last decade of the plan.

Along with the 2050 RTP, the Board (SANDAG) adopted the Sustainable Communities Strategy (SCS). The SCS details how the region will reduce greenhouse gas emissions to state-mandated levels over time. The inclusion of the SCS is required by Senate Bill 375, and the San Diego region is the first in California to produce a regional transportation plan with an SCS.

The Board also adopted the Environmental Impact Report for the 2050 RTP and SCS. And the Board adopted the final Regional Housing Needs Assessment Plan. For more information, see the website: *http://www.sandag.org*.

TDM alternatives focus on regional strategies to reduce the number of vehicle trips and VMT as well as to increase vehicle occupancy. TDM alternatives facilitate higher vehicle occupancy or reduce traffic congestion by expanding transportation options in terms of travel method, travel time, travel route, travel costs, and the quality and convenience of the travel experience. TDM typically provides contract funds to regional agencies that are actively promoting ridesharing, maintaining rideshare databases, and providing limited rideshare services to employers and individuals. In addition to promoting mass transit and facilitating non-motorized alternative means of transportation, TDM strategies also may include reducing the need for travel altogether through initiatives such as telecommuting. In some cases, TDM also may involve changing work schedules to create greater travel flexibility, resulting in a more balanced use of the transportation network to reduce the effect of morning and evening rush hours.

TSM, TDM, and multi-modal strategies such as sidewalk widening and the maintenance of bikeways have been incorporated into the build alternatives for this proposed project. These strategies would help Caltrans implement the SANDAG vision of providing an efficient and integrated transportation system.

2.3 PROJECT ALTERNATIVES

In addition to the No Build Alternative (Alternative 1), four build alternatives were considered: the Direct Connector Alternative (Alternative 2), the Auxiliary Lane Alternative (Alternative 3), the Hybrid Alternative (Alternative 4), and the Hybrid with Flyover Alternative (Alternative 5). The following discussion summarizes each alternative. Figures 2-4 through 2-7 show the alignments of each alternative. Design team and Right of Way specialists create for the PDT (Project Design Team) conceptual design improvements in tandem with an objective to keep the land requirements as tight as possible while keeping design specification standards as necessary to match FHWA standards. These concepts will be tightened whenever possible as final engineering designs are created and right of way needs are negotiated.

Table 2-1 summarizes the cost analysis for each of the build alternatives.

Table 2-1. Build Alternatives Cost Summary

Item	Direct Connector Alternative ($ million)[1]	Auxiliary Lane Alternative ($ million)[1]	Hybrid Alternative ($ million)[1]	Hybrid with Flyover Alternative ($ million)[1]
Total Project Cost	$250–$270	$95–$115	$160–$180	$205–$225

Notes:
1 The values listed are 2011 costs.
Source: Dokken 2011

2.3.1 NO BUILD ALTERNATIVE (ALTERNATIVE 1)

Environmental review must consider the effects of not implementing the proposed project. The No Build Alternative analysis includes the existing conditions and other projects that would be reasonably expected to occur in the foreseeable future if the proposed project were not approved. The No Build Alternative provides a basis for comparing the alternatives. Under NEPA, the No Build Alternative can be used as the baseline for assessing environmental impacts; under CEQA, the baseline for the environmental impact analysis is the existing conditions at the time of the Notice of Preparation or at the time that the environmental studies began.

In addition, a number of transportation projects (listed in Table 2-2) would potentially move forward separately from the proposed I-5/SR-56 interchange project and would be analyzed in each project's separate environmental documents. These projects are expected to proceed regardless of proposed project construction and are not dependent on, or needed because of, decisions regarding the proposed project.

Table 2-2. Other Transportation Projects in the Proposed Project Vicinity

	Project Name	Project Location	Project Description	Project Status
1	I-5 NCC Project	I-5 from La Jolla to Oceanside	Widening of the existing I-5 freeway to 12 or 14 lanes	Public review of Draft EIR/EIS has been completed. Final EIR anticipated in early 2013.
2	LOSSAN North Rail Corridor Improvements Program	Existing rail line between Los Angeles Union Station and San Diego Santa Fe Depot	Incremental implementation of improvements along the existing 125-mile-long LOSSAN corridor; in San Diego, improvements include at-grade double tracking, trenching, tunneling below grade, curve realignment (straightening), new stations, and other safety and operational improvements	Priority projects have been identified and funded.
3	I-5/Genesee Avenue Interchange Project	I-5/Genesee Avenue Interchange	Replacing existing overcrossings at Genesee Avenue and Voigt Drive with wider structures; widening ramps at Genesee Avenue and Sorrento Valley Road; constructing auxiliary lanes between Genesee Avenue and La Jolla Village Drive and between Genesee Avenue and Sorrento Valley Road; realigning Gilman Drive	Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment approved September 2010.
4	I-5 Mid-Coast Freeway Improvements Project	I-5 from I-805 to Interstate 8 (I-8)	10 main lanes and 2 HOV lanes to be built by Caltrans in the median of I-5 between I-805 and I-8; the project to connect with HOV lanes south of this segment	Planning stage.
5	Mid-Coast Corridor Transit Project	Old Town Transit Center to University Town Center (UTC)	An 11-mile-long extension of the San Diego trolley system from the Old Town Transit Center to University City (ending with a light rail transit station near UTC along Genesee Avenue)	Supplemental EIS/ Subsequent EIR in preparation.
6	I-805 HOV/Carroll Canyon Road Extension Project	Carroll Canyon Road under I-805	Extension of Carroll Canyon Road under I-805; construction of HOV lane in each direction along I-805 from I-5 to Carroll Canyon Road; construction of a northbound DAR from the Carroll Canyon Road Extension to the HOV lanes	Environmental documentation completed. Construction began in March 2011 and is anticipated to be completed by summer 2013.
7	I-805 Managed Lanes North Project	I-805 south of SR-52 to north of Mira Mesa Boulevard Undercrossing	Widening to accommodate four express lanes from SR-52 to La Jolla Village Drive and two HOV lanes from La Jolla Village Drive to north of Mira Mesa Boulevard; construction of DAR at Nobel Drive and Carroll Canyon Road; construction of a Park and Ride lot off of Nobel Drive; reconfiguration of the Governor Drive southbound on-ramp	Finding of No Significant Impact (FONSI)/Negative Declaration approved December 2010.
8	SR-56 Widening East of Carmel Valley Road Project	SR-56 from I-5 to I-15	Widening of SR-56 from four freeway lanes to six freeway lanes	Planning stage.

Source: Compiled by AECOM in 2011

The No Build Alternative assumes the existing configuration for the I-5/SR-56 interchange with the improvements that are part of the proposed I-5 NCC Project. This alternative would not include the

construction of direct freeway-to-freeway connections in the westbound SR-56 to northbound I-5 (west to north) and southbound I-5 to eastbound SR-56 (south to east) directions, auxiliary lanes, or improvements to local streets in the Carmel Valley area.

Under the No Build Alternative, drivers traveling east on SR-56 from southbound I-5 would continue to exit at the Carmel Valley Road off-ramp. Drivers would turn left onto Carmel Valley Road and pass through two more intersections to merge onto the local bypass of eastbound SR-56. The eastbound slip-off ramp for drivers coming from the I-5 northbound local bypass to access the Carmel Creek Road off-ramp would remain.

Under the No Build Alternative, drivers traveling northbound on I-5 from westbound SR-56 would continue to exit via the existing two-lane Carmel Valley Road/El Camino Real exit. Drivers then would continue westbound on Carmel Valley Road through three intersections and would turn right onto the two-lane northbound I-5 on-ramp to merge directly onto northbound I-5.

As shown in Table 1-1, if no improvements are made in the proposed project area by 2030, the projected travel time on freeway routes for west-to-north morning and south-to-east evening peak hours is projected to increase from 24 minutes to 51 minutes. For south-to-east morning and west-to-north evening peak hours, projected travel time is expected to increase from 17 minutes to 33 minutes. The projected travel time on local street routes by 2030 under the No Build Alternative for west-to-north morning and south-to-east evening peak hours is projected to increase from 18–30 minutes to 46–57 minutes. For south-to-east morning and west-to-north evening peak hours, projected travel time is expected to increase from 20–24 minutes to 36–38 minutes.

2.3.2 BUILD ALTERNATIVES

A range of alternatives was developed to meet the purpose and need of the proposed project. The four build alternatives included and shown in the schematic figures (Figures 2-4 through 2-7) are the Direct Connector Alternative (Alternative 2), Auxiliary Lane Alternative (Alternative 3), Hybrid Alternative (Alternative 4), and Hybrid with Flyover Alternative (Alternative 5). These build alternatives are described below.

COMMON DESIGN FEATURES OF THE BUILD ALTERNATIVES

The following are common design features for all four build alternatives:

- Reconfigure the Del Mar Heights Road interchange to accommodate the widening of the I-5 freeway caused by the addition of any of the build alternatives' direct connectors and/or auxiliary lanes. The Del Mar Heights reconfiguration would include elimination of the existing "free" right-turn configuration at the southbound on-ramps, widening of the support structures under the freeway overcrossing, and replacement of the overcrossing structure. The new structure would include widened sidewalks and improved lighting for pedestrian and bicycle circulation.

- Remove the eastbound SR-56 slip-off-ramp to Carmel Creek Road to eliminate the weaving that occurs with vehicles accessing Carmel Creek Road from the northbound I-5 to the eastbound SR-56 connector and vehicles entering eastbound SR-56 from El Camino Real. The slip-off-ramp originally was intended to serve as a temporary network feature. Removal of the slip-off-ramp would divert an estimated 75 percent of potential future drivers to the Carmel Valley Road off-ramp from the northbound I-5 freeway mainline. The remaining 25 percent would be diverted to alternate routes, such as Carmel Country Road and Del Mar Heights Road.

- Construct an auxiliary lane along southbound I-5 from the southbound I-5 on-ramp at Del Mar Heights Road to the southbound I-5 off-ramp at Carmel Valley Road.

- Widen the northbound I-5 off-ramp at Carmel Valley Road from three to four lanes, providing additional ramp storage and right-turn capacity. All build alternatives propose three right-turn lanes at the northbound I-5 to Carmel Valley Road off-ramp termini to mitigate for the additional traffic caused by the removal of the eastbound SR-56 slip-off-ramp.
- Widen Carmel Valley Road from six to eight lanes between I-5 and El Camino Real, to accommodate the additional traffic caused by the removal of the eastbound SR-56 slip-off-ramp.
- Widen westbound SR-56 between Carmel Country Road and El Camino Real from two to a minimum of three general purpose lanes.
- Install ramp meters at the Carmel Country Road and Carmel Creek Road westbound SR-56 on-ramps.
- Construct soundwalls, retaining walls, barriers, guard rails/end treatments, crash cushions, bridge rails, drainage improvements, detention basins, and signage at specific locations along the I-5 and SR-56 corridors.
- Relocate the AT&T-owned transcontinental fiber-optic line that currently parallels I-5 between Carmel Valley Road and Del Mar Heights Road to within High Bluff Drive and El Camino Real.

Where the existing points of access would be changed, or new points of access to the Interstate are proposed, coordination with FHWA for required approvals is necessary. Caltrans is currently coordinating with FHWA regarding the proposed project's modified access to I-5.

I-5 Freeway Widening

As shown in the Project features Maps for each Alternative, (Figures 2-4a through 2-7e), the right-of-way impacts on the west side of I-5 just north of SR-56 are proposed to accommodate the I-5 Local Bypass extension. The "reserved" right of way areas are identified in all the figures where the two projects overlap to identify that the I-5/SR-56 Interchange Project does not preclude the any build alternatives for I-5, which are all the same at this location. As identified in all the figures, the "reserved areas" are within State right-of-way. The figures labeled Figures 2-4a & b through 2-7a & b have slight right-of-way takes, to accommodate the extension of the I-5 Local Bypass on the west, and standard right turn for freeway on-ramps on the east by Del Mar Heights Road.

DIRECT CONNECTOR ALTERNATIVE (ALTERNATIVE 2)

Originally identified as a viable project alternative in Caltrans' PSR, the Direct Connector Alternative proposes the construction of grade-separated ramps that would directly connect westbound SR-56 to northbound I-5 and southbound I-5 to eastbound SR-56. These direct freeway-to-freeway connector ramps would have two general-purpose lanes.

A Typical Drive on the Direct Connector Alternative

For the Direct Connector Alternative, drivers traveling eastbound on SR-56 from southbound I-5 would exit via the SR-56 east ramp (see Figure 2-1a) to go directly onto eastbound SR-56 (see Figure 2-1b). Drivers would no longer have to exit Carmel Valley Road and travel through three intersections to merge onto SR-56.

Drivers traveling northbound on I-5 from westbound SR-56 would take the I-5 north ramp (see Figure 2-1c) and merge onto northbound I-5 between the I-5 northbound traffic and the I-5 local bypass/Carmel Valley Road on-ramp traffic (see Figure 2-1d).

As shown in Table 1-2, the projected ADT for the Direct Connector Alternative along southbound and northbound I-5 between Via de la Valle and Del Mar Heights Road are 185,050 and 181,700, respectively. The projected ADT along southbound and northbound I-5 between Del Mar Heights Road and Carmel Valley Road are 188,050 and 183,200, respectively. The ADT for all southbound and northbound I-5 segments would be greater than for the No Build Alternative in 2030 because freeway movements would be shifted from local streets (between Via de la Valle and Del Mar Heights Road—4,360 and 5,350; between Del Mar Heights Road and Carmel Valley Road—8,500 and 10,260, respectively).

With the Direct Connector Alternative, the projected ADT along eastbound and westbound SR-56 between El Camino Real and Carmel Creek Road are 84,000 and 79,460, respectively. The projected ADT along eastbound and westbound SR-56 between Carmel Creek Road and Carmel Country Road are 79,030 and 76,330, respectively. The projected ADT along eastbound and westbound SR-56 between Carmel Country Road and Carmel Valley Road are 67,300 and 62,500, respectively. The ADT for all eastbound and westbound SR-56 segments would be greater than the No Build Alternative in 2030 because freeway movements would be shifted from local streets to the freeway facilities (between El Camino Real and Carmel Creek Road—7,730 and 8,610; between Carmel Creek Road and Carmel Country Road—11,460 and 13,220; between Carmel Country Road and Carmel Valley Road—5,130 and 6,260; respectively).

Project Features

The following are detailed project feature descriptions of the proposed Direct Connector Alternative. Figures 2-4a through 2-4f at the end of the chapter illustrate the project features of the Direct Connector Alternative.

Extension of the I-5 Local Bypass

The Direct Connector Alternative would extend the I-5 local bypass in both the northbound and southbound directions to the Del Mar Heights Road interchange. As such, vehicles entering and exiting the freeway between Del Mar Heights Road and Carmel Valley Road would use the local bypass system. A concrete barrier would separate the freeway mainline traffic from the local bypass in the northbound and southbound directions. The south-to-east connector would exit the southbound freeway mainline near Carmel Valley Road. The west-to-north connector would merge with the northbound bypass near Carmel Valley Road before entering the northbound freeway mainline at Del Mar Heights Road.

Separation Barrier on Westbound SR-56 and Removal of the Carmel Creek Road Slip-Off-Ramp

A barrier-separated collector-distributor (C-D) system along westbound SR-56 would separate the westbound to southbound traffic from the westbound to northbound traffic just east of the Carmel Creek Road interchange. This C-D system would eliminate access to the west-to-south direct connector for traffic entering westbound SR-56 at Carmel Creek Road and would eliminate the potential for multi-lane weaving through this area. A barrier also would be constructed along SR-56 between El Camino Real and Carmel Creek Road, to eliminate weaving between vehicles accessing Carmel Creek Road from the north-to-east connector and vehicles entering eastbound SR-56 from El Camino Real. Thus, the existing eastbound SR-56 slip-off-ramp to Carmel Creek Road would be eliminated and drivers traveling eastbound would need to use local street alternatives to access Carmel Creek Road.

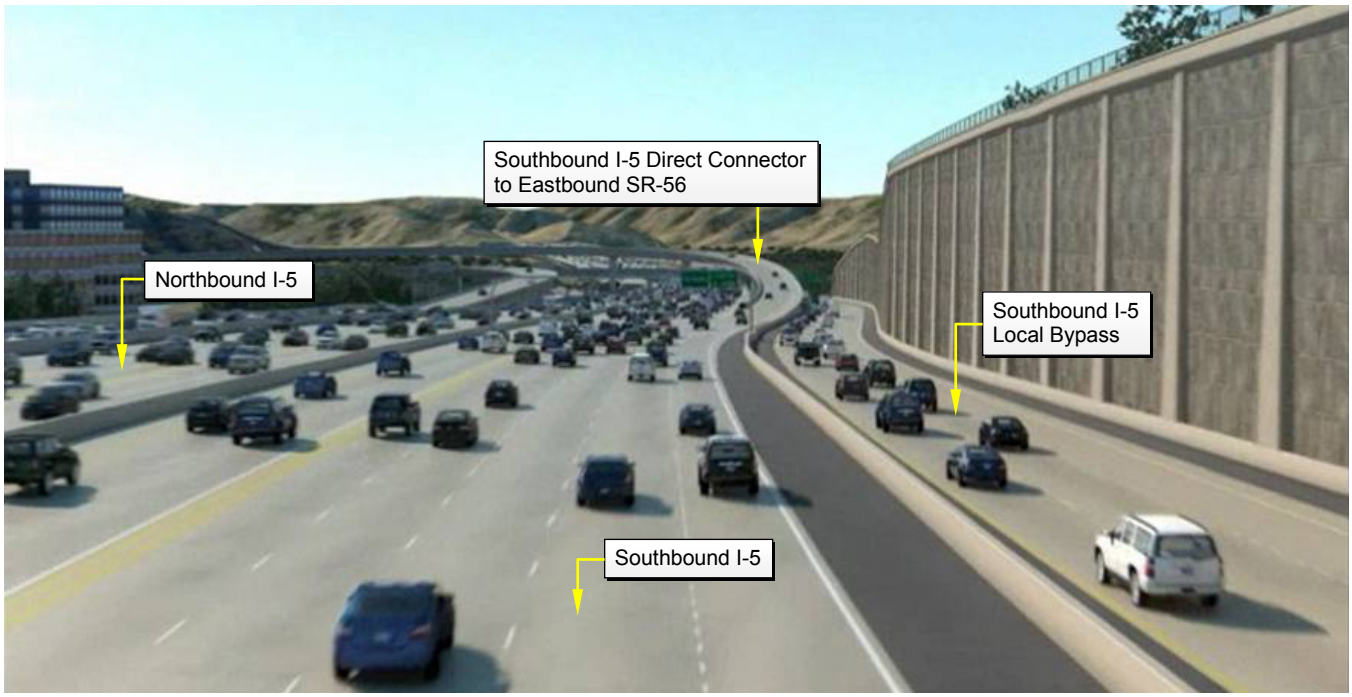


Figure 2-1a. Drivers traveling southbound on I-5 would exit via the SR-56 east ramp. Drivers exiting Carmel Valley Road would use the local bypass from Del Mar Heights Road.

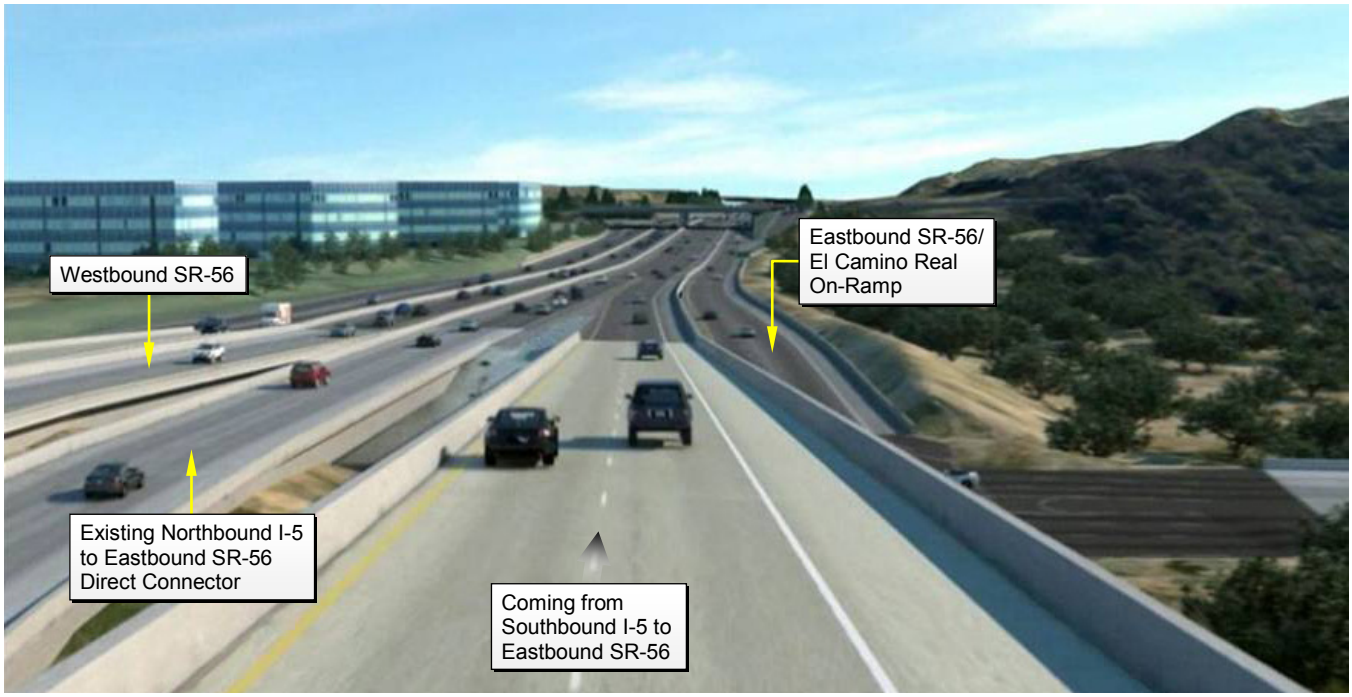


Figure 2-1b. Drivers exiting southbound I-5 via the SR-56 east ramp would be placed onto eastbound SR-56. The northbound I-5 local bypass currently feeds into the two left lanes heading east on SR-56 and cars originating from the El Camino Real/eastbound SR-56 on-ramp intersection feed into the right two lanes. Note that the northbound I-5 local bypass slip-off-ramp to the Carmel Creek Road exit off-ramp would be removed.

Figure 2-1a & b **Representation Photographs**

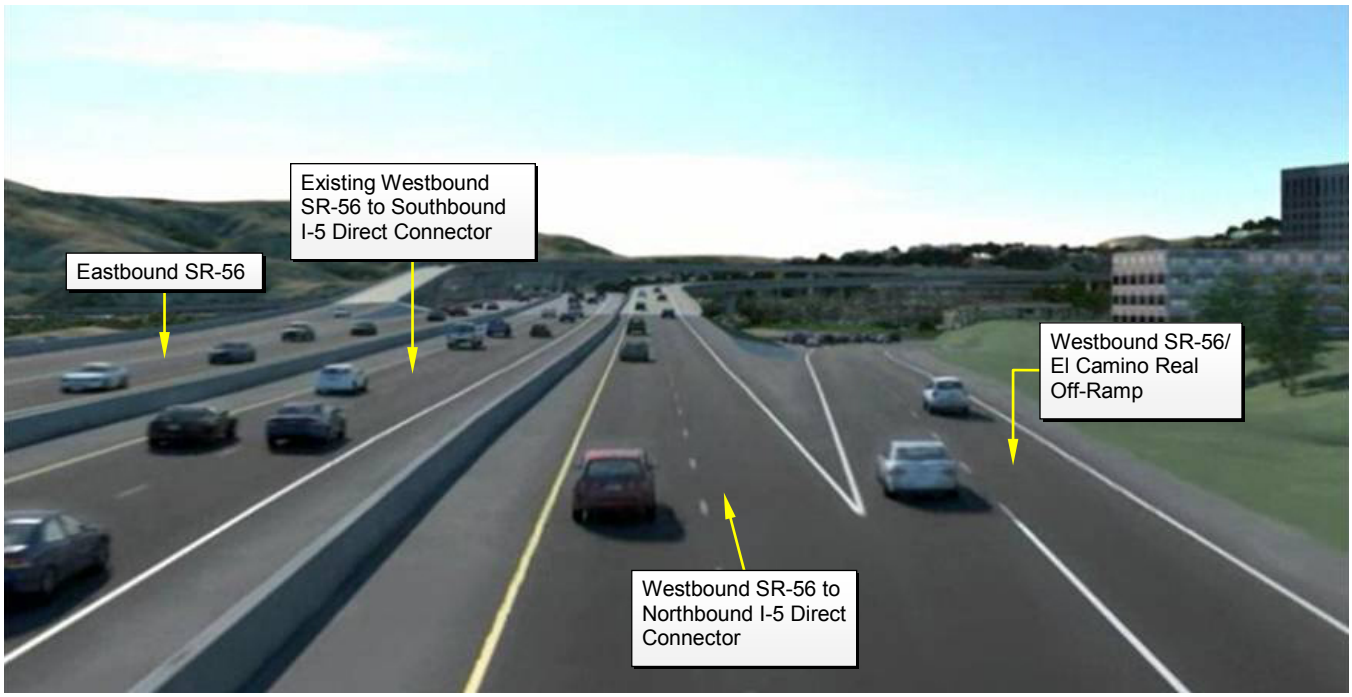


Figure 2-1c. Drivers traveling west on SR-56 would have the choice of heading south on I-5 (left two westbound lanes), north on I-5 (middle two westbound lanes), or exiting on El Camino Real (right two westbound lanes). A barrier would visibly separate the southbound and northbound I-5 exit ramps and prevent multi-lane weaving.

Figure 2-1d. Drivers heading north on I-5 from westbound SR-56 would be placed into a local bypass to the right of northbound I-5 traffic. Drivers entering northbound I-5 from the Carmel Valley Road on-ramp would merge with traffic from the I-5 local bypass. They would then merge with the westbound SR-56 direct connector traffic. A barrier would separate northbound I-5 traffic from the merging westbound SR-56 until Del Mar Heights Road to prevent multi-lane weaving.

Figure 2-1c & d **Representation Photographs**

Auxiliary Lanes along I-5 and SR-56

An auxiliary lane to facilitate merging traffic would be constructed along eastbound and westbound SR-56 between Carmel Creek Road and Carmel Country Road, and along the northbound and southbound local bypasses between Carmel Valley Road and Del Mar Heights Road.

Ramp Improvements

Several local street interchanges would be modified to accommodate the new configurations on and along I-5 and SR-56. The northbound and southbound off-ramps at Carmel Valley Road would be widened to four lanes at the intersections. The northbound on-ramp at Carmel Valley Road would be realigned to accommodate the west-to-north direct connector. The interchange ramps at Carmel Creek Road would be realigned to accommodate the proposed direct connectors, and the eastbound off-ramp at Carmel Creek Road would be widened to two lanes at the exit and four lanes at the intersection. The eastbound on- and off-ramps and westbound loop on-ramp at Carmel Country Road would be realigned to accommodate the widened SR-56 freeway mainline. Ramp meters and California Highway Patrol (CHP) pull-out pads would be included for on-ramps at the Carmel Valley Road, Del Mar Heights Road, Carmel Creek Road, and Carmel Country Road interchanges. Carmel Valley Road would be widened to eight lanes east of I-5, and the Carmel Valley Road/SR-56 on-ramp intersection would be widened to accommodate higher traffic volumes.

Reconstruction of Del Mar Heights Road Overcrossing and Other Improvements

The Del Mar Heights Road interchange would be reconstructed; the overcrossing would be replaced and the northbound and southbound on- and off-ramps would be realigned. The El Camino Real overcrossing would be widened to accommodate the west-to-north connector ramp. The northbound and southbound bypass lanes would be realigned north of Carmel Valley Road. To improve operations and to accommodate the connector ramps, Portofino Circle also would be realigned and reconstructed. This alternative would include the construction of 17 retaining walls (see Figures 2-4a through 2-4f).

Southbound I-5 Freeway Widening

The I 5 freeway widening associated with the proposed extension of the southbound I 5 local bypass would require modifications to Portofino Circle and portions of the common area for the Del Mar Villas condominium development. Portofino Circle would be shifted to the west and realigned to provide room for landscape screening for the reconstructed soundwall along the east side of Portofino Circle. See Section 3.8, Visual/Aesthetics, for further details of the Portofino Circle landscape plan. This modification to Portofino Circle is unique to the Direct Connector Alternative's south-to-east connector and southbound local bypass extension.

Estimated Cost

As shown in Table 2-1, the proposed I-5/SR-56 interchange project is approved, the estimated cost (ROW, support, and construction) for the Direct Connector Alternative would be approximately $250 to $270 million.

AUXILIARY LANE ALTERNATIVE (ALTERNATIVE 3)

Originally identified as a viable project alternative in Caltrans' PSR, the Auxiliary Lane Alternative proposes the construction of an auxiliary lane along southbound I-5 between the southbound on-ramp at Del Mar Heights Road and the southbound off-ramp at Carmel Valley Road, to help facilitate merging traffic. The southbound off-ramp would be widened to a two-lane freeway exit and the northbound on- and off-ramps would be widened at Carmel Valley Road.

A Typical Drive on the Auxiliary Lane Alternative

Drivers using the Auxiliary Lane Alternative and traveling eastbound on SR-56 from southbound I-5 would exit via the auxiliary lane and widened off-ramp at Carmel Valley Road (see Figures 2-2a and 2-2b). Drivers would turn left onto Carmel Valley Road at a signalized intersection and pass through two more signalized intersections to merge onto eastbound SR-56 via the widened SR-56 eastbound on-ramp at El Camino Real (see Figures 2-2c and 2-2d).

Drivers using the Auxiliary Lane Alternative and traveling northbound on I-5 from westbound SR-56 would continue to exit via the existing two-lane Carmel Valley Road/El Camino Real exit (see Figure 2-2e). Drivers then would continue through three signalized intersections down Carmel Valley Road and turn right onto the three-lane on-ramp (see Figure 2-2f). Drivers then would merge directly onto northbound I-5 (see Figure 2-2g).

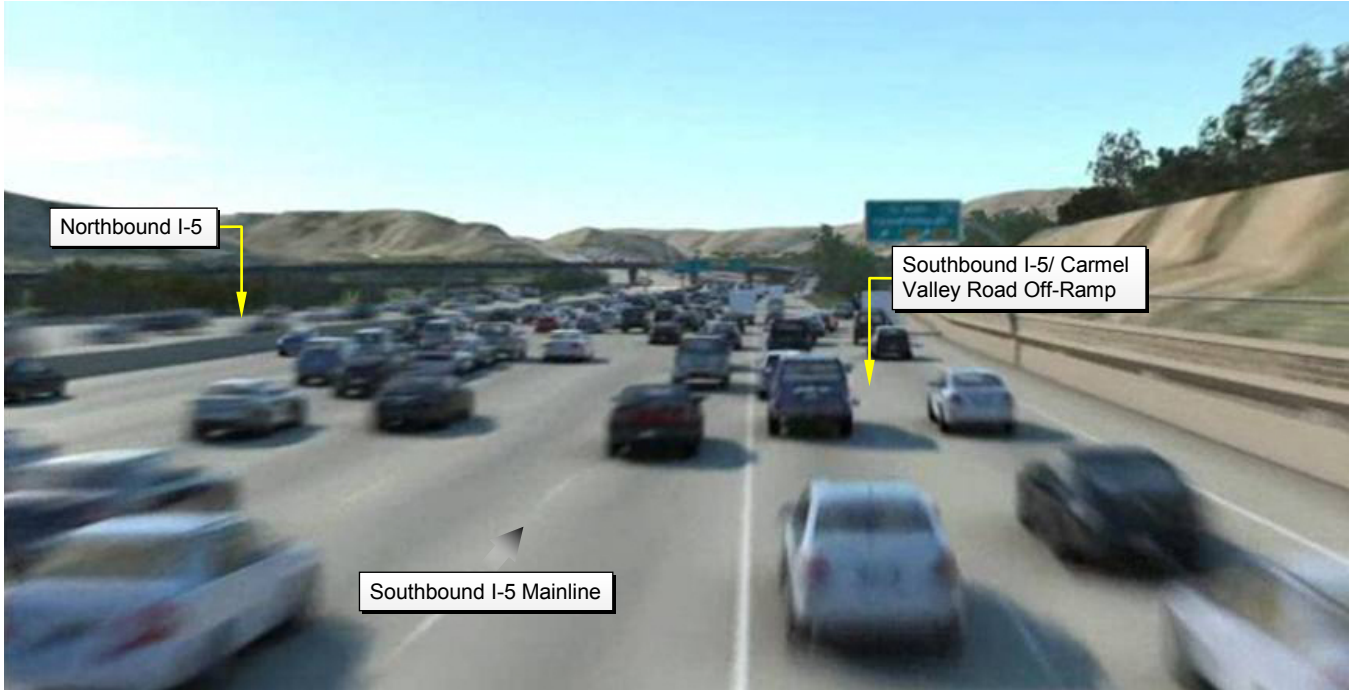


Figure 2-2a. Drivers heading from southbound I-5 to eastbound SR-56 would exit at Carmel Valley Road via an auxiliary lane and the widened off-ramp at Carmel Valley Road.

Figure 2-2b. The exit would open up to two dedicated right-turn lanes, a shared left through-lane, and a dedicated left-turn lane. Drivers heading east toward SR-56 would turn left onto Carmel Valley Road.

Figure 2-2a & b Representation Photographs

Figure 2-2c. Drivers traveling to eastbound SR-56 would go through three signalized intersections upon exiting southbound I-5: southbound I-5 off-ramp/Carmel Valley Road, Carmel Valley Road/northbound I-5 on-ramp, and El Camino Real/eastbound SR-56 on-ramp.

Figure 2-2d. Drivers would then merge onto the widened SR-56 eastbound on-ramp at El Camino Real, which would be separated from the eastbound SR-56 mainline by a barrier until Carmel Creek Road. Note that the slip-off-ramp to Carmel Creek Road from the existing northbound I-5 to eastbound SR-56 connector would be removed.

Figure 2-2c & d Representation Photographs

Figure 2-2e. Drivers from westbound SR-56 would continue to use the El Camino Real exit to connect to northbound I-5.

Figure 2-2f. Drivers would continue through three signalized intersections along Carmel Valley Road: El Camino Real/Carmel Valley Road, Carmel Valley Road/Old El Camino Real, and Carmel Valley Road/northbound I-5 on-ramp. Drivers would then turn right onto the three-lane northbound I-5 on-ramp to merge with traffic from northbound I-5.

Figure 2-2e & f **Representation Photographs**

Figure 2-2g. Drivers entering northbound I-5 from the Carmel Valley Road on-ramp would merge directly with traffic from northbound I-5. No barrier would separate northbound I-5 traffic from the merging Carmel Valley Road traffic.

Figure 2-2g **Representation Photographs**

As shown in Table 1-2, the projected ADT for the Auxiliary Lane Alternative along southbound and northbound I-5 between Via de la Valle and Del Mar Heights Road are 180,690 and 176,350, respectively. The projected ADT along southbound and northbound I-5 between Del Mar Heights Road and Carmel Valley Road are 179,550 and 172,940, respectively. The ADT for all southbound and northbound I-5 segments would be the same as for the No Build Alternative in 2030, and no shifts in traffic would be made between the freeways and local streets.

The projected ADT along eastbound and westbound SR-56 between El Camino Real and Carmel Creek Road are 76,270 and 70,850, respectively. The projected ADT along eastbound and westbound SR-56 between Carmel Creek Road and Carmel Country Road are 71,070 and 65,210, respectively. The projected ADT along eastbound and westbound SR-56 between Carmel Country Road and Carmel Valley Road are 62,170 and 56,240, respectively. The ADT for the eastbound and westbound SR-56 segment between Carmel Creek Road and Carmel Country Road would be greater than for the No Build Alternative in 2030 (3,500 and 2,100, respectively).

Project Features

The following are detailed project feature descriptions of the proposed Auxiliary Lane Alternative. Figures 2-5a through 2-5f at the end of the chapter illustrate the project features of the Auxiliary Lane Alternative.

Removal of the Carmel Creek Road Slip-Off-Ramp

A barrier would be constructed along eastbound SR-56 between El Camino Real and Carmel Creek Road that would eliminate the eastbound SR-56 slip-off-ramp to Carmel Creek Road. Drivers traveling eastbound would use local street alternatives to access Carmel Creek Road.

Carmel Valley Road and SR-56 Improvements

Carmel Valley Road would be widened to eight lanes east of I-5. Additionally, the Carmel Valley Road/eastbound SR-56 on-ramp intersection would be widened to accommodate higher traffic volumes. Westbound SR-56 would be widened to the north, to accommodate an additional general purpose lane and the future construction of HOV lanes within the median. Because of this addition, the westbound Carmel Creek Road loop on- and off-ramp and the Carmel Country Road loop on-ramp would be realigned. The eastbound on-ramp at El Camino Real would be realigned and widened to accommodate the elimination of the slip-off-ramp to Carmel Creek Road.

Reconstruction of Del Mar Heights Road Overcrossing and Other Improvements

Reconstruction of the Del Mar Heights Road overcrossing and associated operational improvements also would occur with this alternative. The alternative would include the construction of seven retaining walls (see Figures 2-5a through 2-5f).

Estimated Cost

As shown in Table 2-1, the estimated cost (ROW, support, and construction) for the Auxiliary Lane Alternative would be approximately $95 to $115 million.

HYBRID ALTERNATIVE (ALTERNATIVE 4)

The Hybrid Alternative originated as a staged option for the Direct Connector in Caltrans' VA Report. First, Caltrans would build the westbound SR-56 to northbound I-5 direct connector and, in the interim, build the southbound I-5 to eastbound SR-56 auxiliary lane improvements. The south-to-east direct

connector would be constructed after the west-to-north connector was complete. Input from community members during the Steering Committee meetings labeled this staged option as its own viable stand-alone alternative: the Hybrid Alternative.

As previously discussed, the Hybrid Alternative is a combination of the proposed westbound to northbound connector featured in the Direct Connector Alternative and the proposed southbound to eastbound local street movement featured in the Auxiliary Lane Alternative. The Hybrid Alternative proposes to construct a westbound SR-56 to northbound I-5 direct connector having two general-purpose lanes and an auxiliary lane along southbound I-5 between the southbound on-ramp at Del Mar Heights Road and the southbound off-ramp at Carmel Valley Road to reduce merging traffic. Widening also would occur at the southbound I-5 off-ramp (to a two-lane freeway exit) and northbound I-5 off-ramp at Carmel Valley Road.

A Typical Drive on the Hybrid Alternative

Drivers traveling eastbound on SR-56 from southbound I-5 would exit via the auxiliary lane and widened off-ramp at Carmel Valley Road (see Figures 2-2a and 2-2b). Drivers would turn left onto Carmel Valley Road and pass through two more intersections to merge onto eastbound SR-56 via the widened SR-56 eastbound on-ramp at El Camino Real (see Figures 2-2c and 2-2d).

Drivers traveling northbound on I-5 from westbound SR-56 would take the I-5 north ramp (see Figure 2-1c) and merge into the I-5 northbound traffic and the Carmel Valley Road on-ramp traffic (see Figure 2-1d).

As shown in Table 1-2, the projected ADT for the Hybrid Alternative along southbound and northbound I-5 between Via de la Valle and Del Mar Heights Road are 180,690 and 181,700, respectively. The projected ADT along southbound and northbound I-5 between Del Mar Heights Road and Carmel Valley Road are 179,550 and 183,200, respectively. The ADT for all northbound I-5 segments would be greater than for the No Build Alternative in 2030, as freeway movements were shifted from local streets to the freeway facilities (between Via de la Valle and Del Mar Heights Road—5,350; between Del Mar Heights Road and Carmel Valley Road—10,260). The ADT for all southbound I-5 segments would be the same as for the No Build Alternative in 2030.

The projected ADT along eastbound and westbound SR-56 between El Camino Real and Carmel Creek Road are 76,270 and 79,460, respectively. The projected ADT along eastbound and westbound SR-56 between Carmel Creek Road and Carmel Country Road are 71,600 and 76,330, respectively. The projected ADT along eastbound and westbound SR-56 between Carmel Country Road and Carmel Valley Road are 62,170 and 62,500, respectively. The ADT for eastbound SR-56 between Carmel Creek Road and Carmel Country Road and all westbound SR-56 segments would be greater than for the No Build Alternative in 2030, as freeway movements were shifted from local streets to the freeway facilities (between El Camino Real and Carmel Creek Road—8,610; between Carmel Creek Road and Carmel Country Road—4,030 and 13,220; between Carmel Country Road and Carmel Valley Road—6,260; respectively). The ADT for eastbound SR-56 segments between El Camino Real and Carmel Creek Road and between Carmel Country Road and Carmel Valley Road would be the same as for the No Build Alternative in 2030.

Project Features

The Hybrid Alternative includes the proposed south-to-east auxiliary lane and local street movement featured in the Auxiliary Lane Alternative and the west-to-north connector featured in the Direct Connector Alternative. Figures 2-6a through 2-6f at the end of the chapter illustrate the project features of the Hybrid Alternative. The following are detailed project feature descriptions of the proposed Hybrid Alternative.

Extension of the I-5 Local Bypass

The Hybrid Alternative would extend the I-5 local bypass in the northbound direction to the Del Mar Heights Road interchange. As such, northbound vehicles entering and exiting the freeway between Del Mar Heights Road and Carmel Valley Road would use the local bypass system. A concrete barrier would separate the freeway mainline traffic from the local bypass. The west-to-north connector would merge with the northbound bypass near Carmel Valley Road before entering the northbound freeway mainline at Del Mar Heights Road.

Separation Barrier on Westbound SR-56 and Removal of the Carmel Creek Road Slip-Off-Ramp

A barrier-separated C-D system along westbound SR-56 would separate the westbound to southbound traffic from the westbound to northbound traffic just east of the Carmel Creek Road interchange. This C-D system would eliminate access to the west-to-south direct connector for traffic entering westbound SR-56 at Carmel Creek Road and eliminate the potential for multi-lane weaving through this area.

A barrier would be constructed along eastbound SR-56 between El Camino Real and Carmel Creek Road, which would eliminate the eastbound SR-56 slip-off-ramp to Carmel Creek Road. Drivers traveling east would use local street alternatives to access Carmel Creek Road.

Auxiliary Lanes along I-5 and SR-56

An auxiliary lane facilitating merging traffic would be constructed along westbound SR-56 between Carmel Creek Road and Carmel Country Road and along the northbound local bypass between Carmel Valley Road and Del Mar Heights Road.

Ramp Improvements

Several local street interchanges would be modified to accommodate the new configurations on and along I-5 and SR-56. The southbound I-5 off-ramp at Carmel Valley Road would be widened to two lanes at the exit, and the northbound and southbound I-5 off-ramps at Carmel Valley Road would be widened to four lanes at the intersections. The northbound I-5 on-ramp at Carmel Valley Road would be realigned to accommodate the west-to-north direct connector. The westbound loop on-ramp at Carmel Creek Road would be realigned to accommodate the proposed west-to-north direct connector, and the eastbound off-ramp at Carmel Creek Road would be widened to two lanes at the exit and four lanes at the intersection. The westbound loop on-ramp at Carmel Country Road would be realigned to accommodate the widened SR-56 freeway mainline. Ramp meters and CHP pull-out pads would be included for on-ramps at the western segment of Carmel Valley Road, Del Mar Heights Road, Carmel Creek Road, and Carmel Country Road interchanges. Carmel Valley Road would be widened to eight lanes east of I-5 and the Carmel Valley Road/SR-56 on-ramp intersection would be widened to accommodate higher traffic volumes.

Reconstruction of Del Mar Heights Road Overcrossing and Other Improvements

Reconstruction of the Del Mar Heights Road overcrossing and associated operational improvements also are proposed with this alternative. This alternative would include the construction of 13 retaining walls (see Figures 2-6a through 2-6f).

Estimated Cost

As shown in Table 2-1, the estimated cost (ROW, support, and construction) for the Hybrid Alternative would be approximately $160 to $180 million.

HYBRID WITH FLYOVER ALTERNATIVE (ALTERNATIVE 5)

The Hybrid with Flyover Alternative emerged from input provided by community participants at Steering Committee meetings. The public consistently suggested incorporating an alternative that included a direct freeway entrance from Carmel Valley Road into the fast lane of eastbound SR-56. Caltrans considered this recurring comment from the public and developed the Hybrid with Flyover Alternative.

The Hybrid with Flyover Alternative is a variation of the Hybrid Alternative. In addition to the construction of a two-lane west-to-north direct connector, a southbound I-5 auxiliary lane between the Del Mar Heights Road on-ramp and the Carmel Valley Road off-ramp, and the widening of the northbound and southbound off-ramps at Carmel Valley Road, the Hybrid with Flyover Alternative proposes the construction of an on-ramp to directly connect eastbound Carmel Valley Road to the eastbound SR-56 fast lane. This feature would allow traffic traveling from southbound I-5 to eastbound SR-56 to bypass the signalized intersection at El Camino Real.

A Typical Drive on the Hybrid with Flyover Alternative

For the Hybrid with Flyover Alternative, drivers traveling eastbound on SR-56 from southbound I-5 would exit via the auxiliary lane and widened off-ramp at Carmel Valley Road (see Figures 2-2a and 2-2b). Drivers would turn left onto Carmel Valley Road, go through the Carmel Valley Road/northbound I-5 on-ramp intersection, travel over El Camino Real and westbound SR-56 via a grade-separated ramp structure, and then directly enter the eastbound SR-56 mainline from the left two lanes (see Figure 2-3). This eastbound SR-56 on-ramp would connect directly to the eastbound SR-56 fast lane. Barriers would separate the eastbound SR-56 on-ramp traffic from the northbound I-5 local bypass traffic merging onto eastbound SR-56 and the merging El Camino Real/eastbound SR-56 on-ramp intersection traffic to prevent multi-lane weaving. Additionally, the slip-off-ramp to Carmel Creek Road from the existing northbound I-5 to eastbound SR-56 connector would be removed.

Figure 2-3. This view is looking west from westbound SR-56 at the El Camino Real exit. The Hybrid with Flyover Alternative's grade-separated eastbound SR-56 on-ramp structure from Carmel Valley Road is shown passing over the westbound SR-56 to northbound I-5 and westbound SR-56 to southbound I-5. Drivers traveling southbound on I-5 and wishing to head east on SR-56 would still exit at Carmel Valley Road, go through two signalized intersections, and enter eastbound SR-56 from this flyover on-ramp structure from the two far left lanes on Carmel Valley Road

Figure 2-3 **Representation Photograph**

Drivers traveling northbound on I-5 from westbound SR-56 would take the I-5 north ramp (see Figure 2-1c) and merge onto northbound I-5 between the I-5 northbound traffic and the Carmel Valley Road on-ramp traffic (see Figure 2-1d).

As shown in Table 1-2, the projected ADT for the Hybrid with Flyover Alternative would have the same traffic volumes as the Hybrid Alternative. The projected ADT along southbound and northbound I-5 between Via de la Valle and Del Mar Heights Road are 180,690 and 181,700, respectively. The projected ADT along southbound and northbound I-5 between Del Mar Heights Road and Carmel Valley Road are 179,550 and 183,200, respectively. The ADT for all northbound I-5 segments would be greater than for the No Build Alternative in 2030, as freeway movements were shifted from local streets to the freeway facilities (between Via de la Valle and Del Mar Heights Road—5,350; between Del Mar Heights Road and Carmel Valley Road—10,260). The ADT for all southbound I-5 segments would be the same as for the No Build Alternative in 2030.

The projected ADT along eastbound and westbound SR-56 between El Camino Real and Carmel Creek Road are 76,270 and 79,460, respectively. The projected ADT along eastbound and westbound SR-56 between Carmel Creek Road and Carmel Country Road are 71,600 and 76,330, respectively. The projected ADT along eastbound and westbound SR-56 between Carmel Country Road and Carmel Valley Road are 62,170 and 62,500, respectively. The ADT for eastbound SR-56 between Carmel Creek Road and Carmel Country Road and all westbound SR-56 segments would be greater than for the No Build Alternative in 2030, as freeway movements were shifted from local streets to the freeway facilities (between El Camino Real and Carmel Creek Road—8,610; between Carmel Creek Road and Carmel Country Road—4,030 and 13,220; and between Carmel Country Road and Carmel Valley Road—6,260; respectively). The ADT for eastbound SR-56 segments between El Camino Real and Carmel Creek Road and between Carmel Country Road and Carmel Valley Road would be the same as for the No Build Alternative in 2030.

Project Features

As with the Hybrid Alternative, the Hybrid with Flyover Alternative includes the proposed west-to-north connector featured as part of the Direct Connector Alternative. The Hybrid with Flyover Alternative would require use of non-standard lane and shoulder widths along Carmel Valley Road and would require tunneling behind the Carmel Valley Road undercrossing abutments to provide pedestrian/bicycle access. Figures 2-7a through 2-7f at the end of the chapter illustrate the project features of the Hybrid with Flyover Alternative. The following are detailed project feature descriptions of the proposed Hybrid with Flyover Alternative.

Extension of the I-5 Local Bypass

The Hybrid with Flyover Alternative would extend the I-5 local bypass in the northbound direction to the Del Mar Heights Road interchange. As such, northbound vehicles entering and exiting the freeway between Del Mar Heights Road and Carmel Valley Road would use the local bypass system. A concrete barrier would separate the freeway mainline traffic from the local bypass. The west-to-north connector would merge with the northbound bypass near Carmel Valley Road before entering the northbound freeway mainline at Del Mar Heights Road.

Separation Barrier on Westbound SR-56 and Removal of the Carmel Creek Road Slip-Off-Ramp

A barrier-separated C-D system along westbound SR-56 would separate the westbound to southbound traffic from the westbound to northbound traffic just east of the Carmel Creek Road interchange. This C-D system would eliminate access to the west-to-south direct connector for traffic entering westbound SR-56 at Carmel Creek Road and eliminate potential for multi-lane weaving through this area.

A barrier would be constructed along eastbound SR-56 between El Camino Real and Carmel Creek Road that would eliminate the eastbound SR-56 slip-off-ramp to Carmel Creek Road. Drivers traveling east would use local street alternatives to access Carmel Creek Road.

Auxiliary Lanes along I-5 and SR-56

An auxiliary lane for facilitating merging traffic would be constructed along eastbound and westbound SR-56 between Carmel Creek Road and Carmel Country Road, and along the northbound local bypass between Carmel Valley Road and Del Mar Heights Road.

Ramp Improvements

Several local street interchanges would be modified to accommodate the new configurations on and along I-5 and SR-56. The southbound I-5 off-ramp at Carmel Valley Road would be widened to two lanes at the exit, and both the northbound and southbound I-5 off-ramp intersections at Carmel Valley Road would be widened to four lanes. The northbound on-ramp at Carmel Valley Road would be realigned to accommodate the west-to-north direct connector. The interchange ramps at Carmel Creek Road would be realigned to accommodate the eastbound flyover ramp, and the eastbound off-ramp at Carmel Creek Road would be widened to two lanes at the exit and four lanes at the intersection. Ramp meters and CHP pull-out pads would be included for on-ramps at the Carmel Valley Road, Del Mar Heights Road, Carmel Creek Road, and Carmel Country Road interchanges. Carmel Valley Road would be widened to eight lanes east of I-5 and the Carmel Valley Road/SR-56 on-ramp intersection would be widened to accommodate higher traffic volumes.

Reconstruction of Del Mar Heights Road Overcrossing and Other Improvements

Reconstruction of the Del Mar Heights Road overcrossing and associated operational improvements also are proposed with this alternative. This alternative would include the construction of 21 retaining walls (see Figures 2-7a through 2-7f).

Estimated Cost

As shown in Table 2-1, the estimated cost (ROW, support, and construction) for the Hybrid with Flyover Alternative would be approximately $205 to $225 million.

2.3.3 PROJECT PHASING AND CONSTRUCTION

Project construction concepts for the build alternatives currently indicate that it may likely occur in multiple stages to minimize temporary impacts to traffic flow, local businesses, and the community. Because of the varying levels of complexity and size of the alternatives, the number of stages and the duration of each stage would differ, depending on the alternative. A preliminary staging plan was developed to accommodate existing traffic volumes for the proposed project; however, actual staging could change in the final design or during construction, based on the contractor, financing, and final engineering constructability requirements. Generally, construction staging for each of the four build alternatives can be described as follows.

DIRECT CONNECTOR ALTERNATIVE (ALTERNATIVE 2)

Construction of the Direct Connector Alternative would be completed in five stages. Stage one construction would include the realignment of Portofino Circle, the construction of the retaining walls along the freeways, and the majority of the grading would occur. I-5, SR-56, and several of the interchange ramps requiring modification would be widened. The northern portion of the new

overcrossing at Del Mar Heights Road and the foundations and abutments for the direct connectors would be constructed.

During stage two, traffic along Del Mar Heights Road would be shifted to the newly constructed northern portion of the overcrossing during construction of the overcrossing's southern portion. Completion of the remaining improvements to the interchange ramps at Del Mar Heights Road and Carmel Valley Road and the construction of the approach ramps for the direct connectors would occur. Additionally, widening would occur at the El Camino Real undercrossing, along the SR-56 mainline and interchange ramps, and at eastbound Carmel Valley Road to the south. Partial realignment of the northbound and southbound bypasses and removal of the existing eastbound slip-off-ramp to Carmel Creek Road also would occur during stage two.

Stage three would include initial construction of the direct connector structures and the completion of the southbound and northbound I-5 local bypass extensions. In addition, SR-56 would be widened to the inside median, and ramp construction along SR-56 would continue.

During stage four, all freeway-to-freeway traffic would be shifted from Carmel Valley Road to the newly constructed direct connectors while partial widening of Carmel Valley Road and ramp construction at the SR-56 interchange with El Camino Real occurred. Stage five construction would include the completion of improvements along Carmel Valley Road and at the SR-56/El Camino Real interchange.

AUXILIARY LANE ALTERNATIVE (ALTERNATIVE 3)

Construction of the Auxiliary Lane Alternative would be notably less complex than that of the Direct Connector Alternative because it would have shorter retaining walls and involve less freeway widening, and would not require construction of direct connectors or extension of the I-5 local bypasses. Construction of the Auxiliary Lane Alternative would be completed in two stages.

During stage one, construction of the retaining walls along the freeways and the majority of the grading work would occur. I-5, SR-56, and all interchange ramps requiring modification would be widened to the outside. Additionally, construction of the northern portion of the new overcrossing at Del Mar Heights Road and widening of eastbound Carmel Valley Road to the south would occur.

During stage two, traffic would be shifted from Del Mar Heights Road to the newly constructed northern portion of the overcrossing while the southern portion was constructed. The remaining widening along I-5, SR-56, and Carmel Valley Road, and the remaining improvements to all interchange ramps would be completed.

HYBRID ALTERNATIVE (ALTERNATIVE 4)

Construction of the Hybrid Alternative would be more complex than that of the Auxiliary Lane Alternative, but not as complex as construction of the Direct Connector Alternative. The Hybrid Alternative would be constructed in three stages.

During stage one, construction of the retaining walls along the freeways and the majority of the grading work would occur. I-5, SR-56, and all interchange ramps requiring modification would be widened to the outside. Additionally, construction of the northern portion of the new overcrossing at Del Mar Heights Road and the foundations and abutments for the direct connector would be constructed.

During stage two construction, traffic would be shifted from Del Mar Heights Road to the newly constructed northern portion of the overcrossing while the southern portion was constructed. In addition, completion of the remaining improvements to the interchange ramps at Del Mar Heights Road and Carmel Valley Road, construction of the approach ramp for the direct connector, partial

realignment of the northbound bypass, and removal of the existing eastbound slip-off-ramp to Carmel Creek Road would occur. Furthermore, the El Camino Real undercrossing, the SR-56 mainline and interchange ramps, and eastbound Carmel Valley Road to the south would be widened.

During stage three, construction of the direct connector structure and completion of the northbound I-5 local bypass extension would occur. In addition, the remaining construction along SR-56 and widening of Carmel Valley Road would be completed.

HYBRID WITH FLYOVER ALTERNATIVE (ALTERNATIVE 5)

Construction of the Hybrid with Flyover Alternative would be similar in complexity and duration to that of the Direct Connector Alternative. The Hybrid with Flyover Alternative would be constructed in four stages.

During stage one, construction of the retaining walls along the freeways and the majority of the grading work would occur. I-5, SR-56, and all interchange ramps requiring modification would be widened to the outside. The northern portion of the new overcrossing at Del Mar Heights Road and the foundations and abutments for the direct connector would be constructed.

During stage two construction, the traffic would be shifted from Del Mar Heights Road to the newly constructed northern portion of the overcrossing while the southern portion was constructed. Stage two also would include: the construction of the remaining improvements to the interchange ramps at Del Mar Heights Road, Carmel Valley Road, and the approach ramp for the direct connector; the partial realignment of the northbound bypass; and the removal of the existing eastbound slip-off-ramp to Carmel Creek Road. Widening would occur at the El Camino Real undercrossing, along the SR-56 mainline and interchange ramps, and along eastbound Carmel Valley Road to the south. Additionally, the foundations and abutments for the eastbound SR-56/Carmel Valley Road left-lane on-ramp ("flyover") structure would be constructed.

During stage three, construction of the direct connector structure, completion of the northbound I-5 local bypass extension, and widening of Carmel Valley Road would occur. Stage four construction would include completion of the approach ramps and structure for the eastbound flyover and the remaining improvements at the SR-56/El Camino Real interchange.

TRAFFIC DELAYS ASSOCIATED WITH CONSTRUCTION ACTIVITIES

Because construction would involve modification to existing facilities, traffic disruptions during construction are anticipated for the proposed I-5/SR-56 interchange project. Future ramps would be constructed before existing ramp closures, to reduce the need for ramp detours. Transit and non-motorized routes would not be closed and, therefore, would not need detours. Some delays may occur for short-term traffic handling. Because traffic control could be employed during the late-night and early morning hours, construction requiring lane closures would be conducted at night as often as possible, to reduce traffic disruption. In addition, construction operations being performed adjacent to moving traffic would be protected to prevent vehicles from entering the construction zone.

Additionally, the proposed I-5/SR-56 interchange project was designed with consideration of the I-5 NCC Project. Caltrans would ensure that no design features of either project, such as retaining walls and soundwalls, would need to be reconstructed for the second project. Both projects would be independent of each other and either could be constructed without the other.

FINAL DECISION-MAKING PROCESS

After the public circulation period, all comments would be considered, and Caltrans would select a preferred alternative and make the final determination of the proposed project's effect on the environment. In accordance with CEQA, Caltrans would certify that the proposed project would comply with CEQA, would prepare findings for all significant impacts identified, would prepare a Statement of Overriding Considerations for impacts that would not be mitigated below a level of significance, and would certify that the findings and Statement of Overriding Considerations were considered before project approval. Caltrans then would file a Notice of Determination (NOD) with the State Clearinghouse to identify whether the project would have significant impacts, if mitigation measures were included as conditions of project approval, that findings were made, and that a Statement of Overriding Considerations was adopted. With respect to NEPA, Caltrans, as assigned by FHWA, would document and explain its decision regarding the selected alternative, project impacts, and mitigation measures in a Record of Decision (ROD), in accordance with NEPA.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION

The following discussion summarizes the alternatives that were considered and withdrawn from further consideration. The design team used the Steering Committee's input that was based upon the eleven screening criteria identified in Section 2.2. The design team process is driven to focus upon the early analysis and systematically screen alternatives until the best alternatives fulfilling the purpose and need remain for full analysis and consideration by the Project Design Team in search of the preferred alternative. It is an iterative process and calls for multiple looks at alternatives using all eleven of the criteria, although any one of the criteria may create the compelling reason to screen an alternative.

The Steering Committee used a screening criteria matrix that was based on key focal points identified by Caltrans to evaluate project alternatives. Caltrans then used the Steering Committee's input to establish the project alternatives, discussed in Section 2.3. The key focal points were:

2.4.1 NORTH CROSSOVER ALTERNATIVE

With the North Crossover Alternative, the south-to-east connector would cross the freeway approximately 1,970 feet south of Del Mar Heights Road from the west side of I-5 and then would run parallel to the east side of I-5. The south-to-east connector would run at-grade and parallel to the northbound bypass lanes before re-elevating to cross the westbound-to-northbound connector and tying into eastbound SR-56.

This south-to-east connector would be located farther north than with the Direct Connector Alternative, but would be similar in height to the "standard" direct connector. The North Crossover Alternative would have minimal right-of-way impacts to parcels near the intersection of Portofino Drive and Portofino Circle; however, it would have impacts to parcels at the northern end of Portofino Drive. In addition, this alternative would have impacts to existing commercial buildings, a parking structure, and parking lots along the east side of I-5. Furthermore, to cross the I-5 mainline from the west side and run parallel to the east side of I-5, this alternative would require the construction of a unique and costly long-spanned bridge.

2.4.2 SOUTH CROSSOVER (HORSESHOE) ALTERNATIVE

With the South Crossover Alternative, the south-to-east connector would exit from I-5 approximately 820 feet north of Carmel Valley Road, extending south of SR-56 where it would make a "U" turn over I-5 and tie into eastbound SR-56.

This south-to-east connector would be located farther south than with the Direct Connector Alternative but would be similar in height to the "standard" direct connector. The South Crossover Alternative would have right-of-way impacts to parcels along Portofino Drive that would be similar in magnitude to those associated with the Direct Connector Alternative. The location of the south-to-east connector exit ramp would minimize impacts to Portofino Circle; however, it would result in the need to remove and replace nearly 1,150 feet of the existing southbound bypass structure. In addition, the sharp 360-foot radius that would curve over the I-5 mainline would have a design speed of approximately 35 to 40 miles per hour (mph), which would not meet the advisory design speed that is recommended in the Highway Design Manual (HDM) used for highway design in California.

Several "U" turns were studied for this alternative, which ranged in radius from 360 feet to the standard 720 feet, and several crossover locations were studied, which ranged from 330 to 3,610 feet south of Carmel Valley Road. The overall trend for these variations indicated that impacts to Los Peñasquitos Lagoon would increase as the turning radius increased and the farther south the crossover was located. To achieve an adequate turning radius, the south-to-east connector would impact the CVREP on the east side of I-5, resulting in biological impacts to an environmentally sensitive area.

2.4.3 LOOP OVER I-5 ALTERNATIVE

With the Loop Over I-5 Alternative, the south-to-east connector ramp would exit from I-5 approximately 820 feet north of Carmel Valley Road, travel over Carmel Valley Road, and then over the bypass lanes. The connector would then loop and run parallel to Carmel Valley Road while crossing over the southbound bypass, its alignment, the northbound bypass, I-5, and the existing north-to-east and west-to-south connector structures.

This south-to-east connector would cross over the existing westbound-to-southbound and northbound-to-eastbound connectors, where its height would be similar to the "standard" direct connector. This alternative would have right-of-way impacts to parcels along Portofino Drive that would be similar in magnitude to those associated with the Direct Connector Alternative. The location of the south-to-east connector exit ramp would minimize impacts to Portofino Circle; however, it would result in the need to remove and replace nearly 1,150 feet of the existing southbound bypass structure. In addition, an extra 1,640 to 3,940 feet of structure would be required for the south-to-east connector.

Several loops were studied for this alternative, ranging in radius from 165 feet to the standard 720 feet. The smallest feasible loop radius would facilitate keeping the footprint within the existing disturbed area; however, this radius would not meet mandatory design speeds recommended in the HDM and would not be safe. The larger loop radius would result in encroachment of the aerial structure over the Los Peñasquitos Lagoon and adverse impacts to wetland habitat. The VA Report determined that this alternative would not be feasible because of the lack of cost savings potential, adverse environmental impacts, and constructability issues.

2.4.4 LOOP UNDER I-5 ALTERNATIVE

The Loop Under I-5 Alternative would be similar to the Loop Over I-5 Alternative discussed above, except that the loop would have a steep slope downward to go under Sorrento Valley Road, the southbound Carmel Valley Road entrance ramp, the northbound Carmel Valley Road exit ramp, and I-5

parallel to Carmel Valley Road. To avoid impacting the column foundations for the existing west-to-south and north-to-east connectors, the alignment for the south-to-east connector would run through the CVREP area. In addition to the increase in the potential environmental impacts associated with this alternative, it would require extensive tunneling operations and the construction of four new under-crossings at each of the previously listed locations to bypass the signalized intersections. The construction of new under-crossings beneath I-5 would be very costly and would not be practical. The VA Report determined that this alternative would not be feasible because of the lack of cost savings potential, adverse environmental impacts, and constructability issues.

2.4.5 GRADE SEPARATED INTERSECTIONS WITH CARMEL VALLEY ROAD AND EL CAMINO REAL ALTERNATIVE

The Grade Separation with Carmel Valley Road and El Camino Real Alternative is based on grade separating the SR-56 ramps at the intersections of El Camino Real to bypass the signals and provide direct access to Carmel Valley Road for both local and regional traffic. This alternative would impact all of the businesses located along Carmel Valley Road between El Camino Real and the I-5 ramps. This alternative also would require the acquisition of the Shell gas station. Furthermore, the closure of local access to SR-56 from El Camino Real and the removal of the eastbound Carmel Valley Road to northbound I-5 movement would limit the operational benefits of this alternative. Because of operational and safety issues, this alternative was withdrawn from further consideration and was determined not feasible in the VA Report.

2.4.6 "LONG BRIDGE" ALTERNATIVE

The "Long Bridge" Alternative is a variation of the Direct Connector Alternative that would attempt to use a pocket of right-of-way along southbound I-5 at the beginning of the connector. The design would result in a 985-foot-long extension on the south-to-east connector, with no reductions in right-of-way impacts or retaining wall height. Because it would feature increased structural costs and visual impacts, this alternative was withdrawn from consideration.

2.4.7 DIRECT CONNECTOR TUNNEL ALTERNATIVE

With the Direct Connector Tunnel Alternative, the south-to-east connector would follow a tunnel alignment below I-5. The tunnel portals would be located south of Del Mar Heights Road along the west side of I-5 and just west of the Carmel Valley Road/El Camino Real intersection. Preliminary tunnel sections and geotechnical borings were performed in the vicinity. The data indicated that construction would need to be performed in difficult and unstable ground, namely sands and gravels under high groundwater levels. Large excavations like these that are constructed in soft ground with high groundwater levels are known to result in high settlements, on the order of inches to feet. High settlements also can occur if groundwater flow is not controlled during construction. An extensive grouting program likely would be required and the tunnel would need to be constructed with special tunneling equipment. This risk of settlements and sinkholes impacting I-5 would be a concern, and whether these risks could be fully mitigated would remain uncertain. The cost of such mitigation likely would be substantial. In addition, several segments of the existing west-to-south and north-to-east connectors would be required to undergo significant retrofit and/or reconstruction. The above limitations for a tunnel under I-5 reviewed against the safety, cost, and constructability criteria caused this alternative to be screened. It was noted by the design team that the LOSSAN Board has embraced an improvement alternative using tunneling as a result of their screening process. For the railway project, overriding considerations to these same screening criteria used by Caltrans applied against railroad design constraints produced a different result; unique alignment constraints acted to limit railway alternatives to accomplish its purpose and need and kept tunneling as an alternative being considered.

2.4.8 DIRECT CONNECTOR WITH EASTBOUND ACCESS TO CARMEL CREEK ROAD ALTERNATIVE

The Direct Connector with Eastbound Access to Carmel Creek Road Alternative would attempt to maintain the existing exit ramp from the north-to-east connector to Carmel Creek Road. The south-to-east connector would be extended farther east, to allow access to Carmel Creek Road from the existing connector and maintain the necessary clearance for the slip-off-ramp to pass underneath. The two-lane connector would enter the existing SR-56 mainline at grade. The realigned slip-off-ramp would parallel the connector, as the El Camino Real on-ramp merged and the Carmel Creek Road off-ramp diverged from the alignment, which would provide approximately 1,150 feet of weaving distance. The alignment then would merge back into the SR-56 mainline downstream of the connector, allowing vehicles from El Camino Real to enter eastbound SR-56.

This alternative would have a peak-hour traffic volume of approximately 4,000 vehicles per hour for vehicles attempting to weave from SR-56 to Carmel Creek Road and El Camino Real to SR-56. This volume would operate at LOS F for the weaving section, indicating poor operating conditions. The weave would have the potential to impact operations along the mainline, creating hazardous conditions on the existing connector. In addition, the HDM requires a minimum weave length of 1,640 feet; this alternative would provide only 1,150 feet of weave length.

This alternative also would result in impacts to the CVREP because of the lane configuration and widening that would be required to accommodate the entering and exiting vehicles. This would expand the freeway beyond the boundaries of the CVREP. Because the CVREP is an existing mitigation site, impacts would require much higher habitat/species replacement ratios.

Because of safety, geometric, increased environmental impacts, and operational deficiencies, this alternative was withdrawn from further consideration.

2.4.9 DIVERGING DIAMOND AT CARMEL VALLEY ROAD UNDER I-5 ALTERNATIVE

With the Diverging Diamond at Carmel Valley Road under I-5 Alternative, a diamond interchange would be featured, where the traffic on both sides of Carmel Valley Road between the signalized intersections of the northbound I-5 on-/off-ramp and the southbound I-5 off-/on-ramp would crisscross to opposite sides under the I-5 overpass. This alternative would remove all possible left turns, needed to clear opposing traffic and improve the efficiency of the interchange.

Caltrans and the PDT considered this alternative but found many issues that would not warrant its construction. The PDT determined that the use of a diverging diamond configuration at this location would present some significant geometric and sign design challenges. Potential operational shortcomings would occur because of limited room for storage of vehicles, which would cause delay. Additionally, the PDT determined that this alternative would create issues with pedestrian and bicycle safety, driver familiarity, and wrong-way movements, and would require full property acquisition of the Shell gas station because of the elimination of access. FHWA and Caltrans rejected this as a viable alternative and, therefore, this alternative was not presented to the Steering Committee.

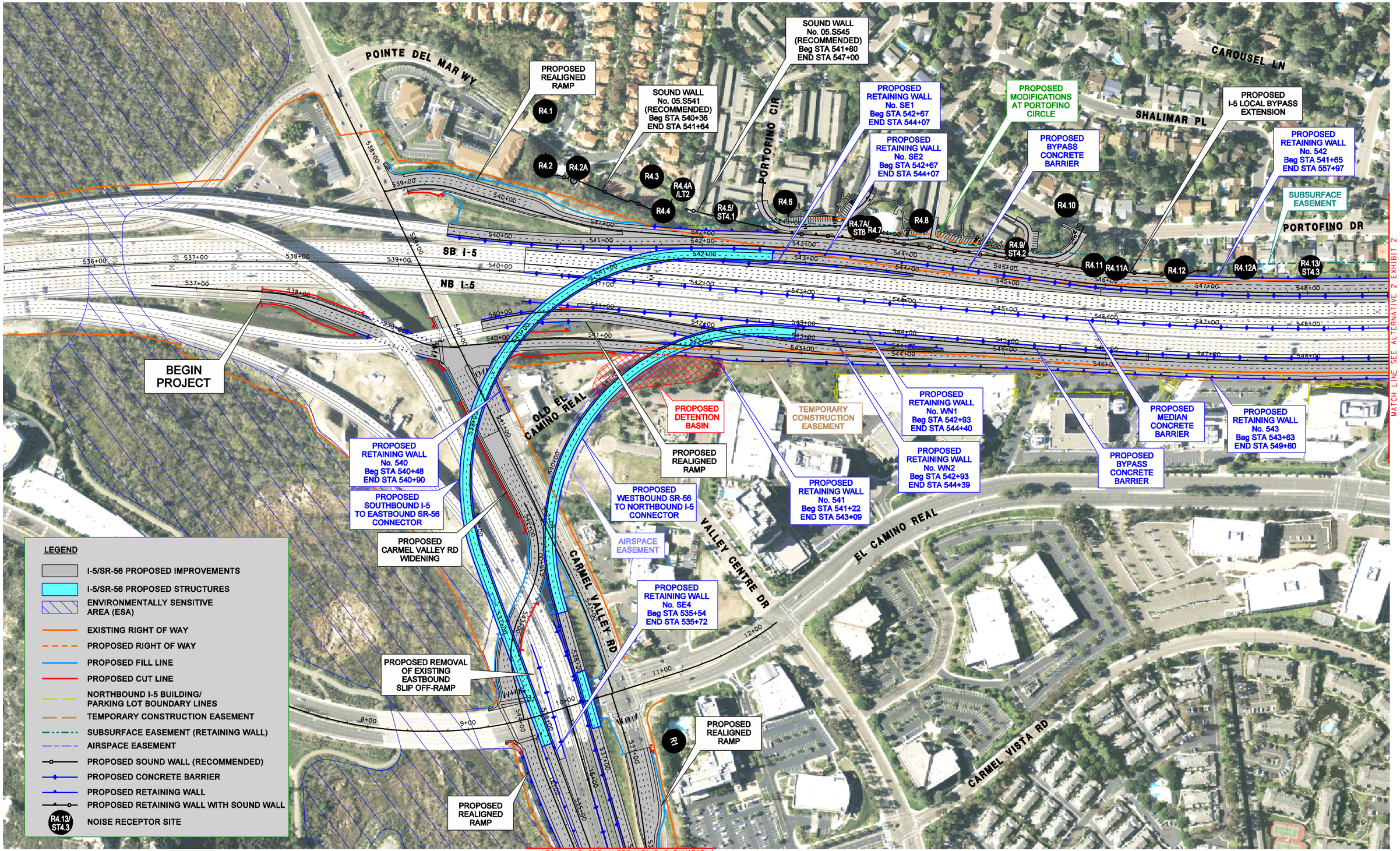
2.5 PERMITS AND APPROVAL NEEDED

The permits listed in Table 2-3 would be required for the proposed project. Caltrans would continue to work closely with all of the resource agencies to maintain communication and coordination throughout the project development process and receipt of the various permits.

Table 2-3. Permits and Approval Needed for the Proposed Project

Agency	Permit/Approval	Status
California Coastal Commission	Coastal Development Permit Federal Consistency Determination	Pending
California Transportation Commission	Funds Appropriation and New Freeway Access	Pending
California Public Utilities Commission	Utility Construction Permit Request	Pending
Regional Water Quality Control Board	401 Certification	Pending
City of San Diego	Freeway Agreement	Pending

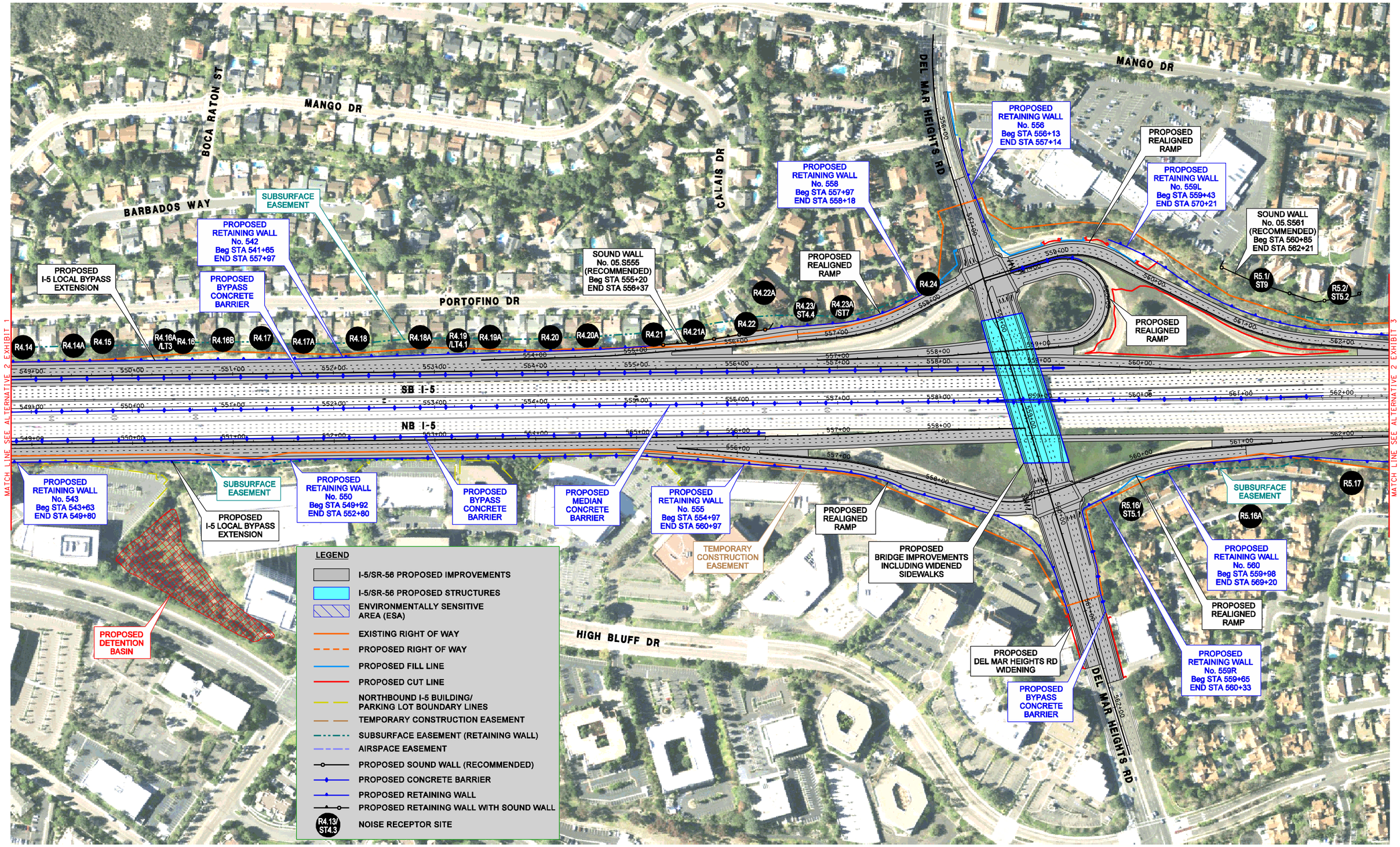
Source: Compiled by AECOM in 2011



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

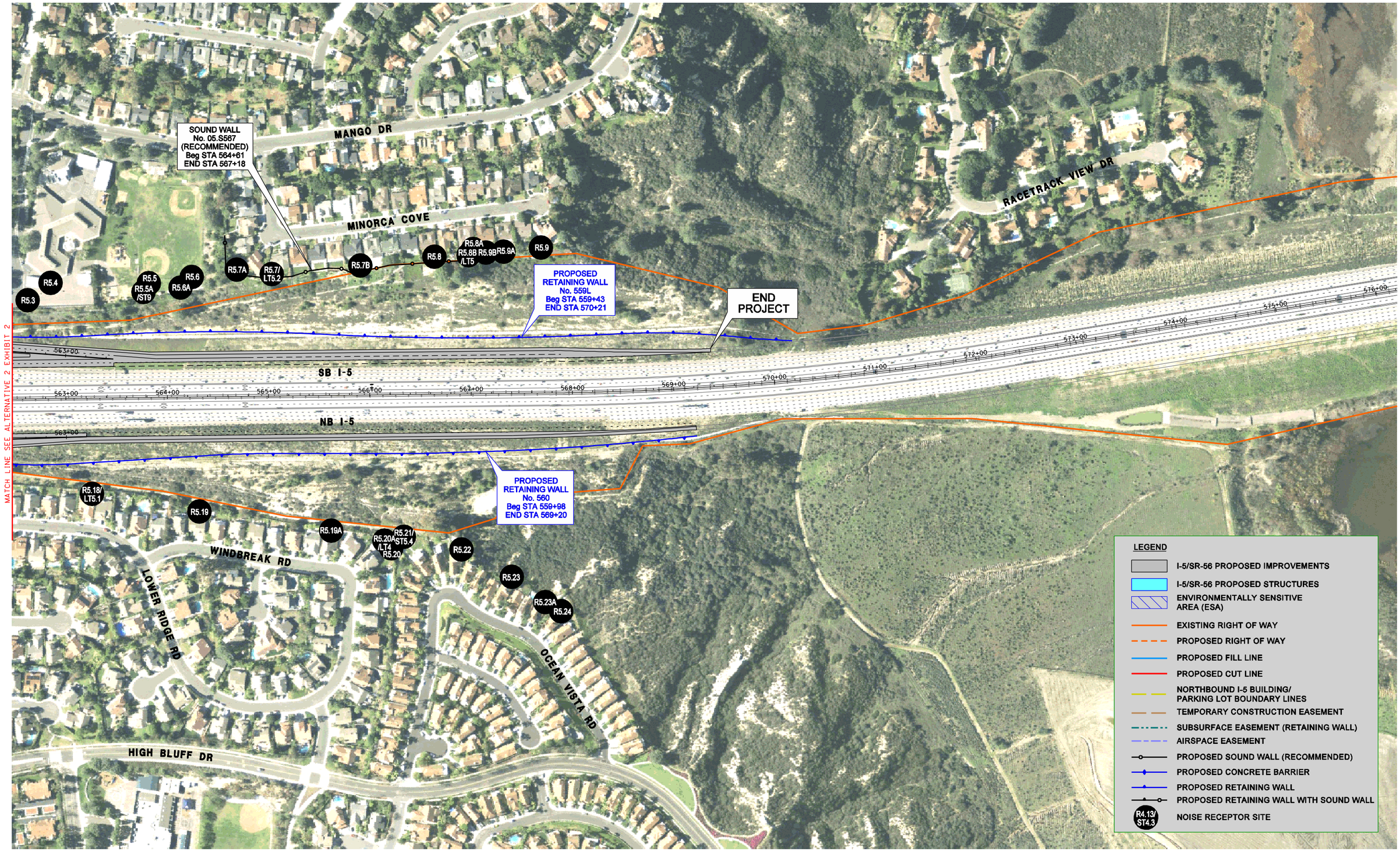
Figure 2-4a
Project Features for the Direct Connector Alternative (Alternative 2) - Exhibit 1 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

Figure 2-4b
Project Features for the Direct Connector Alternative (Alternative 2) - Exhibit 2 of 6

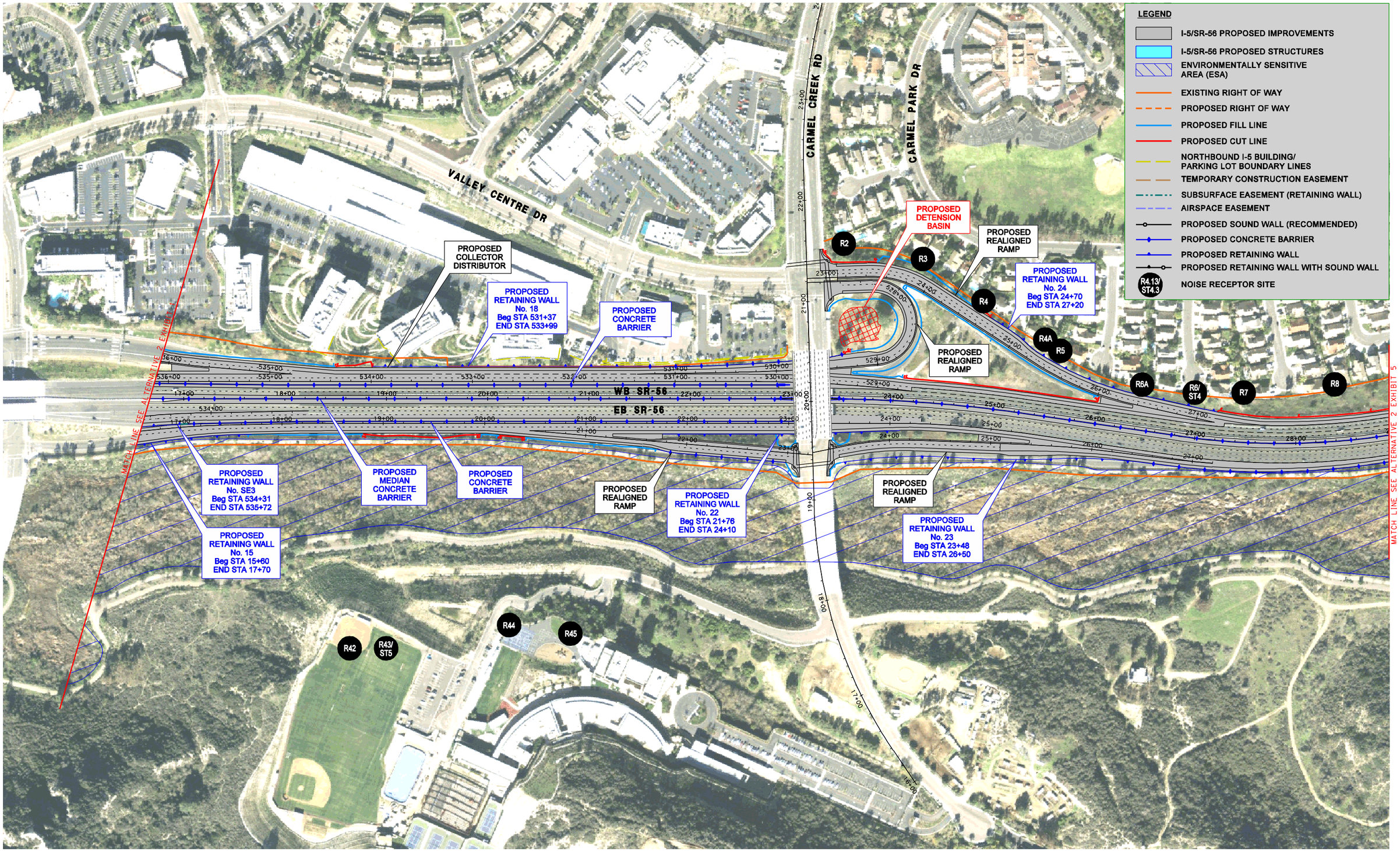


Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

Metric

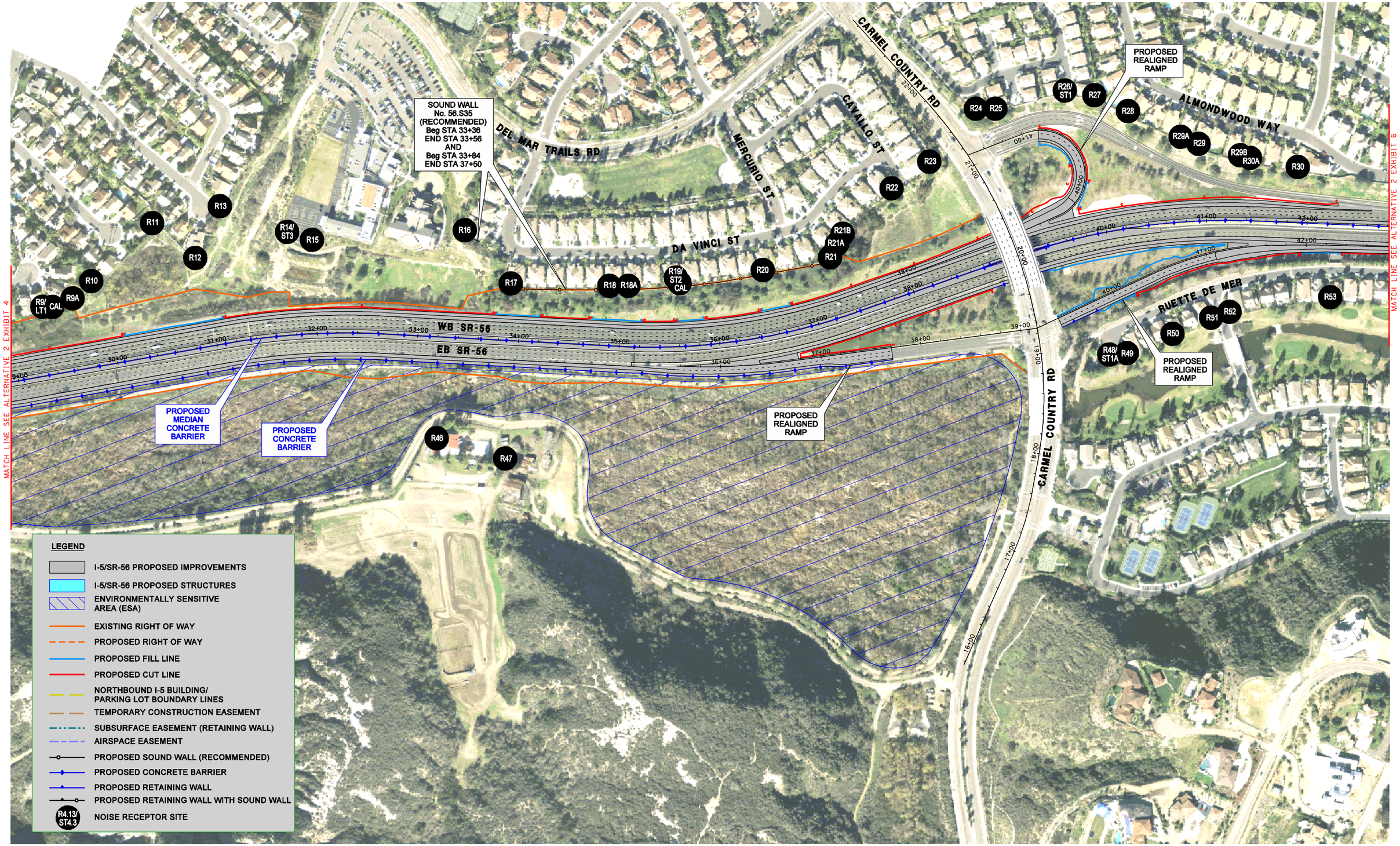
Figure 2-4c
Project Features for the Direct Connector Alternative (Alternative 2) - Exhibit 3 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

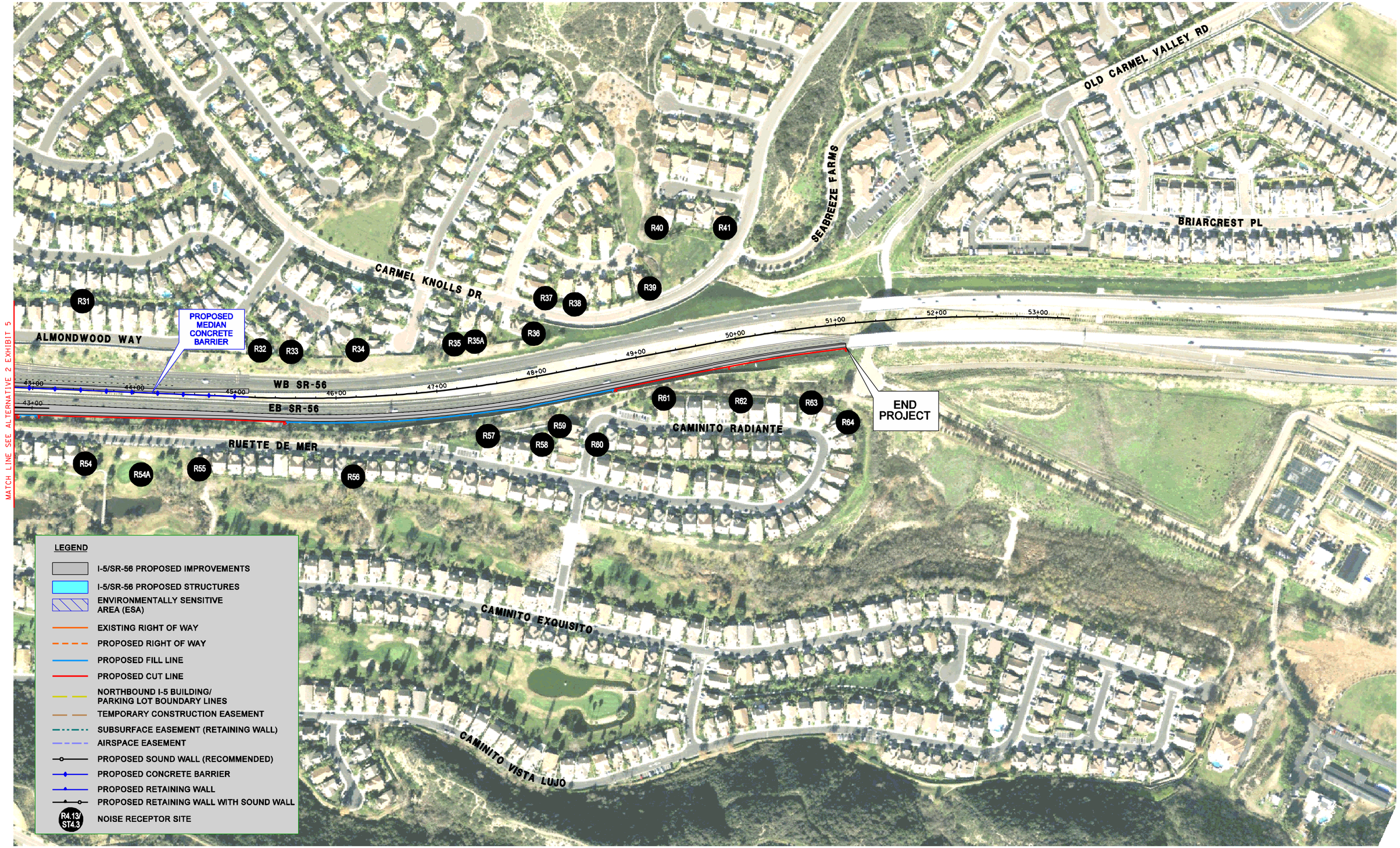
Figure 2-4d
Project Features for the Direct Connector Alternative (Alternative 2) - Exhibit 4 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

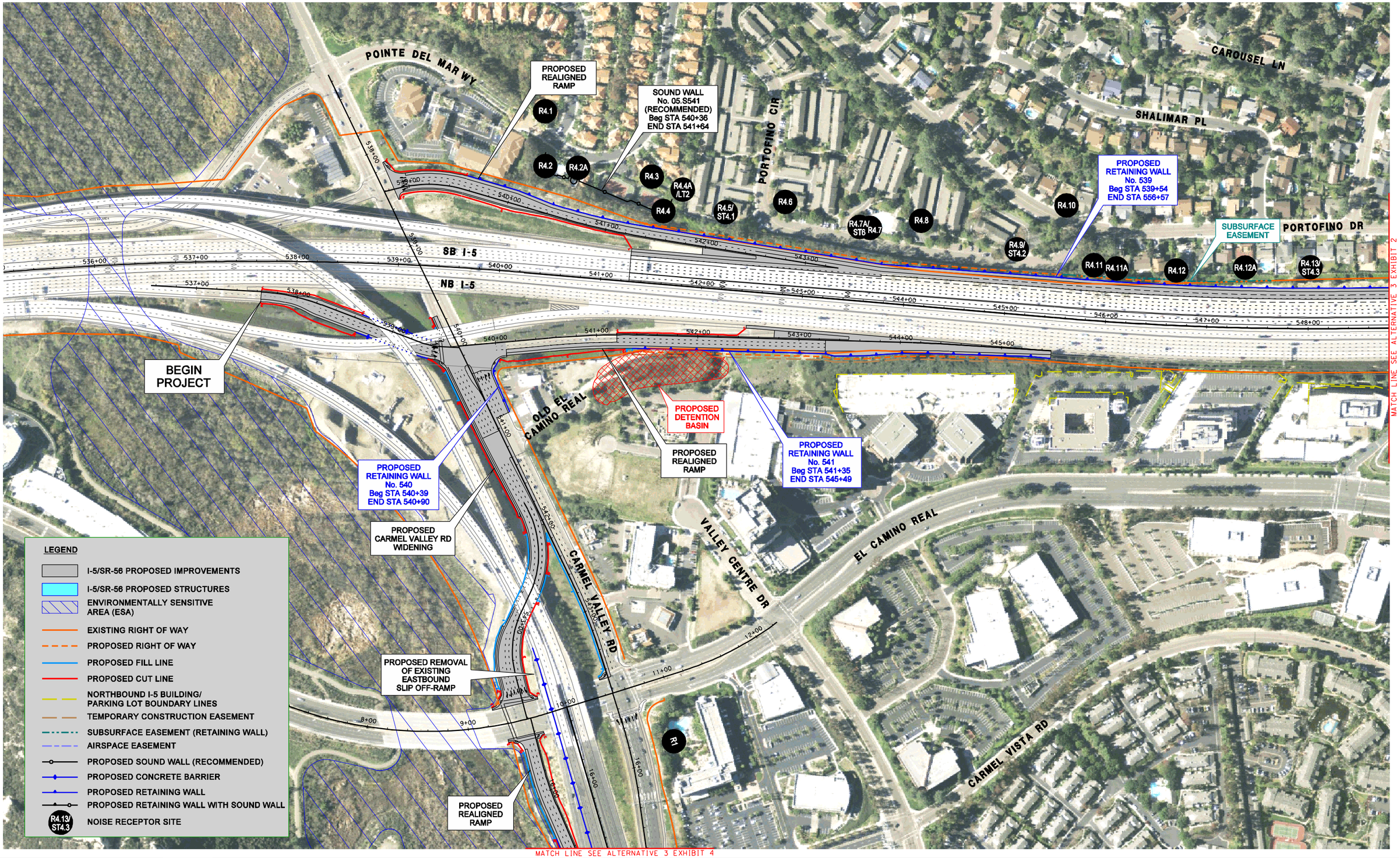
Figure 2-4e
Project Features for the Direct Connector Alternative (Alternative 2) - Exhibit 5 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

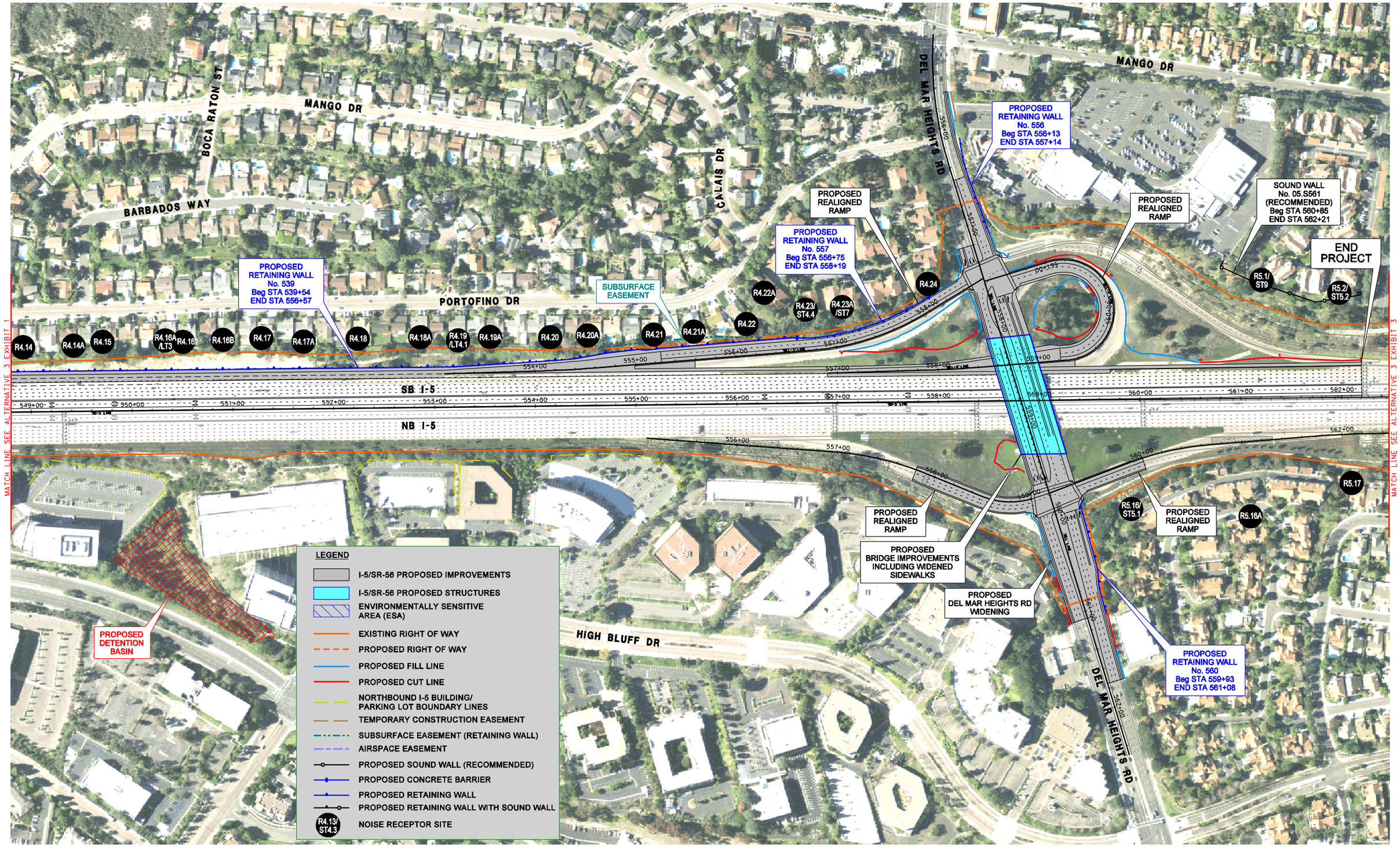
Figure 2-4f
Project Features for the Direct Connector Alternative (Alternative 2) - Exhibit 6 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

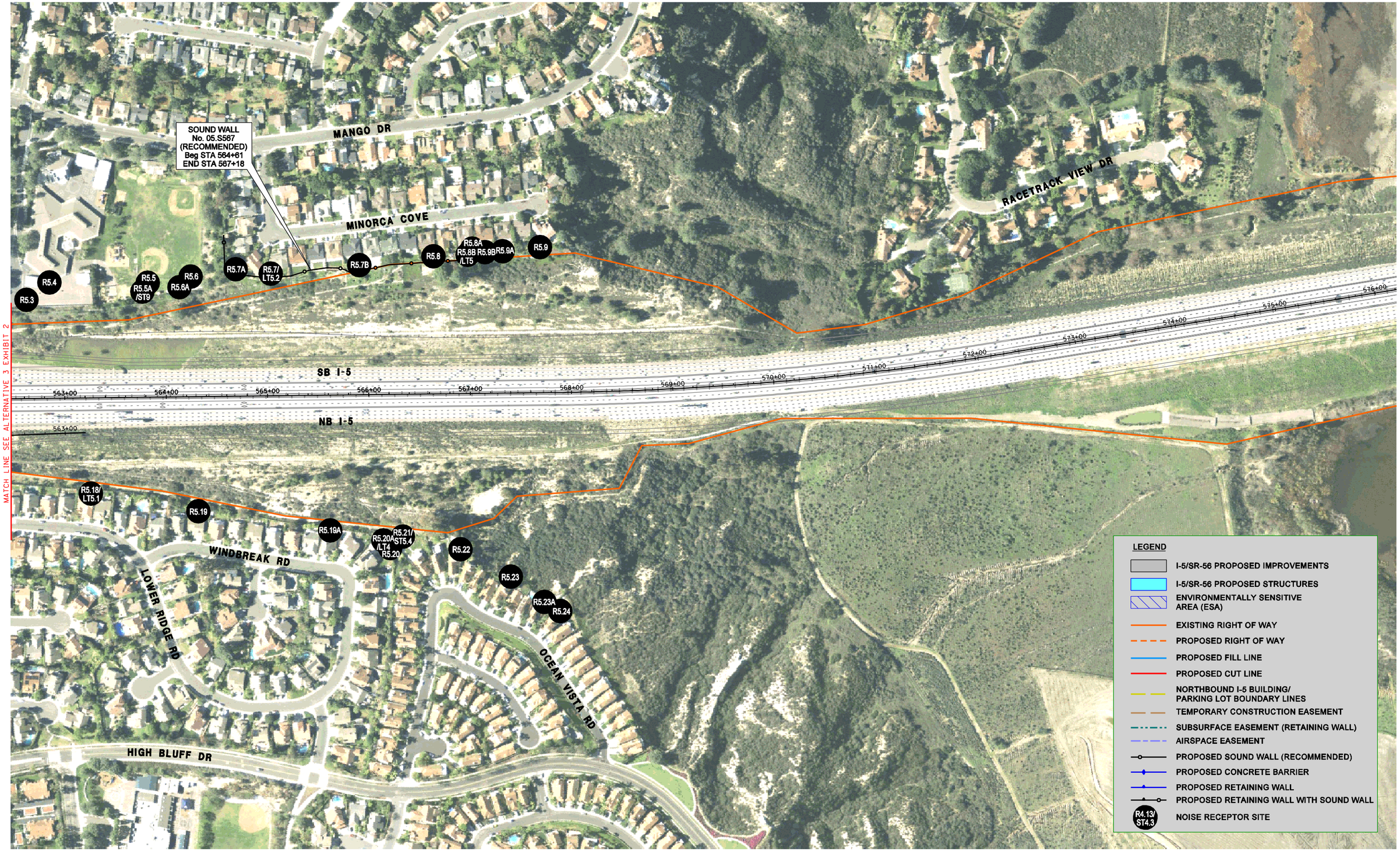
Figure 2-5a
Project Features for the Auxiliary Lane Alternative (Alternative 3) - Exhibit 1 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

Figure 2-5b
Project Features for the Auxiliary Lane Alternative (Alternative 3) - Exhibit 2 of 6

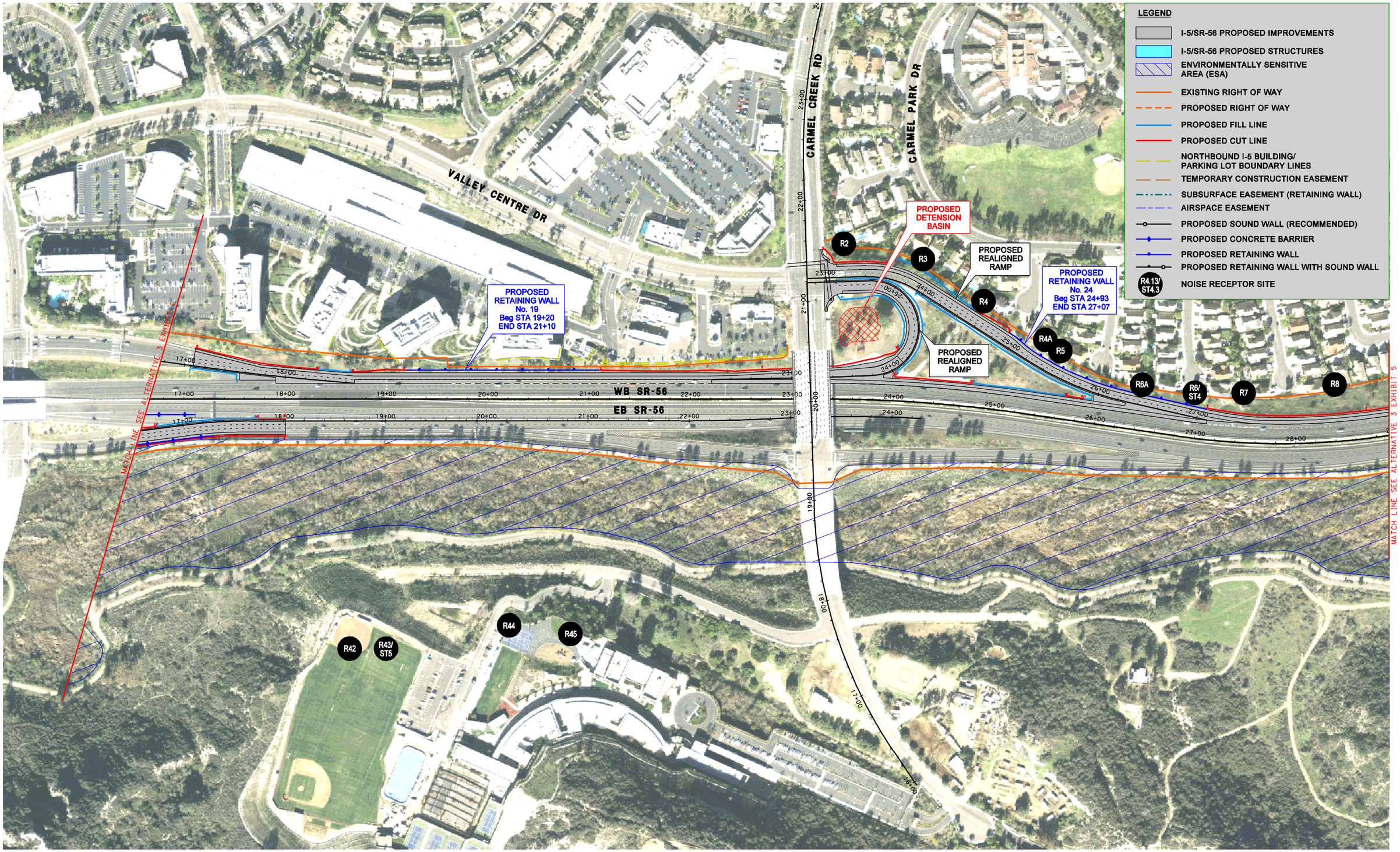


Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

Metric

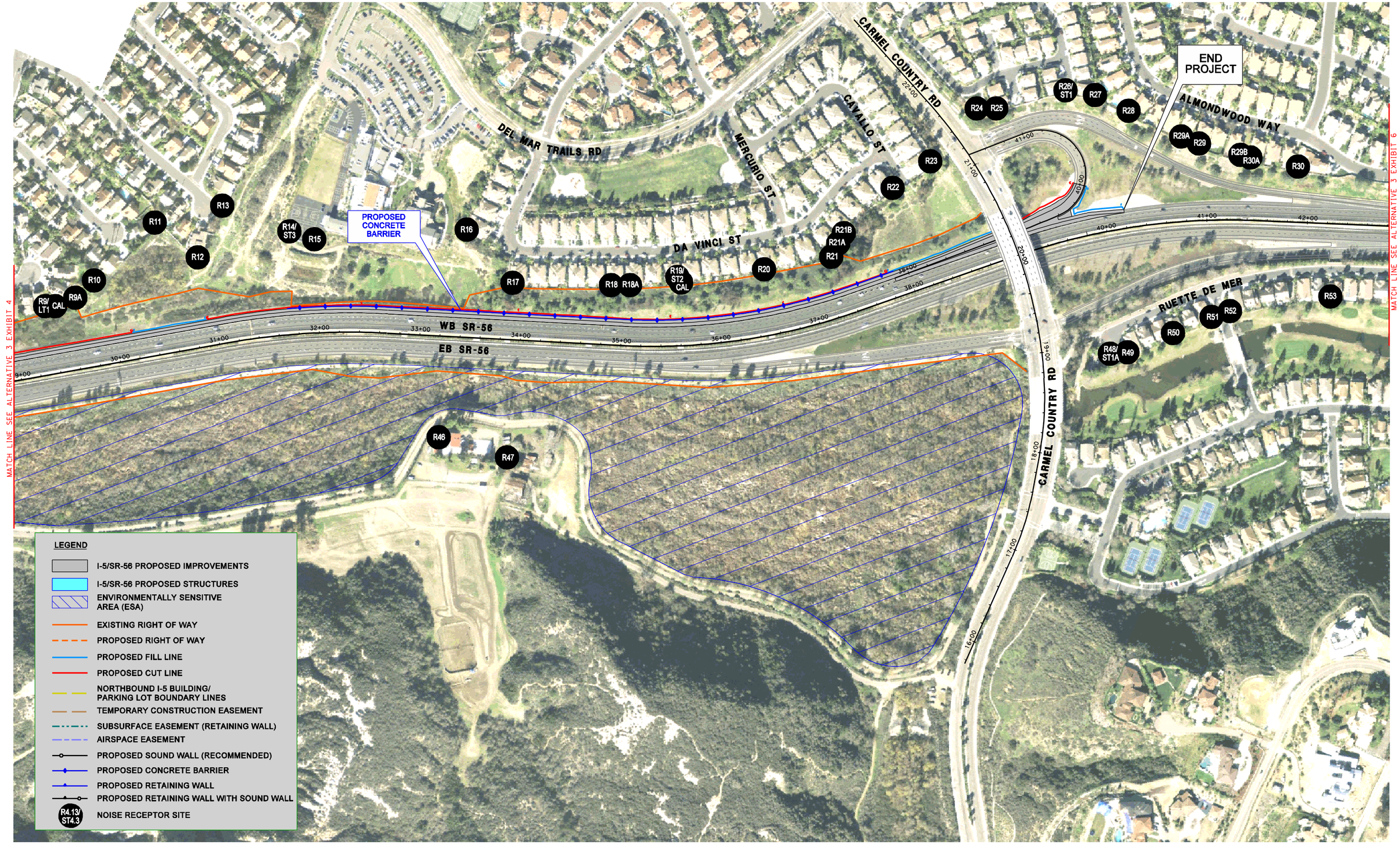
Figure 2-5c
Project Features for the Auxiliary Lane Alternative (Alternative 3) - Exhibit 3 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

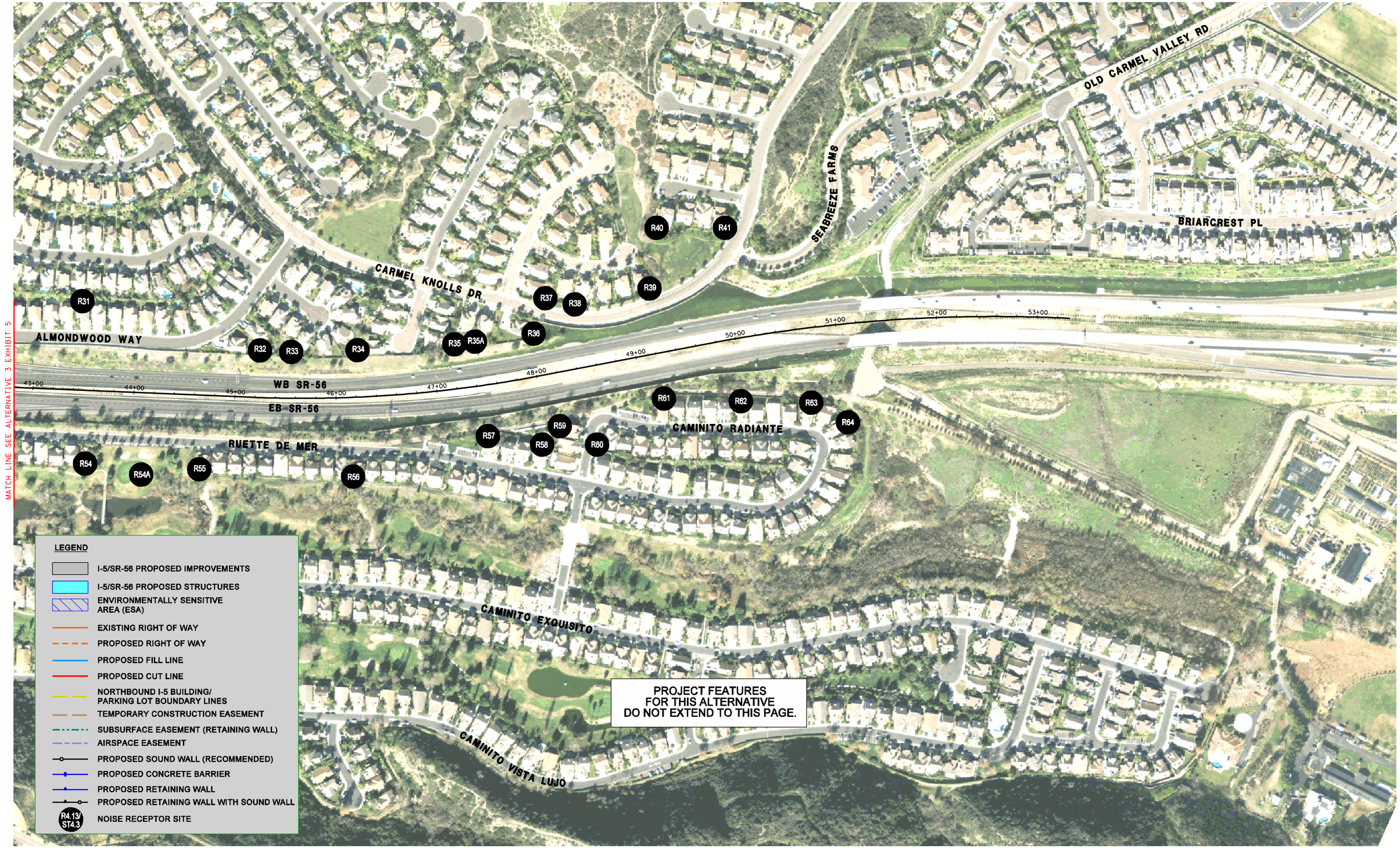
Figure 2-5d
Project Features for the Auxiliary Lane Alternative (Alternative 3) - Exhibit 4 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

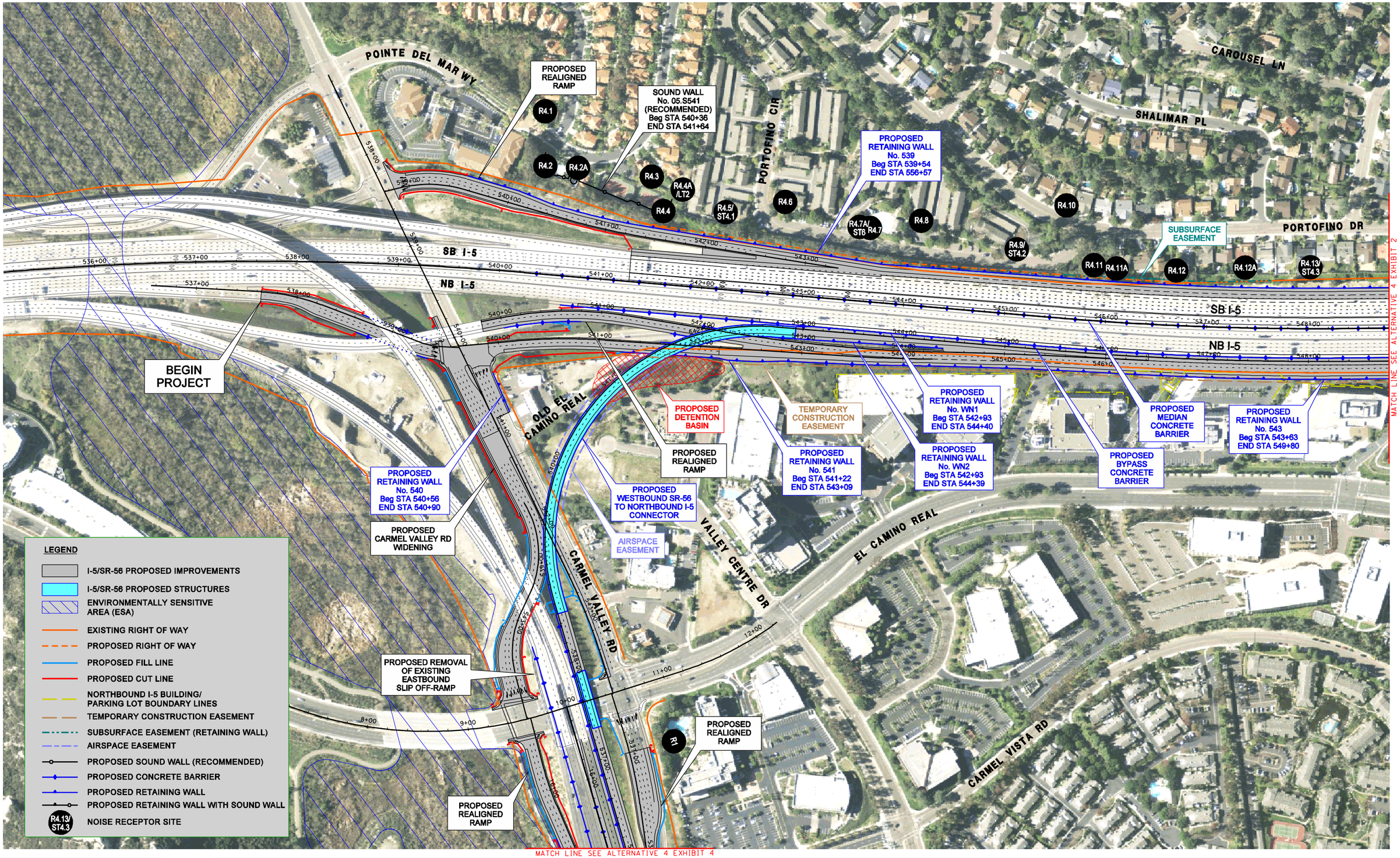
Figure 2-5e
Project Features for the Auxiliary Lane Alternative (Alternative 3) - Exhibit 5 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

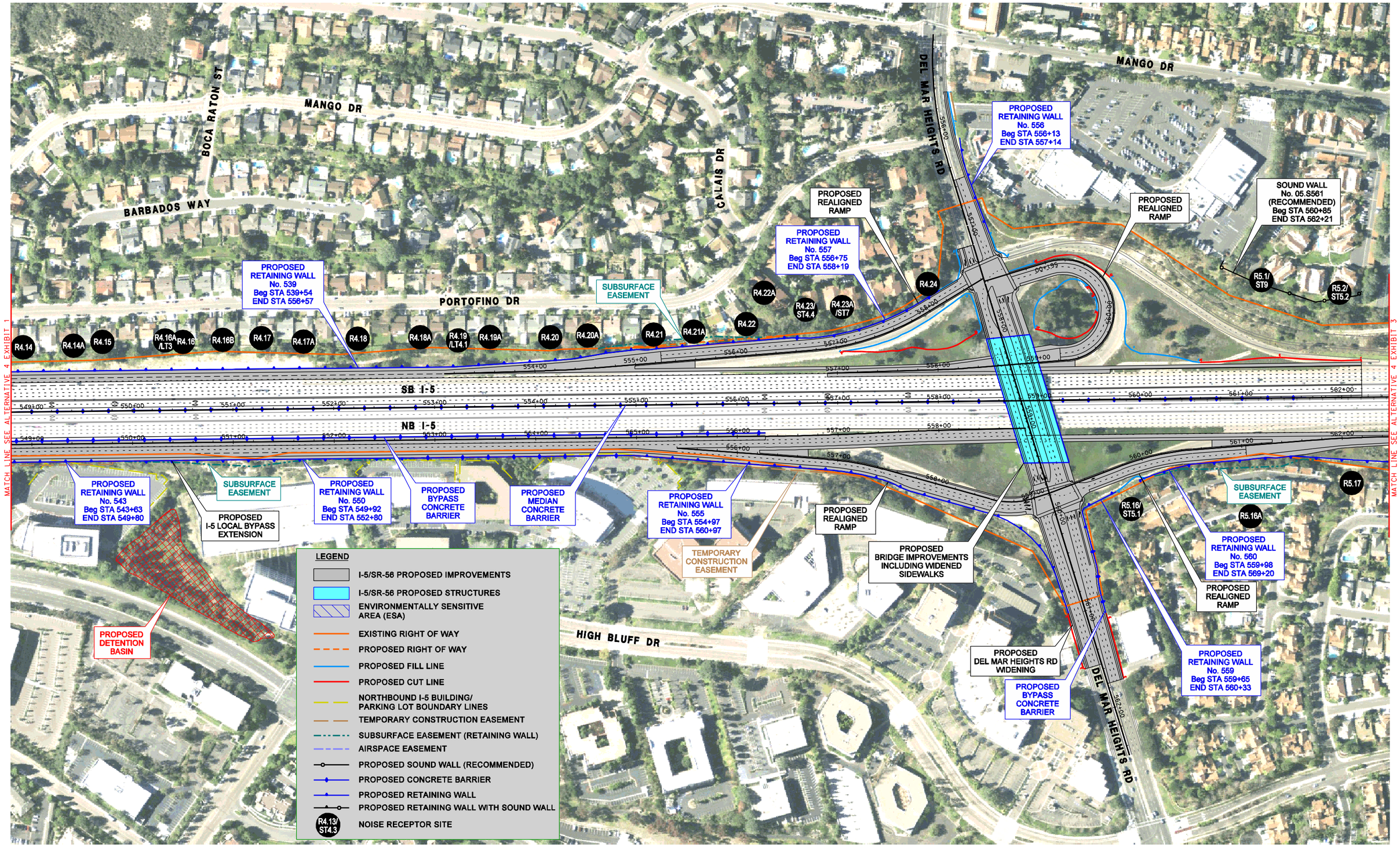
Figure 2-5f
Project Features for the Auxiliary Lane Alternative (Alternative 3) - Exhibit 6 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

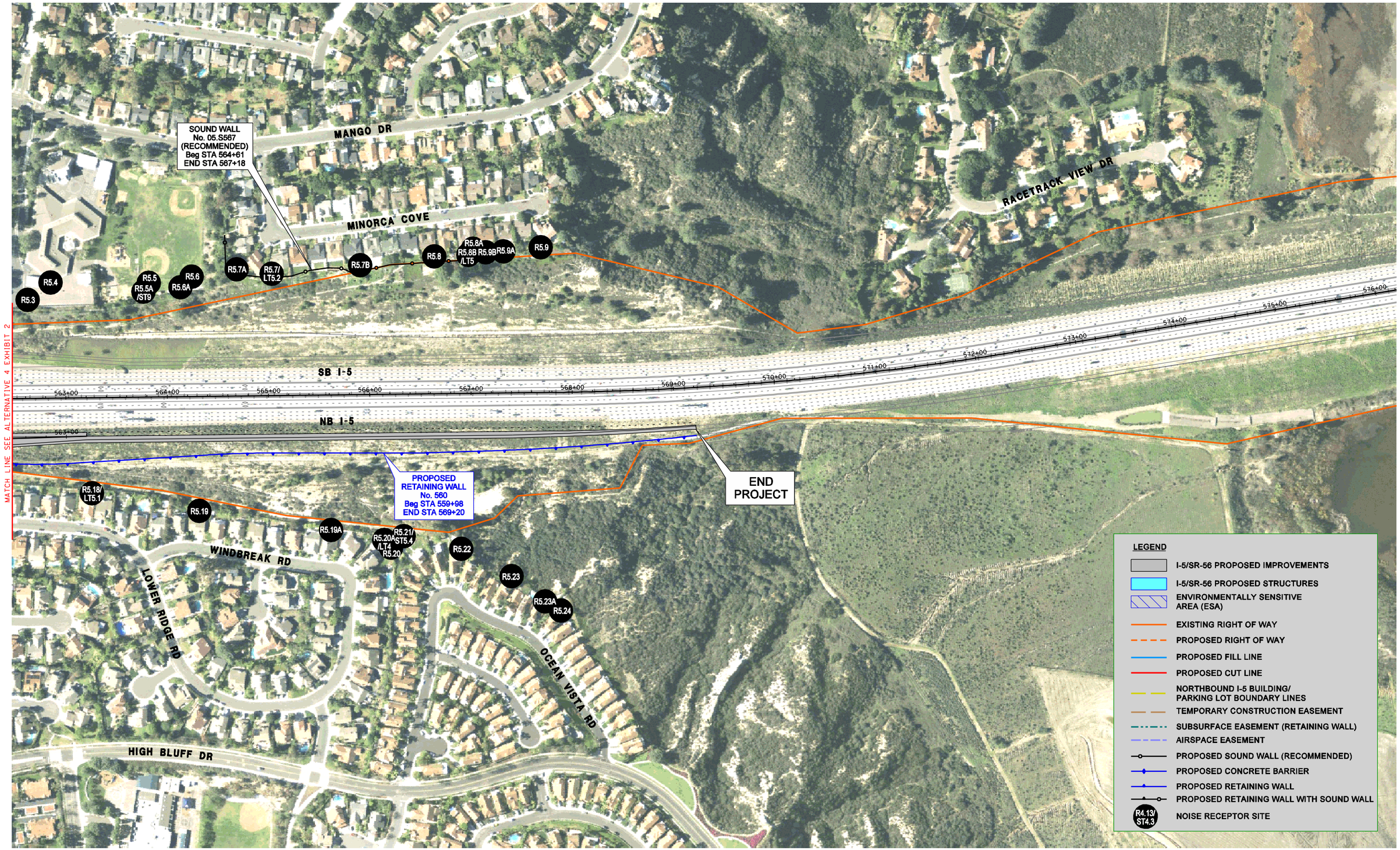
Figure 2-6a
Project Features for the Hybrid Alternative (Alternative 4) - Exhibit 1 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

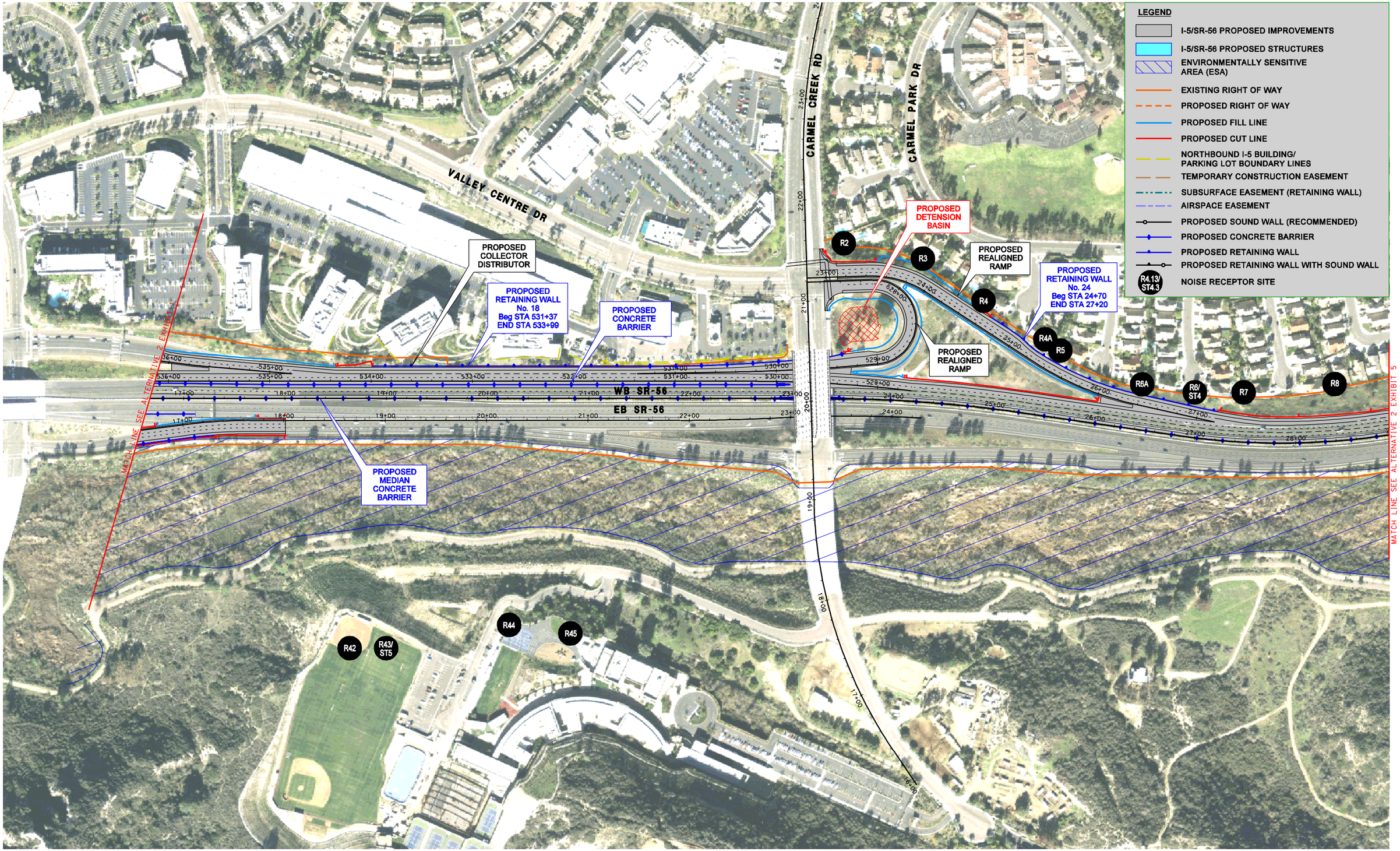
Figure 2-6b
Project Features for the Hybrid Alternative (Alternative 4) - Exhibit 2 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

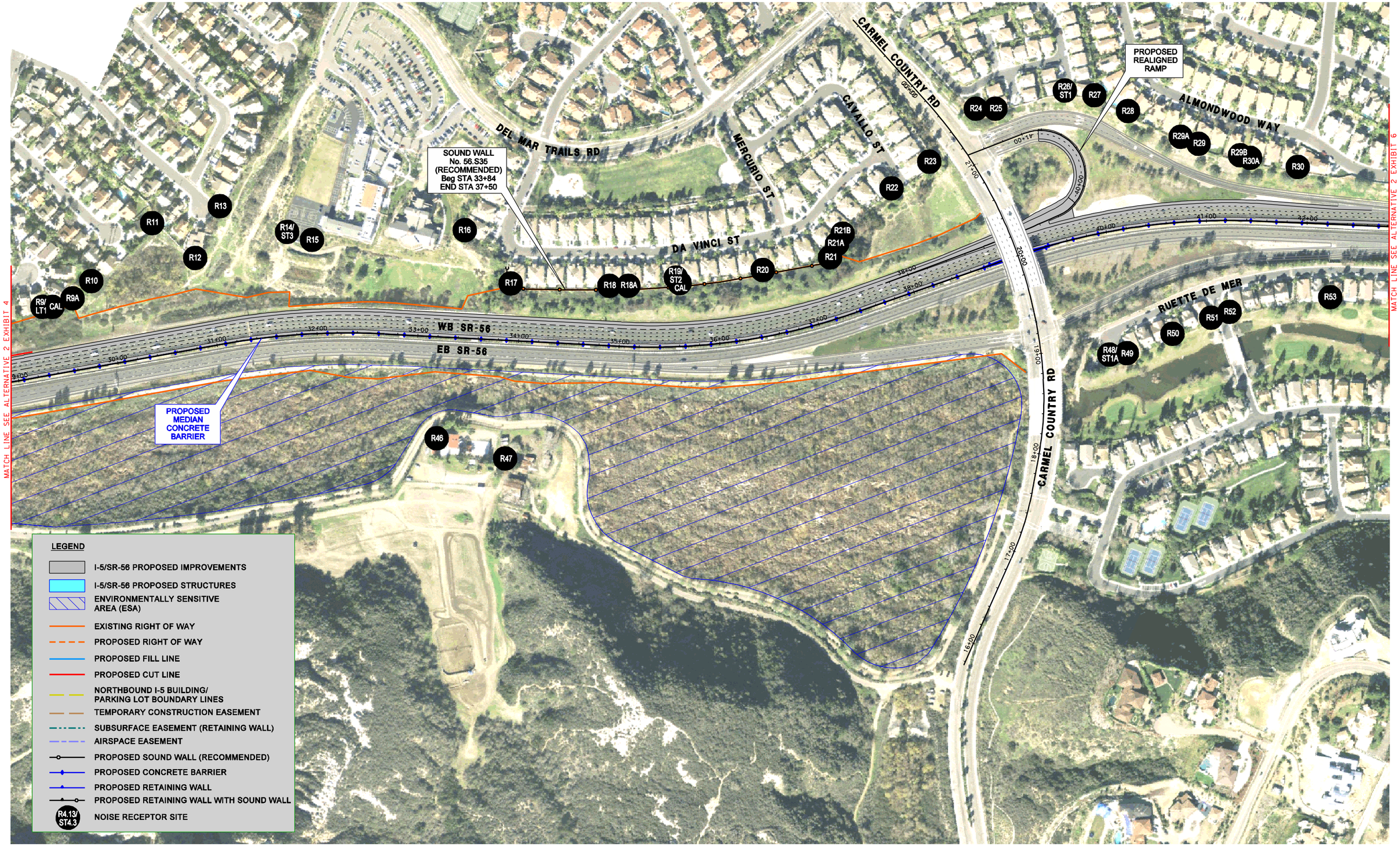
Figure 2-6c
Project Features for the Hybrid Alternative (Alternative 4) - Exhibit 3 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

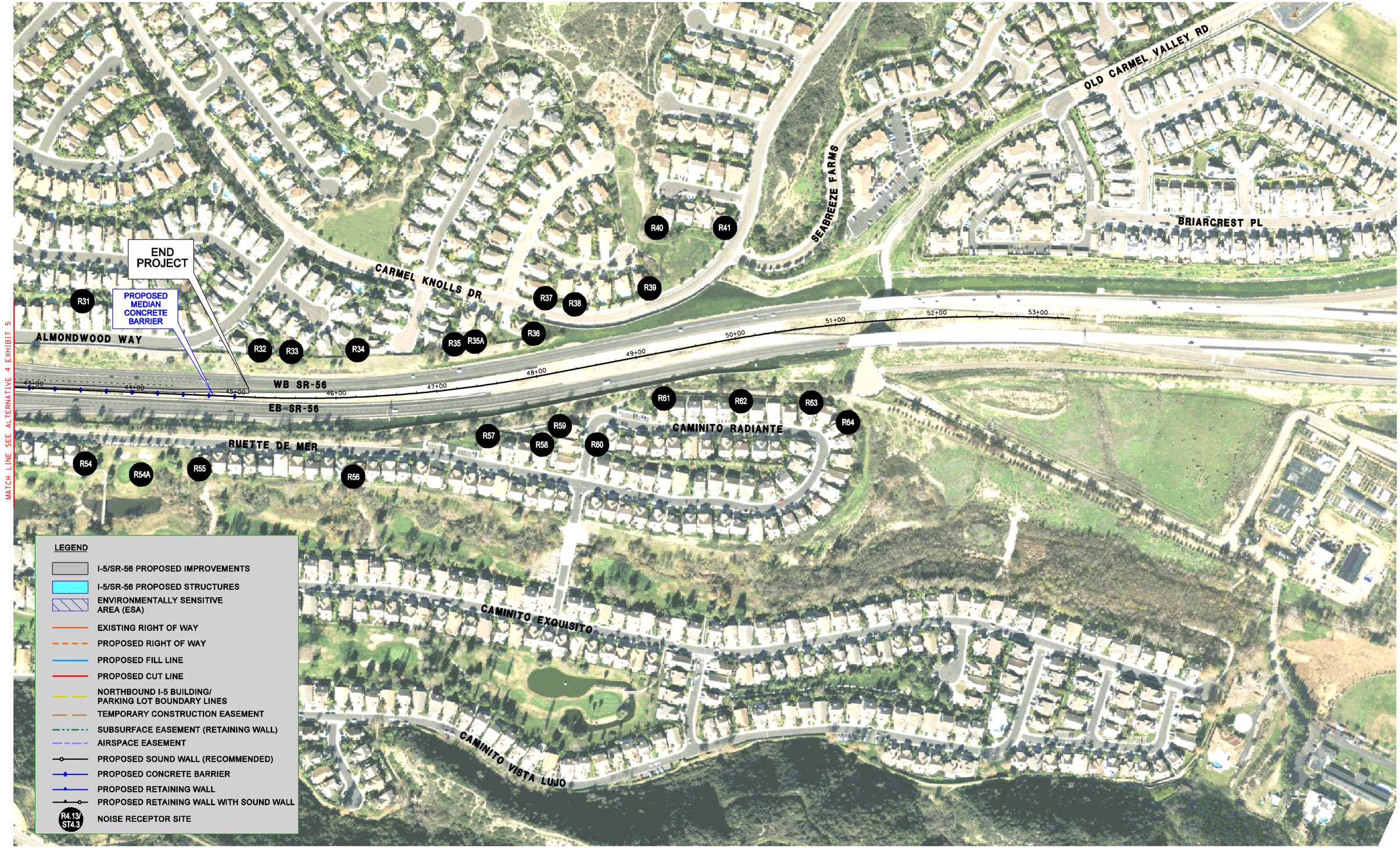
Figure 2-6d
Project Features for the Hybrid Alternative (Alternative 4) - Exhibit 4 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

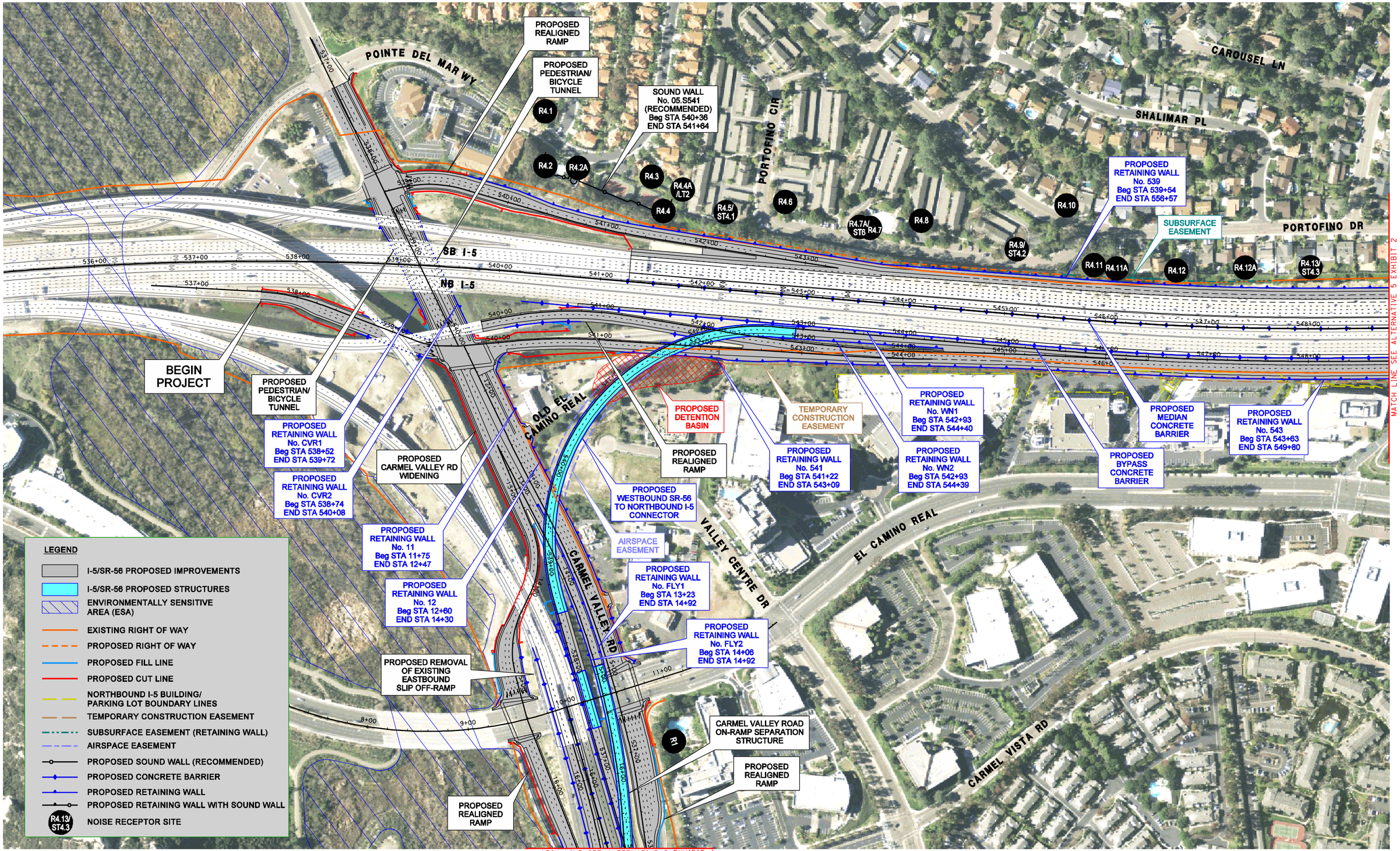
Figure 2-6e
Project Features for the Hybrid Alternative (Alternative 4) - Exhibit 5 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

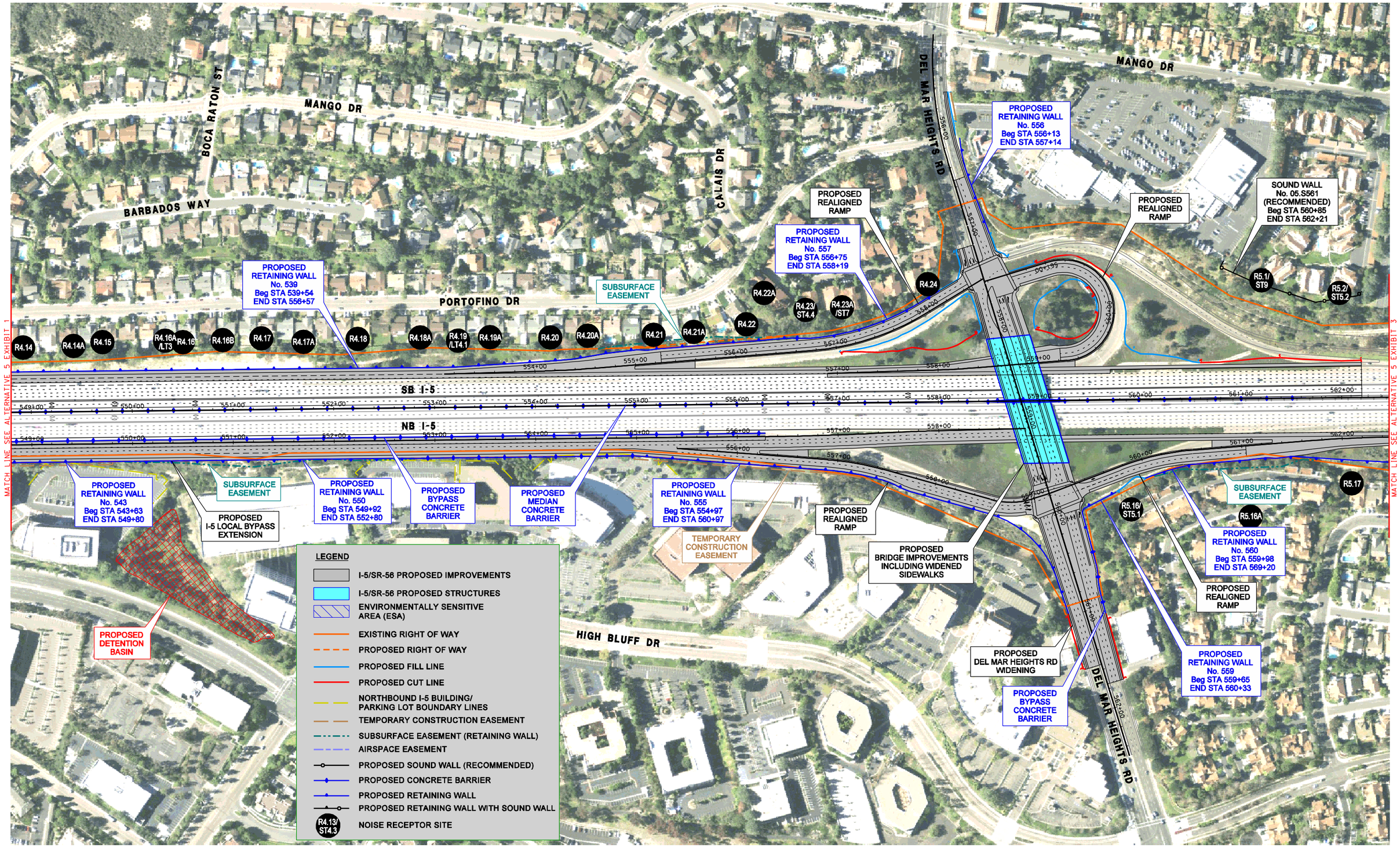
Figure 2-6f
Project Features for the Hybrid Alternative (Alternative 4) - Exhibit 6 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

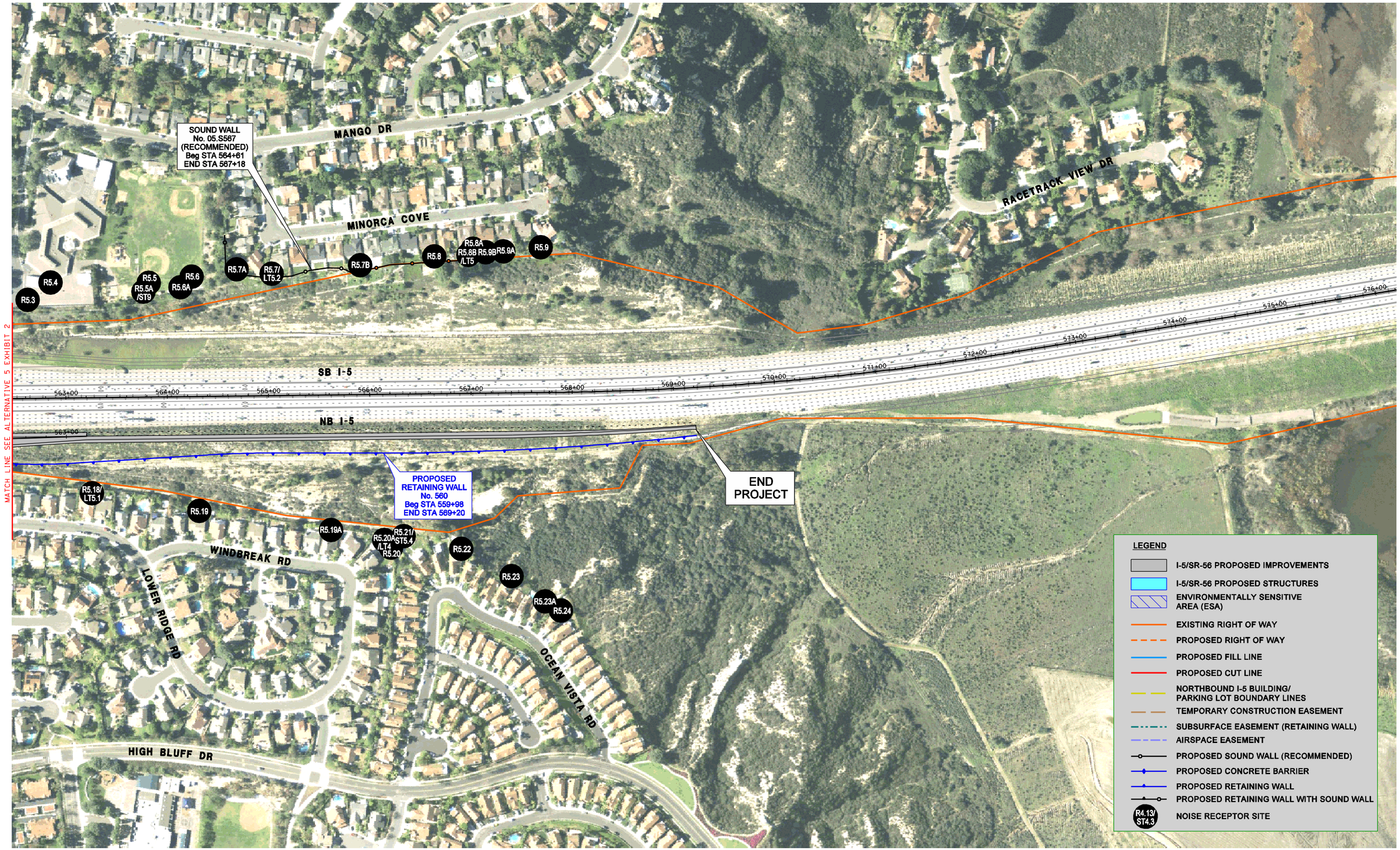
Figure 2-7a
Project Features for the Hybrid with Flyover Alternative (Alternative 5) - Exhibit 1 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

Figure 2-7b
Project Features for the Hybrid with Flyover Alternative (Alternative 5) - Exhibit 2 of 6

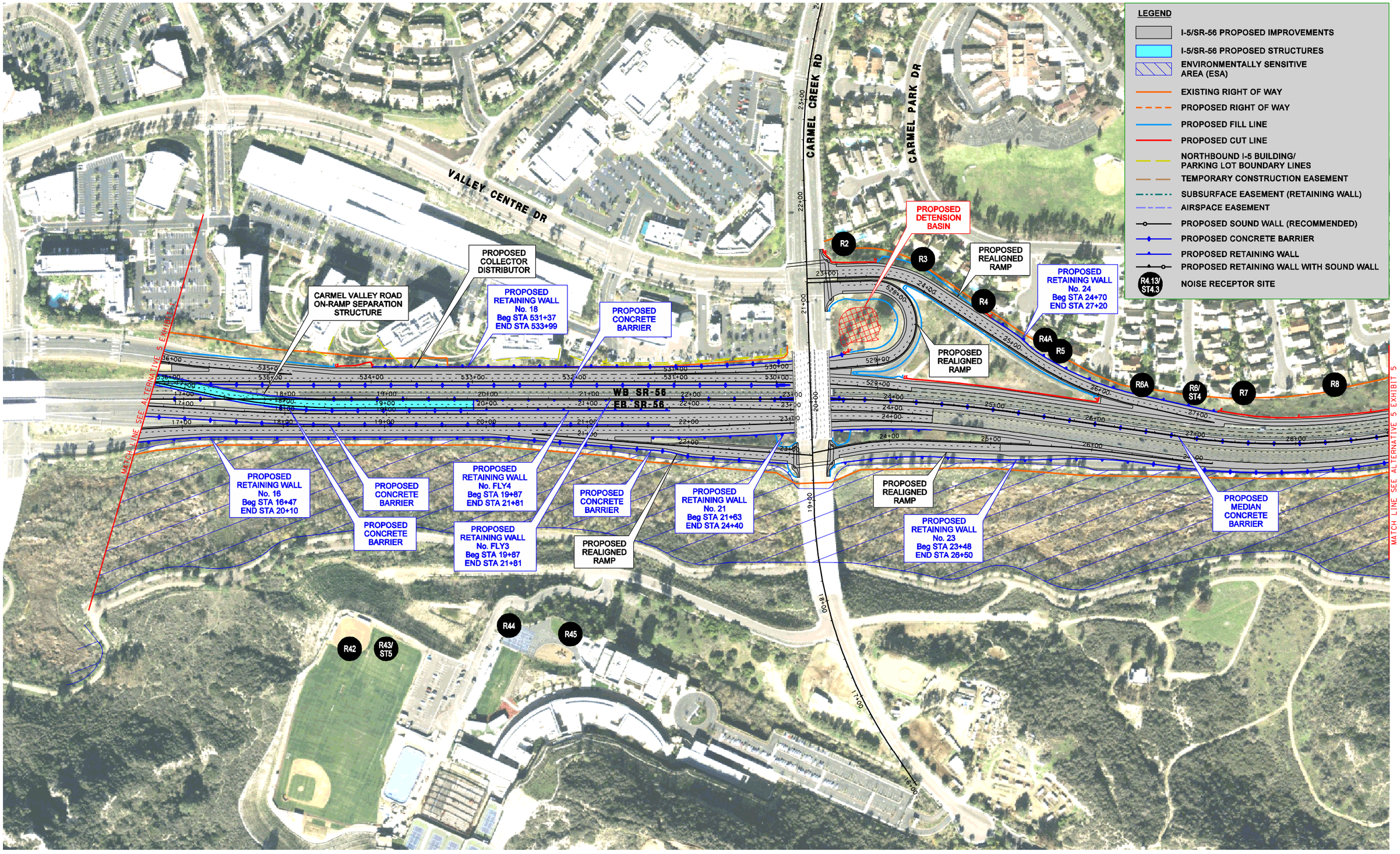


Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

Metric

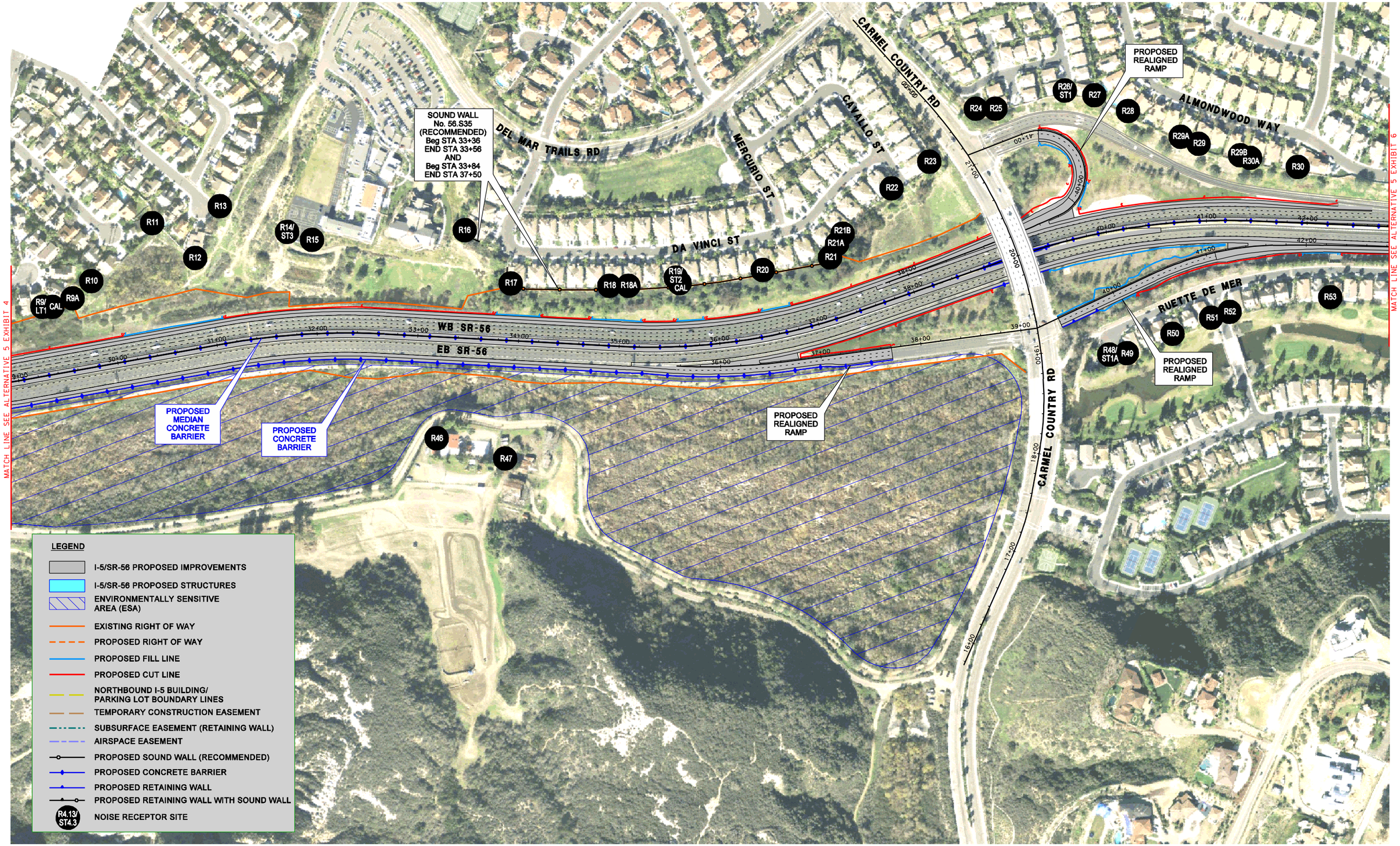
Figure 2-7c
Project Features for the Hybrid with Flyover Alternative (Alternative 5) - Exhibit 3 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

Figure 2-7d
Project Features for the Hybrid with Flyover Alternative (Alternative 5) - Exhibit 4 of 6

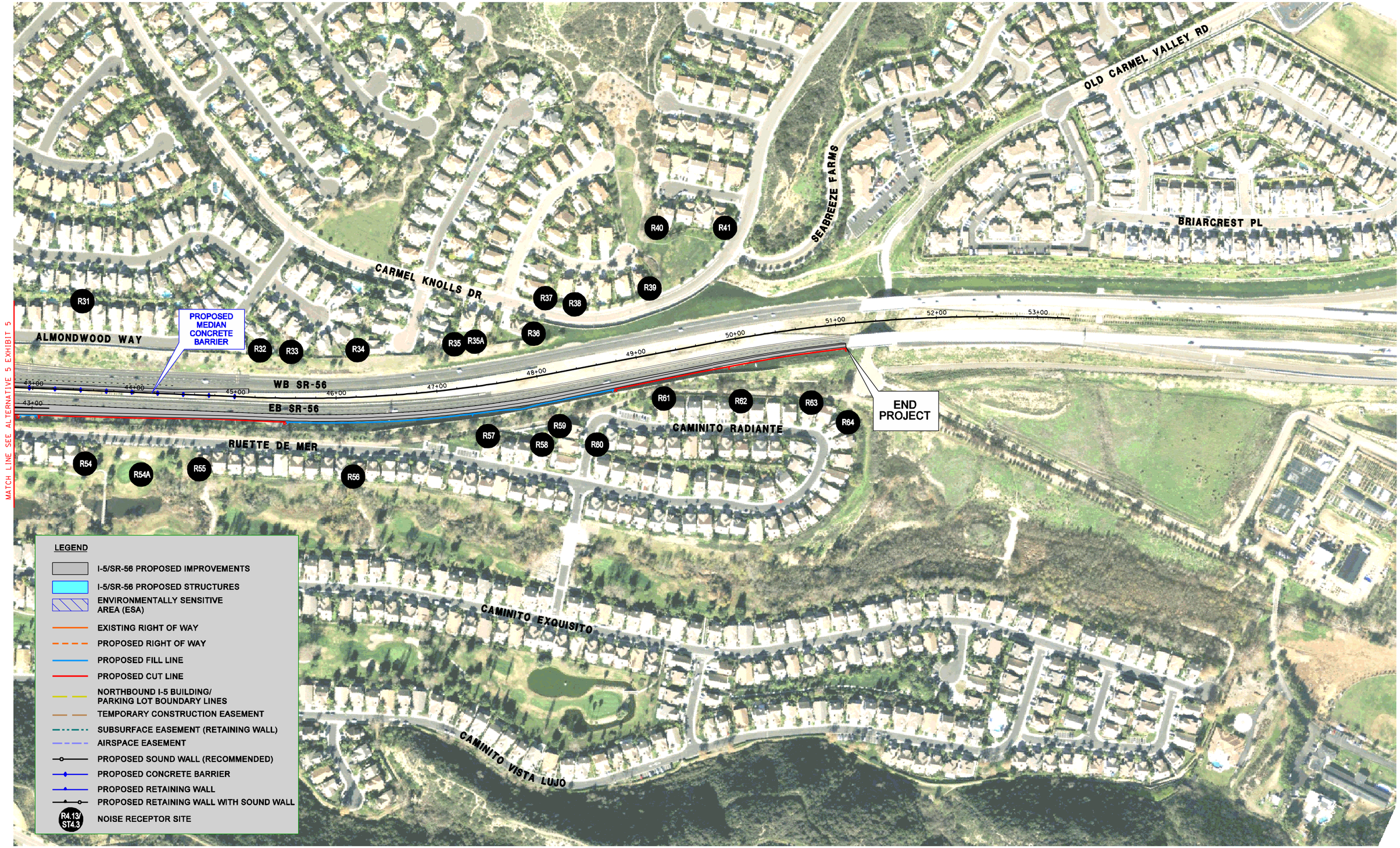


Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

Metric

Figure 2-7e
Project Features for the Hybrid with Flyover Alternative (Alternative 5) - Exhibit 5 of 6



Source: Dokken Engineering 2011

0 20 40 60 80 100
RELATIVE BORDER SCALE

Figure 2-7f
Project Features for the Hybrid with Flyover Alternative (Alternative 5) - Exhibit 6 of 6

CHAPTER 3
AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following technical reports were prepared in support of this Draft EIR/EIS:

Air Quality Report	November 2009
Archaeological Survey Report	October 2010
Community Impact Assessment	August 2011
Draft Relocation Impact Statement	November 2010
Extended Phase I Report	October 2011
Hazardous Materials, Initial Site Assessment	November 2009
Historic Properties Survey Report	October 2010
Carmel Creek Valley Location Hydraulic Study	February 2010
Natural Environment Study	February 2011
Noise Study Report	January 2010
Noise Study Report Addendum	October 2011
Noise Abatement Decision Report	November 2011
Paleontological Resource Assessment	June 2009
Preliminary Geotechnical Report	October 2009
Supplemental Historic Properties Survey Report	October 2011
Traffic Study Report	December 2009
Traffic Summary Report	October 2010
Visual Impact Assessment	November 2011
Water Quality Report	October 2010

The analysis of environmental impacts and proposed avoidance, minimization, and/or mitigation measures presented in the following sections of this document are based on preliminary project design and current environmental information and circumstances. This Draft EIR/EIS draws on the most recent pertinent studies and incorporates this information, in addition to relying on the technical reports listed above.

As part of the scoping and environmental analysis conducted for the proposed project, the following environmental issues were considered, but no adverse impacts were identified. Consequently, no further discussion regarding them is included as a separate section in this chapter.

FARMLANDS/TIMBERLANDS

Land use in the proposed project area is generally designated as parks and open space, residential, commercial, industrial park, or light industrial. As stated in the Community Impact Assessment (CIA) completed in August 2011, a limited amount of agricultural activity occurs within the City of San Diego; the majority of which is located within the northern and eastern parts of the city. According to California Department of Conservation 2006 Farmland Mapping and Monitoring Program maps, farmlands are located in the eastern area of Pacific Highlands Ranch. Farmlands in this area east of the proposed project are generally considered a mix of Important Farmlands, with Unique Farmland, grazing lands, and Farmland of Local Importance. Other grazing lands and Farmland of Local Importance are located near Los Peñasquitos Canyon Preserve, south of the proposed project area. Furthermore, Farmlands of Statewide Importance are located north of the proposed project area, east of I-5. These farmlands are adjacent to the proposed project area and would not be converted to non-agricultural uses by the proposed project. As such, the proposed project area is not classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (CDC 2009a). No Williamson Act or Timber Production Zone contracts are applicable to the proposed project site (CDC 2009b, FRAP 2003). Thus, no impacts converting farmland or timber production zones to non-agricultural uses would occur.

WILD AND SCENIC RIVERS

Projects affecting Wild and Scenic Rivers are subject to the National Wild and Scenic Rivers Act (16 USC 1271) and the California Wild and Scenic Rivers Act (California Public Resources Code [PRC] Section 5093.50 et seq.).

The three types of Wild and Scenic Designation are:

a. Wild: undeveloped, with river access by trail only
b. Scenic: undeveloped, with occasional river access by road
c. Recreational: some development is allowed, with road access

No federal- or state-designated Wild and Scenic Rivers are located on or in the vicinity of the proposed project site.

HUMAN ENVIRONMENT

3.1 LAND USE

This section addresses whether the proposed project would have impacts to existing and planned land uses and generally is based on the August 2011 Community Impact Assessment (CIA), a separate technical study prepared for the proposed project and incorporated by reference.

3.1.1 EXISTING AND FUTURE LAND USE

AFFECTED ENVIRONMENT

The CIA study area (Figure 3.1-1) encompasses communities that may experience primary impacts during the construction stages of the proposed project, and surrounding areas that may experience secondary impacts.

The study area is completely contained within the City of San Diego. Communities completely or partially within the study area include Torrey Pines, Carmel Valley, Torrey Hills, Del Mar Mesa, Pacific Highlands Ranch, North City Future Urbanizing Area Subarea II, (NCFUA), Torrey Highlands, Los Peñasquitos Canyon Preserve, and University. Existing land use, development trends, and future development are discussed next for each of these nine communities.

Existing Land Use

For the purposes of this analysis, the portion of San Diego that may be affected by the proposed project includes the area east of Del Mar at the northern city limit and south approximately to La Jolla. San Diego is the largest city in the region with regards to total population (1,223,400) and overall land area (342.5 square miles). There are 52 defined communities within San Diego, including the nine communities identified within the CIA study area. Figure 3.1-2 shows general land use patterns surrounding the proposed project. As stated previously, primary land uses include parks and open space, residential, commercial, industrial park, and light industrial.

The majority of the land surrounding the proposed project is either developed and urban or preserved as open space. As shown in Figure 3.1-2, a significant amount of land surrounding the proposed project is designated for residential use. However, the topography of the area has required that a significant amount of land remain as open space as well. An open space corridor of mainly undevelopable land associated with the San Dieguito River Valley is located in the southern portion of the study area. Open space areas also are located at Los Peñasquitos Canyon Preserve, east of I-5. Commercial areas generally are located along major transportation corridors, including I-5, and these commercial and business park centers typically serve multiple surrounding neighborhoods. Industrial uses cover a large portion of land use within San Diego as well and generally are located in the community of Torrey Pines, the northwest portion of University (north of the University of California, San Diego [UCSD]).

Torrey Pines is on the west side of I-5, with Del Mar on the northwest and Los Peñasquitos Lagoon running along its south side. The Torrey Pines community planning area encompasses approximately 2,600 acres. Approximately 24 percent of Torrey Pines is designated for residential development, 1 percent for commercial, 15 percent for industrial, 42 percent for parks and open space, 1 percent for schools, and 17 percent for railroad, freeways, and streets. The residential neighborhoods are situated primarily in the Del Mar Terraces and the Del Mar Heights area in the central portion of the community. Small areas of commercial development are located along two transportation corridors in the community, Del Mar Heights Road and Carmel Valley Road. Industrial development is located in the southern portion of the community within Sorrento Valley.

Carmel Valley is largely anchored by Carmel Valley Road, which runs through the middle of the neighborhood. I-5 creates its western boundary, with Los Peñasquitos Canyon Preserve creating the border to the south and generally stretching approximately 0.75 mile north of Del Mar Heights Road. The Carmel Valley community is composed of 10 precise planning areas east of I-5 in the NCFUA. SR-56 traverses this community. It is a newer, master planned community with both residential areas and job centers. The Carmel Valley Neighborhoods Composite Plan Land Use Map shows existing and planned land uses for the 10 planning areas. These land uses mainly are parks, open space, and single-family and multi-family residential areas. There are also scattered commercial, public service, and public utility buildings. Residential uses range from spaced rural residential to medium-density residential, with densities between 1 and 59 dwelling units per acre (du/ac). Land uses north of SR-56 are predominately residential, and land uses south of SR-56 are primarily open space.

Torrey Hills is located east of I-5 and south of SR-56, and encompasses approximately 700 acres. Torrey Hills primarily is residential areas, and it also has significant amounts of open space, industrial areas, and several small commercial areas. Residential uses range from very low-density residential to medium low-density residential in densities between 0 and 29 du/ac. Residential land uses are north of Carmel Mountain Road, south of Arroyo Sorrento Road, west of Vista Sorrento Parkway, and along West Ocean Air Drive and East Ocean Air Drive. Commercial uses are in the northwestern portion of the community along El Camino Real.

Del Mar Mesa is south of SR-56 in the NCFUA, east of Carmel Valley, and north of Los Peñasquitos Canyon approximately 4 miles from the coast. Del Mar Mesa covers 2,042 acres; it is a predominately semi-rural community of large-lot, single-family homes and has a golf-course and a resort hotel. Approximately 28 percent of Del Mar Mesa is designated for estate residential or very low residential uses, and approximately 10 percent is designated for private recreation uses. In addition, approximately 62 percent of the eastern end of the community is being conserved as open space under the City's Multiple Species Conservation Program (MSCP).

Pacific Highlands Ranch (PHR) is in the northwestern portion of the NCFUA and encompasses approximately 2,652 acres of predominately undeveloped land. PHR is bounded by Fairbanks Ranch to the north, Torrey Highlands to the east, Del Mar Mesa to the south, and Carmel Valley to the west. It is a master planned community that includes residential uses ranging from very low residential to mixed-use core residential, with densities between 1 and 34 du/ac. The majority of the residential uses are situated along and to the north of SR-56. Most of the land located south of SR-56 is designated as a Multiple Habitat Preservation Area (MHPA); however, the eastern portion includes residential uses as well as civic and park space. The majority of the commercial uses and mixed-use community core are located along the community's two main transportation corridors, Del Mar Heights Road and Carmel Valley Road. Public and semi-public uses, schools, and parks also are situated along SR-56 in this community.

The NCFUA is north of Carmel Valley, directly east I-5 and west of Fairbanks Ranch. This community encompasses approximately 830 acres, with predominately agriculture and recreation land uses. Approximately 70 percent has been designated open space by the City of San Diego Multiple Species Conservation Program and the San Dieguito River Park Joint Powers Authority (JPA). The JPA is the multi-government agency, of which the City is a part, responsible for implementation and management of the River Park. The remaining 30 percent of land uses are designated as estate or very low-density residential. As stated in the *North City Future Urbanizing Area Framework Plan* (City of San Diego 1992a), very low-density residential development is planned along El Camino Real and Via de la Valle.

Torrey Highlands is located in the NCFUA. Torrey Highlands encompasses 1,134 acres and is west of Rancho Peñasquitos, south of Black Mountain Ranch, east of Pacific Highlands Ranch, and north of Del Mar Mesa. SR-56 traverses the community. The *Torrey Highlands Subarea Plan* (City of San Diego 1996) designates 50 percent of Torrey Highlands for residential development, 30 percent for parks and

open space, 12 percent for schools, 5 percent for commercial, and 3 percent for employment centers. Existing residential land uses are located along and north of SR-56. The majority of the commercial and mixed uses in Torrey Highlands are near the intersection of Camino Ruiz and SR-56.

Los Peñasquitos Canyon Preserve is between Rancho Peñasquitos and Sorrento Hills to the north and Mira Mesa to the south. Stretching approximately 7 miles from the I-5 and I-805 merge to just east of I-15; it encompasses approximately 4,000 acres of both Los Peñasquitos and Lopez canyons. The Preserve is jointly owned and administered by the City and County of San Diego.

The University community planning area encompasses approximately 8,500 acres, bounded by Los Peñasquitos Lagoon and the east-facing slopes of Sorrento Valley on the north; the railroad tracks, the Marine Corps Air Station Miramar, and I-805 on the east; SR-52 on the south; and I-5, Gilman Drive, North Torrey Pines Road, La Jolla Farms, and the Pacific Ocean on the west. The planning area contains two state-controlled properties—UCSD and Torrey Pines State Reserve—that lie outside the zoning jurisdiction of the City. The community has a mix of residential, commercial, industrial, and open space land uses, with a large portion dedicated to school and public utility/facility uses. Residential use densities range between 5 and 77 du/ac. Residential units in the northern portion of the community include townhouse and condominium developments with densities as high as 75 du/ac, and residential units in the southern portion are predominately single-family residential units on 5,000-square-foot-minimum lots. The majority of the commercial uses are situated around UCSD, including University Towne Centre (UTC), located on La Jolla Village Drive and Genesee Avenue, which serves as a major regional commercial center.

Development Trends

Development of the San Diego metropolitan area reflects the rapid population growth and urbanization seen throughout California in recent decades. During the 1980s, economic diversification and high job growth in San Diego led to a 35 percent population increase. As the majority of the area is developed and land use patterns are established, future development can occur in a more directed manner than the very rapid growth of vacant areas during the preceding 40 years.

Overall goals for growth within San Diego are outlined in the *Guidelines for Future Development* (City of San Diego 1992b), originally adopted as part of the 1990 *City of San Diego General Plan* that has since been amended (City of San Diego 2008). Goal 1 is to “manage the growth of the region through adequate and timely public facilities to serve the additional population.” In addition, San Diego strives to develop an effective “development management system” that will monitor the distribution and timing of growth in relation to environmental, physical, and public facility and service performance goals.

The area directly adjacent to the proposed project corridor within San Diego is generally urbanized with built-out areas interspersed with agriculture and open space areas designated for preservation. Although some developments are proposed within the study area, such as PHR, these would be located outside of the primary impact area and would not be directly affected by the proposed project.

Future Land Use

One planned project (representing potential land use changes) possibly would be located near the proposed project site. The Sorrento Valley Road Reuse Project would vacate Sorrento Valley Road between approximately Carmel Mountain Road and Carmel Valley Road, closing it off to motor vehicles, and would implement the “Pedestrian Trail/Multi-Use Path Option” or the “Park Road/Multi-Use Option.” The first option includes a pedestrian trail and an asphalt multi-use path (for runners, bicyclists, and service/emergency vehicles) along the vacated roadway. The second option includes a pedestrian trail and a two-way limited access road from the southern point to the City sewer pump station No. 65 and a pedestrian trail, Class I bikeway, and northbound park road (limited hours) from the pump station to the northern point.

ENVIRONMENTAL CONSEQUENCES

Construction of the proposed project would occur in stages, minimizing disruptions to access of the I-5 and SR-56 corridors. Construction-related impacts to existing land uses in the vicinity of the proposed project include vehicular and pedestrian access disruptions and the use of parking lots and vacant areas as staging grounds for construction activities. However, land use impacts related to construction activities are considered temporary proximity impacts and are not anticipated to result in permanent impacts to existing land uses along the corridor. Caltrans would implement a Transportation Management Plan (TMP) throughout the duration of the construction activities that would be made available to the public. The TMP would serve to minimize project-related construction disruptions and would include traffic mitigation strategies designed in coordination with the local communities. Construction of the Direct Connector Alternative would be the most complex and cause the greatest amount of community disruption during construction. The Auxiliary Lane Alternative would be the least complex and cause the least amount of community disruption. The Hybrid Alternative and the Hybrid with Flyover Alternative would cause less disruption to the community than the Direct Connector Alternative but would cause more disruption than the Auxiliary Lane Alternative. See Section 2.3.3, Project Phasing and Construction, for additional detail regarding construction.

Permanent impacts related to each alternative are discussed next.

City of San Diego

Existing Land Use

Land use within the primary impact area is a mix of urban and open space, and includes a business park area located northeast of the proposed project site. Agricultural operations south of SR-56 at the terminus of Carmel Valley Road would not be affected by the proposed project and would not preclude continued agricultural activities on the proposed project site. Scattered open space area along or directly adjacent to the primary impact area, including Los Peñasquitos Canyon Preserve and San Dieguito Lagoon, may have short-term impacts from construction noise and dust. However, the proposed project would not result in large land use shifts because these areas are preserved as open space. The proposed project would include the expansion of an existing established freeway and would be consistent with existing transportation uses.

One business, a gas station located northeast of the interchange, would be displaced by implementation of the Hybrid with Flyover Alternative. No residential properties would be displaced as a result of proposed project implementation; however, those residences immediately adjacent to the proposed project site would experience a partial loss of land to the proposed build alternatives.

Future Land Uses

Future land uses in the vicinity of the proposed project site may include the Sorrento Valley Road Reuse Project, as discussed previously. Impacts are not expected to occur because the Sorrento Valley Road Reuse Project would be located outside of the primary impact area of the proposed project. Additionally, operational impacts related to implementation of the proposed project are not anticipated as the proposed project would not acquire any land to be used by the Sorrento Valley Road Reuse Project. Furthermore, implementation of the proposed project would improve circulation along I-5 and help to reduce traffic congestion on the roadways surrounding the Sorrento Valley Road Reuse Project. Therefore, implementation of the proposed project would not adversely affect the Sorrento Valley Road Reuse Project.

No Build Alternative (Alternative 1)

Implementation of the No Build Alternative would not result in changes to land use patterns, development trends, or proposed land uses.

Build Alternatives (Alternatives 2 through 5)

As described in Section 3.1 Land Use, impacts to land use are not expected to be adverse as the proposed build alternatives are consistent with existing land uses. Impacts to future land uses would be similar for all of the build alternatives.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The proposed project would not result in adverse impacts to land use, and no mitigation measures are required. Caltrans has undertaken efforts to integrate the proposed project with the adjacent and/or adjoining communities. Furthermore, Caltrans has been working with the Steering Committee throughout the entire development process and has been available at community meetings to provide the information about the proposed project.

3.1.2 CONSISTENCY WITH STATE, REGIONAL, AND LOCAL PLANS AND PROGRAMS

This section analyzes the consistency of the proposed project with regional plans, jurisdiction-wide plans, and applicable small-scale plans. This analysis is based on the August 2011 CIA.

AFFECTED ENVIRONMENT

The proposed project site is within the City of San Diego, and six communities are within the primary impact area (see Figure 3.1-1). Therefore, the site is subject to the applicable policies and requirements of several local and regional plans. At the regional/subregional level, development of the site is subject to SANDAG's 2008 Congestion Management Program (CMP) (SANDAG 2008c), 2050 Regional Transportation Plan (2050 RTP) (SANDAG 2011), the 2010 Regional Transportation Improvement Program (2010 RTIP) (SANDAG 2011a), the City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan and the City of San Diego Multi-Habitat Planning Area (MHPA) (City of San Diego 1997a). At the municipal level, development of the proposed project site would be subject to the *City of San Diego General Plan* (2008), the community plans of each community located within the primary impact area, and any applicable bicycle and pedestrian plans.

SANDAG Congestion Management Program (2008)

On November 7, 2008, the SANDAG Transportation Committee approved the CMP. The purpose of the state-mandated CMP is to monitor roadway congestion and assess the overall performance of the region's transportation system. Based on this assessment, the CMP contains specific strategies and improvements to reduce traffic congestion and improve the performance of a multi-modal transportation system.

SANDAG Regional Comprehensive Plan, 2050 Regional Transportation Plan, and 2010 Regional Transportation Improvement Program

The Regional Comprehensive Plan (RCP) was developed by the 19-member agencies of SANDAG to set broad goals for the San Diego region and identify strategies for agencies at all levels of government to use in guiding their decision-making (SANDAG 2004b). It sets forth a regional vision and balances population, housing, and employment growth with habitat preservation, agriculture, open space, and infrastructure needs.

SANDAG adopted the *2050 Regional Transportation Plan: Our Region, Our Future* (2050 RTP) (SANDAG 2011b) on October 28, 2011. FHWA and the Federal Transit Administration (FTA) made a regional conformity determination on December 2, 2011. The 2050 RTP includes a Sustainable Communities Strategy element as required by state Senate Bill 375 and provides strategies such as

development patterns, transportation infrastructure investments, and transportation policies to help reach greenhouse gas (GHG) reduction targets. The Plan is based on current and reasonably available financial resources projected out to 2050. These resources are applied to the estimated capital, operating, maintenance, and rehabilitation costs of the region's transportation system through 2050. Total revenues estimated for the 2050 RTP are about $213.8 billion (escalated to the year that dollars are expended), including future California High Speed Rail funds. Local funds make up 55 percent of the total revenue, with state and federal funds providing 28 percent and 17 percent, respectively. Revenues are phased in by decade. Projects that are listed in the initial years of the 2050 RTP are the same as those that are either already programmed in the five-year 2010 Regional Transportation Improvement Program (RTIP) through fiscal year 2015, or are anticipated to be included in future near-term updates of the RTIP. The proposed I-5/SR-56 interchange project is identified in the 2050 RTP as west-to-north and south-to-east freeway connectors.

The 2010 RTIP is a multi-billion dollar, 5-year program of major highway, transit arterial, and nonmotorized projects funded by federal, state, TransNet local sales tax, and other local and private funding covering fiscal years 2010 to 2014. The 2010 RTIP, which includes the air quality emissions analysis for all regionally significant projects, requires approval by FHWA and the FTA. The 2010 RTIP is a prioritized program that is designed to implement the region's overall strategy for providing mobility and improving the efficiency and safety of the transportation system, while reducing transportation-related air pollution in support of efforts to attain federal and state air quality standards for the region. The 2010 RTIP also incrementally implements the 2050 RTP. At its meeting on September 24, 2010, the SANDAG Board adopted the final 2010 RTIP. SANDAG received federal approval on December 14, 2010. The proposed project was programmed in the 2010 RTIP through Amendment No. 7, approved by the SANDAG Board on April 15, 2011. Federal approval was received on May 3, 2011 (SANDAG 2011a).

Natural Communities Conservation Plans: City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan and Multi-Habitat Planning Area (MHPA) (1997)

The proposed project site is located within two regional habitat conservation planning areas, the City of San Diego MSCP Subarea Plan and the City of San Diego MHPA. The MSCP Subarea Plan identifies native habitat for multiple species to be conserved in perpetuity, known as the City of San Diego MHPA. The plan was prepared to meet the requirements of the California Natural Communities Conservation Planning Act of 1992, pursuant to a general outline developed by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG). This plan forms the basis for an implementing agreement, which is the contract between the City and the wildlife agencies that ensures implementation of the plan and thereby allows the City to issue take permits at the local level. This plan also is consistent with the MSCP and qualifies as a stand-alone document to implement the City's portion of the MSCP preserve.

The MHPA delineates core biological resource areas and corridors targeted for conservation while also allowing for limited development to occur. The MHPA was developed by the City in cooperation with USFWS and CDFG, property owners, developers, and environmental groups based on the Preserve Design Criteria contained in the overall MSCP and the City adopted criteria for the creation of the MHPA.

City of San Diego General Plan (2008)

The General Plan (City of San Diego 2008) provides overall guidance for land use decisions within the city and contains the following elements: Land Use and Community Planning; Mobility; Urban Design; Economic Prosperity; Public Facilities, Services, and Safety; Recreation; Conservation; Noise; and Historic Preservation. It also contains the *City of Villages Strategy* that "focuses growth into mixed-use activity centers that are pedestrian-friendly districts linked to an improved regional transit system." This

strategy is to be implemented through individual community plan updates and amendments, intended to identify areas in each community that are the "mixed-use heart of a community where residential, commercial, employment, and civic uses are all present and integrated."

The proposed I-5/SR-56 study area is composed of a variety of planned land uses in each of the adopted community plans. In addition to the Land Use and Community Planning Element, Chapters 11, 12, 13, 14, and 15 of the San Diego Municipal Code, known collectively as the City Land Development Code, is the principal tool used by San Diego to implement land use policy. The Land Development Code must be consistent with the City of San Diego General Plan and the land use designations of the community plans must be consistent with the Land Use and Community Planning Element. The Land Development Code includes maps delineating zoning boundaries and text that explains permitted uses within zones and development standards.

The City of San Diego General Plan, adopted March 10, 2010, was prepared to update the previous 1979 General Plan to meet the needs of a growing city and enhance the quality of life for current and future residents of the City. The General Plan utilizes the City of Villages strategy, which aims to enhance the City's many communities as growth occurs over the next 20-plus years by focusing growth into mixed-use, pedestrian-friendly development areas linked to an improved regional transportation system. The strategy is designed to sustain long-term economic, environmental, and social health for the City of San Diego and its communities.

The Land Use and Community Planning Element of the General Plan sets out the general goal of guiding "future growth and development into a sustainable citywide development pattern, while maintaining or enhancing quality of life in our communities." Additionally, the Mobility Element of the General Plan outlines its purpose as improving mobility "through development of a balanced, multi-modal transportation network." Specific policies in the General Plan of particular relevance to the project include the following Land Use Elements (LUE) and Mobility Elements (ME):

- **LUE-C.2.f:** Establish a mobility network to effectively move workers and residents.
- **LUE-H.1.b:** Invest strategically in public infrastructure and offer development incentives that are consistent with the neighborhood's vision.
- **LUE-H.6:** Provide linkages among employment sites, housing, and villages via an integrated transit system and a well-defined pedestrian and bicycle network.
- **LUE-I.2:** Balance individual needs and wants with the public good.
- **LUE-I.4:** Prioritize and allocate citywide resources to provide public facilities and services to communities in need. Greater resources should be provided to communities where greater needs exist.
- **LUE-I.9:** Design transportation projects so that the resulting benefits and potential burdens are equitable.
- **ME-A.1:** Design and operate sidewalks, streets, and intersections to emphasize pedestrian safety and comfort through a variety of street design and traffic management solutions.
- **ME-C.1.b:** Implement street improvements and multi-modal transportation improvements as needed with new development and as areas redevelop over time.
- **ME-C.2:** Provide adequate capacity and reduce congestion for all modes of transportation on the street and freeway system.

- **ME-C.3:** Design an interconnected street network within and between communities, which includes pedestrian and bicycle access, while minimizing landform and community character impacts.

- **ME-C.6:** Locate and design new streets and freeways and, to the extent practicable, improve existing facilities to respect the natural environment, scenic character, and community character of the area traversed, and to meet safety standards.

Additionally, the City of San Diego has developed community plans that identify specific goals for each of the communities within the City. Each of these community plans discusses issues that are specific to that community, while also being consistent with the broader General Plan policies. The primary impact area for the proposed project includes the following communities: Torrey Pines, Carmel Valley, Torrey Hills, Del Mar Mesa, PHR, and NCFUA. The community plans for each of the affected communities are discussed next.

Torrey Pines Community Plan

The Transportation Element of the Torrey Pines Community Plan states that the majority of traffic issues present in the community are related to safety and increased traffic along area roadways. Generally, the goals of the element state that Torrey Pines should aim to "provide an efficient, safe, and environmentally sensitive transportation system" that includes the maximization of public transit use and an efficient system of bikeways and pedestrian walkways, with minimized impact to the open space in the community. Specific policies in the Community Plan of particular relevance to the project include the following Resource Management and Open Space (RMOS) and Transportation (T) elements:

- **RMOS 1:** Ensure long-term sustainability of the unique ecosystems in the Torrey Pines community, including all soil, water, air, and biological components that interact to form healthy functioning ecosystems.

- **RMOS 2:** Conserve, restore, and enhance plant communities and wildlife habitat, especially habitat for rare, threatened, and endangered species.

- **RMOS 3:** Retain viable, connected systems of wildlife habitat, and maintain these areas in their natural state.

- **RMOS 4:** Identify, inventory, and preserve the unique paleontological, archeological, Native American, and historic resources of Torrey Pines for their educational, cultural, and scientific values.

- **RMOS 5:** Preserve, enhance, and restore all natural open space and sensitive resources areas, including Los Peñasquitos Lagoon and associated uplands, Torrey Pines State Park and Reserve Extension areas with its distinctive sandstone bluffs and red rock, Crest Canyon, San Dieguito Lagoon and River Valley, the Carroll Canyon Wetland/Wildlife Corridor through Sorrento Valley, and all selected corridors providing linkage between these areas.

- **RMOS 6:** Establish a pedestrian/bicycle pathway system that links all open space areas, from Carroll Canyon in the south to the San Dieguito River Valley in the north.

- **T 1:** Provide an efficient, safe, and environmentally sensitive transportation system.

- **T 2:** Ensure that transportation improvements do not negatively impact the numerous open space systems located throughout the Torrey Pines community.

- **T 3:** Provide a transportation system that maximizes the opportunities for public transit use, especially in Sorrento Valley.
- **T 4:** Provide a system of bikeways and pedestrian facilities that will encourage bicycling and walking as a means of transportation.
- **T 5:** Provide a transportation system that provides convenient linkages to the community's activity centers and to the rest of the metropolitan region.
- **T 6:** Provide a safe and environmentally sensitive improvement of the Del Mar Terrace neighborhood streets.
- **T 7:** Provide a transportation system that encourages the use of mass transit, rather than building and/or widening roads and freeways.
- **T 8:** Investigate the feasibility of providing seasonal shuttle service.
- **T Policy 1:** The construction of new roads or improvements to existing roads adjacent to open space areas should mitigate impacts through the restoration and enhancement of that open space system to the maximum extent feasible.
- **T Policy 5:** Provide improvements to the road network that will facilitate traffic circulation without negatively impacting adjacent open space areas and residential neighborhoods.

Carmel Valley (North City West) Community Plan

The Carmel Valley (North City West) Community Plan sets forth guiding principles to create a series of neighborhoods with a balance of affordable housing, shopping, office and business centers, educational and cultural activities, and recreational facilities. Preserved open space is meant to separate neighborhoods to help foster identity, while employment centers are meant to be spread throughout the community to provide residents with an alternative to commuting and help prevent urban sprawl. As for transportation within Carmel Valley, the Community Plan states:

The transportation system should also be used as a tool for shaping the urban environment. This can be accomplished by integrating the major system into the natural land forms and by complementing open space systems.

Specific policies in the community plan of particular relevance to the proposed project are the following Circulation (C) and Transportation (T) elements:

- **C 4:** In order to promote a balanced transportation network, development of an interior transportation system for the town center, linkages from the town center to the residential areas, and provision for a transit station site are necessary.
- **T 1:** In order to promote North City West [Carmel Valley] as a balanced community, a balanced transportation system must be included in initial construction of North City West.
- **T 2:** In order to promote self-containment and community identity, transportation systems must be designed to complement the planning concept and land use.
- **T 3:** In order to promote preservation of the natural environment, transportation facilities should be regarded as an integral part of the landscape in which they are sited.

Torrey Hills Community Plan

The Torrey Hills Community Plan states that the key policies interwoven throughout all elements in the plan include the development of mixed land uses, the promotion of walking and bicycle use, the redevelopment of industrial areas with other land uses, the enhancement of open space, and the creation of the cohesive community image. Specific goals in the community plan of particular relevance to the proposed project are the following elements: Residential Land Uses (RLU), Transportation (T), Open Space and Resource Management (OS), Community Facilities (CF), Community Design (CD); and Coastal Zone (CZ), specifically:

- **RLU 3:** Provide convenient access to open space and employment areas.
- **T 1:** Construct and maintain an adequate community circulation network that is compatible with the regional transportation element.
- **T 3:** Provide a transportation system that maximizes the opportunities for public transit.
- **T 4:** Provide a system of bikeways and pedestrian facilities that would encourage bicycling and walking as a means of transportation.
- **T 5:** Provide a transportation system that is a convenient linkage to the community's activity centers and to the rest of the metropolitan region.
- **OS 1:** Preserve, protect, enhance, and, where possible, restore all natural open space and sensitive resource areas including Los Peñasquitos Canyon Preserve, coastal sandstone bluffs and identified wildlife corridors.
- **OS 2:** Prohibit encroachment and impacts of adjacent development, both private and public, on areas designated open space.
- **CF 1:** Provide the necessary infrastructure and service suitable to the needs of the land uses planned for Torrey Hills.
- **CF Policy 9:** Minimize potential impacts to Peñasquitos Lagoon by providing drainage facilities to control runoff, erosion, and sedimentation.
- **CD –** Landscape Concept (1) Develop a landscape design concept which reinforces the community's landform grading concepts.
- **CD –** Landscape Concept (3) Establish a landscape-planting palette which employs drought-tolerant, native, and naturalized plant materials which are compatible with existing native vegetation, particularly the use of Torrey Pines.
- **CD –** Landscape Concept (4) Encourage the planting of landscape materials in natural, random freeform groupings in the same manner as existing native plant materials on and around the site.
- **CZ –** Open Space and Resource Management (2) No fill or permanent structures shall be permitted within the boundaries of the Carmel Valley Restoration and Enhancement Project unless such development is first authorized by the California Coastal Commission.
- **CZ –** Open Space and Resource Management (3) No development, other than trails and fencing authorized in the approved coastal development permit, shall be constructed within the 50-foot

buffer adjacent to the Carmel Valley Restoration and Enhancement Project, unless such development is first authorized by the California Coastal Commission.

Del Mar Mesa Community Plan

The Del Mar Mesa Community Plan outlines a number of policies meant to maintain the rural estate character of the community, while also providing for recreational and conservation opportunities. Although many of the policies are not directly applicable to the proposed project, a guiding principle of the circulation element states that, "a vehicular and non-vehicular circulation system that meets the needs of Del Mar Mesa residents and visitors at an acceptable level of service" should exist. Additionally, transportation improvements should be efficient, environmentally sensitive, and maintain Del Mar Mesa's rural character. Specific goals in the community plan of particular relevance to the project are the following:

Circulation – Guiding Principles: (1) A vehicular and non-vehicular circulation system that meets the needs of Del Mar Mesa residents and visitors at an acceptable level of service. (2) An efficient and environmentally sensitive transportation system that maintains the Del Mar Mesa's rural character. (3) Hiking and equestrian trails, with access to adjacent trails that provide walking and horseback riding opportunities to the general public and Del Mar Mesa residents.

Pacific Highlands Ranch Community Plan

The overall planning principles of the PHR Community Plan generally are focused on the maintenance of the MHPA, preserving open space, and protecting wildlife in the area. Pedestrian movement is envisioned for the community through a mixed-use development plan and a network of neighborhoods. According to the plan, the community is "defined by its open spaces, streets, and neighborhoods that give it form and contribute to the quality of life for its residents." Specific goals in the community plan of particular relevance to the proposed project are the following Land Use (LU) and Circulation (C) elements:

- **LU 1:** Create a unique community that conserves the surrounding natural environment while providing a pedestrian-oriented pattern of development.
- **C 1:** Provide a circulation system that assists in the efficient movement of vehicles.
- **C 2:** Develop a multi-modal circulation system to provide alternative means and routes to arrive at the same destination point.

North City Future Urbanizing Area Subarea II Community Plan

No "typical" community plan exists for this area. Planning and land use policies are contained in the NCFUA Framework Plan and the Progress Guide and General Plan.

The NCFUA is a 12,000-acre area with a range of natural features that rivals the diverse environment of San Diego as a whole. Stretching from I-5 on the west almost to I-15, with Los Peñasquitos Canyon at the southernmost edge and the Santa Fe Valley to the north, the NCFUA's irregular boundary reflects the natural features and urbanized communities that surround it. The natural resources and landforms that comprise the San Dieguito River Valley are the prominent features of this planning area. Most uses within this portion of the river valley are related to agriculture or recreation. As a result, the guiding principles for this area include incorporating a permanent environmental tier of open space lands with high natural resource value; concentrating residential development in specific areas to create compact communities; and designating employment centers in locations that are near shops, services, housing, and transportation. The plan intends to restrict land use intensity to avoid severe traffic

impacts in neighboring communities. The vision for development includes small urban nodes, where cultural facilities will exist, and where shopping is accomplished along old-style Main Streets. Specific goals in the community plan of particular relevance to the proposed project are the following Land Use (LU) and Transportation (T) elements:

- **LU 3.1f:** Limit adverse impacts on surrounding communities by providing needed public facilities within the NCFUA, coordinating planning with surrounding areas, and restricting land use intensity to avoid severe traffic impacts in neighboring communities.
- **T 6.1b:** The circulation system shall be designed to meet regional transportation needs by providing major links between existing and planned roads in surrounding communities and jurisdictions.
- **T 6.1c:** Create a land use and circulation pattern that supports multimodal travel habits for people living and working in the NCFUA. Give preference to transit on congested road segments.

Pedestrian and Bicycle Plans

Although plans such as SANDAG's RTP and CMP implement transportation policies at the regional level, the General Plan Mobility Element specifically plans for the City's local transportation goals and needs. The Mobility Element outlines specific goals promoting walkable communities including:

- A city where walking is a viable travel choice, particularly for trips of less than one-half mile.
- A safe and comfortable pedestrian environment.
- A complete, functional, and interconnected pedestrian network, that is accessible to pedestrians of all abilities.
- Greater walkability achieved through pedestrian-friendly street, site and building design.

Additionally, the City is in the process of developing a Pedestrian Master Plan (PMP), which will identify and prioritize pedestrian improvement projects based on technical analysis and community input, and is intended to be complementary to the community plans.

The Mobility Element also includes a discussion of the City's goals for increasing and improving bicycle transit. Development, maintenance, and support of the bicycle network are guided by the City's Bicycle Master Plan (City of San Diego 2002b). Goals of the Mobility Element pertaining to bicycling include:

- A city where bicycling is a viable travel choice, particularly for trips of less than 5 miles.
- A safe and comprehensive local and regional bikeway network.

Environmental quality, public health, recreation and mobility benefits through increased bicycling.

ENVIRONMENTAL CONSEQUENCES

Construction-related impacts would be similar for all four build alternatives. Construction activity along I-5/SR-56 would occur in stages to minimize disruptions. Construction activities may create conflicts with relevant existing plans and programs by disrupting vehicular and pedestrian access; increase noise, dust, and harmful emissions; create visual impacts; and use parking lots and vacant areas as staging grounds for construction activities. However, any impacts related to these disruptions would be temporary proximity impacts and are not anticipated to result in permanent conflicts with relevant existing plans and programs.

SANDAG Congestion Management Program (2008)

SR-56 is included in the analysis that was conducted for the CMP. The proposed project would relieve congestion and is consistent with the CMP, SANDAG 2050 RTP, and 2010 RTIP.

SANDAG 2050 RTP and 2010 RTIP

At the core of these plans are six policy goals:

- Mobility: The transportation system should provide the general public and those who move goods with convenient travel options. The system also should operate in a way that maximizes productivity. It should reduce the time it takes to travel and the costs associated with travel.
- Reliability: The transportation system should be reliable. Travelers should expect relatively consistent travel times, from day to day, for the same trip and mode of transportation.
- Social Equity: The transportation system should be designed to provide an equitable level of transportation services to all segments of the population.
- Healthy Environment: The transportation system should promote environmental sustainability and foster efficient development patterns that optimize travel, housing, and employment choices. The system should encourage growth away from rural areas and closer to existing and planned development.
- Prosperous Economy: The transportation system should play a significant role in raising the region's standard of living.

As previously discussed, the proposed project is included in SANDAG's 2010 RTIP and SANDAG's 2050 RTP. Both of these documents include the proposed project as west-to-north and south-to-east freeway connectors, and the related conformity determinations have been approved by the U.S. Department of Transportation (USDOT). The design concept and scope of the proposed project is consistent with the project description in the 2050 RTP, and the 2010 RTIP, and the "open to traffic" assumptions of the SANDAG regional emissions analysis. See also Section 3.7.3.1 for a discussion of the use of Series 10 versus Series 12 traffic projections.

Natural Communities Conservation Plans: City of San Diego MSCP Subarea Plan

The City of San Diego is one of several jurisdictions participating in the MSCP, a comprehensive habitat conservation planning program for southwestern San Diego County. The City has completed the planning effort to identify core biological resource areas targeted for conservation and has entered into an agreement with federal and state wildlife agencies to ensure implementation of the resource conservation plan and habitat preserve. The City subarea encompasses 206,124 acres within the MSCP study area. The City's planned habitat preserve is the MHPA (see Section 3.1.3.1). Approximately 90 percent of the MHPA lands (52,012 acres) within the City of San Diego's subarea are preserved for biological purposes. Approximately 9,500 acres of the MHPA is located in the study area; however, none of the MHPA is located in the project footprint.

City of San Diego Local Coastal Program

The proposed project would comply with all permitting requirements under the Coastal Zone Management Act (CZMA) and the California Coastal Act. The proposed project would also comply with the local coastal program policies set forth by the City of San Diego under its Certified Local Coastal Plan.

City of San Diego General Plan

The General Plan and applicable community plans identify specific goals and policies for the various communities. The proposed build alternatives would not result in any substantial changes to future land use within the proposed project corridor and would minimize effects to adjacent existing land uses. The propose project would not result in fragmentation or displacement of any preserved open space areas. The Mobility Element of the General Plan explicitly outlines an increase in capacity and a reduction in congestion along the freeway system as a primary goal. Additionally, applicable community plans within San Diego reflect this larger goal of the provision of a transportation system that provides convenient links to the rest of the metropolitan region. Therefore, the proposed project would be generally consistent with the city and community plans and policies established for the City of San Diego.

Community Plans

As previously discussed, San Diego is composed of multiple communities with accompanying community plans that identify specific goals for each region. Table 3.1-1 provides a detailed listing of relevant goals and policies and the proposed project's consistency with the planning communities of Torrey Pines, Carmel Valley, Torrey Hills, Del Mar Mesa, PHR, and the NCFUA.

As discussed, the proposed project would be consistent with all relevant community and general plans. The proposed project would improve circulation between I-5 and SR-56 through realignment of the interchange and connectivity improvement. The proposed project would also reduce congestion along area roadways during peak hours, creating a more efficient movement of vehicles. No encroachments into designated open space or recreations areas would result from the proposed project. Furthermore, the proposed project would not disrupt or affect overall land use patterns and impacts would be similar for all four of the proposed build alternatives.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Caltrans has undertaken extensive efforts to integrate the proposed project within the adjacent/adjoining communities of San Diego. Continuing efforts between Caltrans and these communities are ongoing, to avoid land use compatibility conflicts with state transportation facilities. Efforts also have been made during Inter-Governmental Review (IGR) processes, as well as in collaborative CEQA documents, to coordinate between other potential projects and the proposed project in avoiding land use conflicts. Caltrans has minimized effects to land use by analyzing over 30 alternatives before arriving at the final five (5) alternatives. Wherever possible, the proposed project build alternatives would follow the existing I-5 alignment to minimize impacts to land use. All four build alternatives have undergone several design iterations, with community input from the Steering Committee, to avoid and/or minimize potential impacts to land use. Therefore, the proposed project would not result in any inconsistency with approved plans.

Additionally, implementation of the proposed project may be within the 50-foot buffer adjacent to the Carmel Valley Restoration and Enhancement Project and would require approval by the CCC. Caltrans would coordinate with the city, wildlife agencies, and CCC as required to ensure that potential impacts to environmentally sensitive habitats would be minimized to the maximum extent practicable. No mitigation measures for consistency with any laws, plans, programs, or policies are required.

Table 3.1-1. Project Consistency with Other Local Plans and Policies

Relevant Key Goals	Project Considerations	Project Consistency
City of San Diego Local Coastal Program		
Local Coastal Program Policies The proposed project is located within the City of San Diego's Certified LCP and Deferred Certification Area. The project would comply with all permitting requirements under the Coastal Zone Management Act (CZMA), the California Coastal Act, and the local coastal program policies set forth by the City of San Diego. <u>Grading/Water Quality</u> Grading for properties within the Coastal Zone that drain into Los Peñasquitos Lagoon or San Dieguito Lagoon require compliance with erosion control measures specified in the document "Erosion Control Measures for North City Areas Draining to Los Peñasquitos or San Dieguito Lagoons" on file in the Office of the City Clerk as Document No. 00-17068. <u>Visual Resources</u> 1) Significant scenic resource areas including San Dieguito Regional Park, Crest Canyon, Torrey Pines State Reserve Extension, Los Peñasquitos Lagoon, and the Carroll Canyon Creek Corridor have been designated and rezoned to open space. 5) Landscaping of properties adjacent to open space areas shall not use invasive plant species. Landscaping adjacent to these areas should use plant species naturally occurring in that area. 11) The Plan recommends the preservation of Torrey Pine trees in private as well as public areas, and encourages the planting of Torrey Pine trees in roadways and other landscaped areas. Should Torrey Pine trees require removal, relocation or replacement of the trees shall occur whenever feasible.	The proposed project would include appropriate best management practice to ensure that erosion would be controlled. The landscape concept plans for the project do not include invasive plant species in areas next to sensitive open space. Torrey pines are included in the landscape concept plans.	Federal Consistency with the Coastal Zone Management Act will need to be obtained through the Coastal Development Permit process. All four build alternatives are consistent. The No Build Alternative would be consistent.
Torrey Pines Community Plan		
Resource Management and Open Space Element <u>Goals:</u> (1) Ensure long-term sustainability of the unique ecosystems in the Torrey Pines community, including all soil, water, air, and biological components that interact to form healthy functioning ecosystems. (2) Conserve, restore, and enhance plant communities and wildlife habitat, especially habitat for rare, threatened, and endangered species. (3) Retain viable, connected systems of wildlife habitat, and maintain these areas in their natural state. (4) Identify, inventory, and preserve the unique paleontological, archeological, Native American, and historic resources of Torrey Pines for their educational, cultural, and scientific values. (5) Preserve, enhance, and restore all natural open space and sensitive resources areas, including Los Peñasquitos Lagoon and associated uplands, Torrey Pines State park and Reserve Extension areas with its distinctive sandstone bluffs and red rock, Crest Canyon, San Dieguito Lagoon and River Valley, the Carroll Canyon Wetland/Wildlife Corridor through Sorrento Valley, and all selected corridors providing linkage between these areas. (6) Establish a pedestrian/bicycle pathway system that links all open space areas, from Carroll Canyon in the south to the San Dieguito River Valley in the north. This pathway system shall be provided concurrent with adjacent development and shall be designed consistent with the design guidelines provided within this Plan.	The proposed project would not impact any threatened or endangered species. The proposed project would not severe wildlife habitat connectivity. No adverse effects to cultural resources are anticipated and the proposed project would include measures to protect paleontological resources to the extent possible. The proposed project would not impact any open space or recreation areas. The proposed project would not permanently impact any pedestrian or bicycle pathways. There may be some temporary effects resulting from construction activities.	All four alternatives would be consistent. The No Build Alternative would be consistent.

Relevant Key Goals	Project Considerations	Project Consistency
Transportation Element Goals: (1) Provide an efficient, safe, and environmentally sensitive transportation system. (2) Ensure that transportation improvements do not negatively impact the numerous open space systems located throughout the Torrey Pines community. (3) Provide a transportation system that maximizes the opportunities for public transit use, especially in Sorrento Valley. (4) Provide a system of bikeways and pedestrian facilities that will encourage bicycling and walking as a means of transportation. (5) Provide a transportation system that provides convenient linkages to the community's activity centers and to the rest of the metropolitan region. (6) Provide a safe and environmentally sensitive improvement of the Del Mar Terrace neighborhood streets. (7) Provide a transportation system that encourages the use of mass transit, rather than building and/or widening roads and freeways. (8) Investigate the feasibility of providing seasonal shuttle service. Relevant Policies: (T 1) The construction of new roads or improvements to existing roads adjacent to open space areas shall mitigate impacts through the restoration and enhancement of that open space system to the maximum extent feasible. (T 5) Provide improvements to the road network that will facilitate traffic circulation without negatively impacting adjacent open space areas and residential neighborhoods.	The proposed project would not impact open space areas within the Torrey Pines Community. The proposed project would facilitate traffic circulation.	All four build alternatives would be consistent. The No Build Alternative would be consistent.
Carmel Valley Community Plan		
Park, Recreation, and Open Space Element 3) In order to promote preservation of the natural environment, development of either public or private nature should not be allowed on lands designated for open space unless the proposed development is compatible with open space use. An inventory of the desirable natural features of all property within the study area together with alternative plans for the conservation of these amenities should be a prerequisite for development.	The proposed project would not impact designated open space within the Carmel Valley Community.	All four build alternatives would be consistent. The No Build Alternative would be consistent.
Circulation Element Goals: 1) In order to promote North City West as a balanced community, a balanced transportation system must be included in initial construction of North City West. Such a system would assure mobility and access to all parts of the community for all residents and therefore facilitate a social balance.	The proposed project would reduce congestion in the area and help decrease traffic along local street routes during peak hours; it also would improve circulation between I-5 and SR-56.	All four build alternatives would be consistent. The No Build Alternative would be consistent.
Torrey Hills Community Plan		
Residential Land Use Element Goals: RLU 3: Provide convenient access to open space and employment areas.	The proposed project would improve circulation between I-5 and SR-56 by realigning the interchange and improving connectivity.	All four build alternatives would be consistent. The No Build Alternative would be consistent.

Relevant Key Goals	Project Considerations	Project Consistency
Transportation Element Goals: (1) Construct and maintain an adequate community circulation network that is compatible with the regional transportation system. (3) Provide a transportation system that maximizes the opportunities for public transit. (4) Provide a system of bikeways and pedestrian facilities that would encourage bicycling and walking as a means of transportation. (5) Provide a transportation system that is a convenient linkage to the community's activity centers and to the rest of the metropolitan region.	The proposed project would improve circulation between I-5 and SR-56 by realigning the interchange and improving connectivity. Although the proposed project would not include alternatives to motorized transportation such as bike lanes, implementation of the proposed project would not inhibit any existing alternative modes of transportation and would ease congestion for easier carpooling and transit.	All four build alternatives would be consistent. The No Build Alternative would be consistent.
Open Space and Resource Management Element Goals: (1) Preserve, protect, enhance, and, where possible, restore all natural open space and sensitive resource areas including Los Peñasquitos Canyon Preserve, coastal sandstone bluffs and identified wildlife corridors. (2) Prohibit encroachment and impacts of adjacent development, both private and public, on areas designated open space.	The proposed project would not impact natural open space within the Torrey Hills Community. Any impacts to sensitive resources would be offset with measure minimize or compensate the impacts.	All four build alternatives would be consistent. The No Build Alternative would be consistent.
Community Facilities Element Goals: (CF 1) Provide the necessary infrastructure and service suitable to the needs of the land uses planned for Torrey Hills. Relevant Policies: (8) Minimize potential impacts to Peñasquitos Lagoon by providing drainage facilities to control runoff, erosion, and sedimentation.	The proposed project is consistent with goal of providing suitable infrastructure as it serves the Torrey Hills Community. Implementation of the proposed project would include drainage design features to control runoff, erosion, and sedimentation that could benefit Los Peñasquitos Lagoon.	All four build alternatives would be consistent. The No Build Alternative would be consistent
Community Design Element *Landscape Concept* Goals: (1) Develop a landscape design concept which reinforces the community's landform grading concepts. (3) Establish a landscape planting palette which employs drought-tolerant, native, and naturalized plant materials which are compatible with existing native vegetation, particularly the use of Torrey Pines. (4) Encourage the planting of landscape materials in natural, random freeform groupings in the same manner as existing native plant materials on and around the site.	The landscape concept plans for the proposed project includes landform grading concepts, plant palettes and landscape design that are consistent with the goals of the Torrey Hills Community Plan.	All four build alternatives would be consistent. The No Build Alternative would be consistent.
Coastal Zone Policies *Open Space and Resource Management* (2) No fill or permanent structures shall be permitted within the boundaries of the Carmel Valley Restoration and Enhancement Project unless such development is first authorized by the California Coastal Commission. (3) No development, other than trails and fencing authorized in the approved coastal development permit, shall be constructed within the 50-foot buffer adjacent to the Carmel Valley Restoration and Enhancement Project, unless such development is first authorized by the California Coastal Commission.	The proposed project would not be within the boundaries of the Carmel Valley Restoration and Enhancement Project. Depending on the final engineering configuration, project components may be within the 50-foot buffer and would require approval of the California Coastal Commission.	All four build alternatives would be consistent assuming approval by the California Coastal Commission. The No Build Alternative would be consistent.

Relevant Key Goals	Project Considerations	Project Consistency
Del Mar Mesa Community Plan		
Circulation Element (1) A vehicular and non-vehicular circulation system that meets the needs of Del Mar Mesa residents and visitors at an acceptable level of service. (2) An efficient and environmentally sensitive transportation system that maintains the Del Mar Mesa's rural character.	The proposed project would improve circulation between I-5 and SR-56 by realigning the interchange and improving connectivity. The proposed project would maintain an acceptable level of service for residents and visitors to the area.	All four build alternatives are consistent. The No Build Alternative would be consistent.
Pacific Highlands Ranch Community Plan		
Land Use Element Goals: (1) Create a unique community that conserves the surrounding natural environment while providing a pedestrian-oriented pattern of development.	The proposed project would not impact open space within the Pacific Highlands Ranch Community and is not inconsistent with the development of pedestrian-oriented development within the community.	All four build alternatives are consistent. The No Build Alternative would be consistent.
Circulation Element Goals: (1) Provide a circulation system that assists in the efficient movement of vehicles. (2) Develop a multi-modal circulation system to provide alternative means and routes to arrive at the same destination point.	The proposed project would improve circulation between I-5 and SR-56 by realigning the interchange and improving connectivity. The proposed project would also reduce congestion along area roads during peak hours, creating a more efficient movement of vehicles. The improvements to the interchange would create a more efficient multi-modal circulation system by reducing congestion at the interchange and giving motorists incentive to freeway facilities rather than local streets.	All four build alternatives are consistent. The No Build Alternative would be consistent.
North City Future Urbanizing Area Subarea II (NCFUA) Community Plan		
Land Use Element Goals: (3.1f) Limit adverse impacts on surrounding communities by providing needed public facilities within the NCFUA, coordinating planning with surrounding areas, and restricting land use intensity to avoid severe traffic impacts in neighboring communities.	The proposed project would improve circulation between I-5 and SR-56 by realigning the interchange and improving connectivity. The proposed project would also reduce congestion along area roads during peak hours, creating a more efficient movement of vehicles. The improvements to the interchange would create a more efficient multi-modal circulation system by reducing congestion at the interchange and giving motorists incentive to freeway facilities rather than local streets.	All four build alternatives are consistent. The No Build Alternative would be consistent.
Transportation Element Goals: (6.1b) The circulation system shall be designed to meet regional transportation needs by providing major links between existing and planned roads in surrounding communities and jurisdictions. (6.1c) Create a land use and circulation pattern that supports multimodal travel habits for people living and working in the NCFUA. Give preference to transit on congested road segments.	See above.	All four build alternatives are consistent. The No Build Alternative would be consistent.

Source: Compiled by AECOM in 2011

3.1.3 COASTAL ZONE

REGULATORY SETTING

The proposed project is located within the City of San Diego's Certified LCP and Deferred Certification Area. The project would comply with all permitting requirements under the Coastal Zone Management Act (CZMA), the California Coastal Act, and the local coastal program policies set forth by the City of San Diego. Federal Consistency with the Coastal Zone Management Act will also need to be obtained through the Coastal Development Permit process.

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 CZMA; they include the protection and expansion of public access and recreation, the protection, enhancement and restoration of environmentally sensitive areas, protection of agricultural lands, the protection of scenic beauty, and the protection of property and life from coastal hazards. The California Coastal Commission (CCC) is responsible for implementation and oversight under the California Coastal Act.

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

AFFECTED ENVIRONMENT

The proposed project is directly adjacent to Los Peñasquitos Lagoon and to CVREP (Carmel Valley River Enhancement Project), both of which drain to the Pacific Ocean. CVREP is located within the City of San Diego's Certified LCP. As discussed in Section 3.1.2, the proposed project is within the coastal zone boundary of the California Coastal Commission as well as the City of San Diego's LCP (see Figure 3.1-3).

ENVIRONMENTAL CONSEQUENCES

The No Build Alternative would not have any impacts within the coastal zone.

All of the proposed build alternatives would have impacts within the coastal zone. These impacts are the subject of the remainder of this chapter. See particularly Section 3.8 Visual/Aesthetics, Section 3.7 Traffic, Section 3.11 Water Quality and Storm Water, and Sections 3.18 through Section 3.23 Biological Environment. The potentially impacted vegetation communities near Del Mar Heights Road are within areas identified by the California Coastal Commission as Environmental Sensitive Habitat Area (ESHA) even though the vegetation has been and is disturbed.

AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

The proposed project would comply with all permitting requirements under the CZMA and the California Coastal Act. The proposed project would also comply with the local coastal program policies set forth by the City of San Diego. The I-5/SR-56 project is identified as an independent project in the draft North Coast Corridor (NCC) Transportation and Resource Enhancement Program and Highway Public Works Plan (TREP/PWP) prepared by SANDAG and Caltrans. The TREP/PWP is a plan to implement a series of transportation, community and resource enhancement projects in a comprehensive and coordinated manner to meet the region's mobility vision while ensuring compliance with the California Coastal Act.

The proposed project would require a coastal permit from the City of San Diego and a federal consistency determination from the California Coastal Commission.

3.1.4 PARKS AND RECREATIONAL FACILITIES

This section analyzes the effects associated with the proposed project on parks and recreational facilities existing within the proposed project vicinity, including equestrian trails, recreational bikeways, and other recreational trails. Appendix B of this document addresses the resources evaluated relative to the requirements of Section 4(f); Section 4(f) is not addressed in this section.

AFFECTED ENVIRONMENT

Several public and private parks and recreation facilities are within 0.5 mile of the proposed project construction limits of all alternatives, as listed and discussed next.

Public Parks

- Solana Highlands Park – City of San Diego
- Carmel Valley Community Park and Recreation Center – City of San Diego
- Carmel Grove Park – City of San Diego
- Carmel Del Mar Park – City of San Diego
- Del Mar Trails Park – City of San Diego
- Carmel Mission Park – City of San Diego

Wildlife Refuges and Open Space Preserves

- Torrey Pines State Park – State of California
- Carmel Creek Open Space from I-5 to Carmel Country Road (CVREP) – City of San Diego
- San Dieguito River Park – San Dieguito River Valley Regional Open Space Park JPA
- Crest Canyon Open Space Park – City of San Diego
- Overlook Park (Open Space) – City of San Diego

In addition, the pattern of development in the San Diego area has preserved a number of open space areas that offer public access and informal trails, sometimes connected to each other and to other designated trails, identified in Figure 3.1-2.

Designated Trails

- Trans County Trail Segment (part of the proposed 110-mile-long Trans County Trail from Torrey Pines State Park to Anza-Borrego Desert State Park)

Sorrento Valley Road from near Carmel Valley Road to 470 feet north of Carmel Mountain Road has been closed by the City of San Diego. The City has proposed converting the road into a recreational trail, and it already serves this purpose for hikers and bicyclists.

Public Schools

- Del Mar Hills Academy of Arts and Sciences – Del Mar Union School District
- Solana Highlands Elementary School – Solana Beach School District
- Carmel Del Mar Elementary School – Del Mar Union School District
- Sycamore Ridge Elementary School – Del Mar Union School District
- Del Mar Heights Elementary School – Del Mar Union School District

At all of these public schools, playing fields may be used after school hours by organizations such as Little League and soccer leagues.

Privately owned recreational facilities within 0.5 mile of the proposed project construction limits include the following.

Private Schools

- San Diego Jewish Academy
- Notre Dame Academy

Public use of recreational facilities is not allowed at either of these private schools.

Golf Courses

- Grand Del Mar Golf Club
- Palacio Del Mar Recreation Center and Golf Course

Both of these are privately owned (not municipal) golf courses.

Equestrian Centers

- Clews Horse Ranch
- Seabreeze Farms Equestrian Center

Both of these are privately owned and operated enterprises.

ENVIRONMENTAL CONSEQUENCES

As shown in the Table 3.1-2, the following recreational resources were examined in Appendix B: Resources Evaluated Relative to the Requirements of Section 4(f).” Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 USC 303, applies to federal-aid highway projects. Further evaluation was conducted on the public properties that have public access to determine if the proposed project would use land from these remaining facilities. “Use” occurs if the project would actually incorporate land from one of these facilities into the transportation facility or if the proximity impacts caused by the proposed project substantially impair the activities, features, or attributes of a Section 4(f) resource that qualify the resource for protection under Section 4(f). Proximity impacts can include impacts to accessibility, aesthetics (visual), vegetation, wildlife, air quality, or water quality. Based on the evaluations in Appendix B, the proposed project would not “use” any land from these resources.

The following facilities are separated from the proposed project by intervening development and/or substantial distance and would therefore not be subject to proximity impacts from the proposed project:

- Solano Highlands Park
- Carmel Valley Community Park and Recreation Center
- Carmel Grove Park
- Carmel Del Mar Park
- Del Mar Trails Park
- Carmel Mission Park
- Carmel Knolls Park
- Community Open Space and Trails
- Solano Highlands Elementary School

- Del Mar Heights Elementary School
- Carmel Del Mar Elementary School
- Sycamore Ridge Elementary School

The following facilities are adjacent, partially adjacent, or exposed to the proposed project; all four build alternatives potentially could have proximity impact to these facilities, related to visual and noise impacts.

Del Mar Hills Academy of Arts and Sciences

This school with grades kindergarten through 6 is on the bluffs above the west side of I-5, about 1,400 feet north of the Del Mar Heights Road interchange. Playing fields at the school can be scheduled for use after school hours by organizations such as Little League or soccer leagues. All of the proposed project build alternatives would widen I-5 at this location. The widening would not take any land from the school and would not substantially change views from the school or its grounds. For the proposed project's Noise Study Report, four receptors (R5.5, R5.5A, R5.6, and R5.6A in Figures 2-4c, 2-5c, 2-6c, and 2-7c) were placed on or near the school grounds nearest the freeway. Calculated future noise levels showed a decrease of 1 to 5 dBA $L_{eq(h)}$ from future levels for the No Build Alternative at all receptors and for all build alternatives.

San Dieguito River Park (including Crest Canyon Park and Overlook Park)

The San Dieguito River Park is administered by the San Dieguito River Valley Regional Open Space Park JPA, which is working to create a regional open space greenway and park system by preserving and restoring land along the length of the San Dieguito River watershed. This open space greenway and park system is planned to be integrated by a corridor of walking, equestrian, and bicycle trails that would extend from the Pacific Ocean to Volcan Mountain. Overlook Park and Crest Canyon Park are integrated into the San Dieguito River Park Concept Plan.

Overlook Park and Crest Canyon Park are adjacent to the northern end of the proposed project impact area, with Overlook Park on the east and Crest Canyon Park on the west. North of these two parks and adjacent to the impact area on the north is the San Dieguito River Park.

Overlook Park is an open space area without a designated trail system and has no formal recreational facilities. The park essentially serves as open space. While the most northerly portion of the proposed project (the northbound Del Mar Height on-ramp to I-5), tapers off in close proximity to the park, the proposed project would not impact Overlook Park's function as open space. In fact, the noise modeling conducted for the proposed project shows that noise levels would actually decrease by 3 dBA with the proposed project (see Direct Connector Alternative receptor R5.24). There would be only minimal visual intrusion by the proposed project to the park since the only new element that would be visible from the park boundary would be the taper of the on-ramp lane. The trail system in Crest Canyon Park runs south in a loop in the canyon from the San Dieguito River Park. The trail is more than 1,200 feet from I-5 and separated by a ridge, so that no visual or noise effects would occur on the trail from any alternative of the proposed project.

The area of the San Dieguito River Park north of the project area is in the Coastal Area of the park and is part of the San Dieguito Lagoon ecological preserve. It is not developed for active use, and the park's trail systems are more than 0.5 mile north of the proposed project's construction limits. Because of the physical distance between the northern terminus of the proposed project and the San Dieguito River Park, the park would not be subject noise impacts nor visual impacts from the proposed project.

Torrey Pines State Reserve

The Torrey Pines State Reserve is west of I-5 and southwest of the proposed project site. The area nearest the interchange is the Los Peñasquitos Marsh Natural Preserve. The park is part of the State of California Natural Reserve system and operates as a day-use-only facility. West of the marsh preserve are 8 miles of hiking trails, a visitor center, and guided walks on weekends and holidays. A separate preserve area with its own system of trails, known as the Annex, is north of Carmel Valley Road and at least 700 feet west of I-5.

All parts of Torrey Pines State Reserve are outside of the construction limits of all proposed project build alternatives. No public access exists to the Los Peñasquitos Marsh Natural Preserve, and the trails and visitor center are well to the west of the proposed project. Part of the Annex is within 0.5 mile of the proposed project construction limits, but it is separated from those limits by residential development. The proposed project would not use any of the land belonging to the reserve and would not affect the reserve's future use. Whitewater views of the project have not been obstructed by the proposed project given the proximity, topography and geography separating the existing and proposed improvements from the Reserve.

Carmel Creek Open Space Preserve

South of and adjacent to SR-56 from the I-5 interchange to Carmel Country Road, this open space area is permanently preserved as an ecological restoration area and, as such, is a 4(f) resource. It is bordered on the south by the Trans County Trail. Public access to the Carmel Creek Open Space Preserve is not allowed. Construction of the proposed project adjacent to the preserve would not use the preserve. All structures foundation work and bridge piers would be within Caltrans existing right-of-way. Similar to the Trans County Trail discussed below, the preserve would not be constructively used because the anticipated change in noise level is only 1 or 2 dBA $L_{eq(h)}$ (A-weighted decibel equivalent sound level over one hour) which is virtually imperceptible to the human ear and therefore would not give rise to substantial impairment of the open space area. The open space preserve's is not open to the public (human use), therefore, for visual impact analysis no sensitive viewer groups would be present within the preserve.

Trans County Trail

The segment of the Trans County Trail in the proposed project area is sometimes known as the 56 Bike Trail, although it is also intended for use by hikers and equestrians. The San Diego Trans County Trail is a segment of the Sea to Sea Trail. Promoted by the Sea to Sea Trail Foundation, it is intended to be part of a network of connected trails crisscrossing the lower 48 states. When completed, the Trans County Trail will run from the Pacific Ocean at Torrey Pines State Reserve to the Salton Sea in Anza-Borrego Desert State Park. It crosses the Pacific Crest Trail, which is part of the federally designated National Trails System.

In the proposed project area, the Trans County Trail has a paved section for bikers and pedestrians and a decomposed granite section for pedestrians and equestrians. Leaving the proposed project area, it turns southerly to enter Los Peñasquitos Canyon Preserve. On the west, it crosses under I-5 and follows Carmel Valley Road to the Pacific shore. Publicly owned and with public access, it is a 4(f) resource. In most of the proposed project area, it is about 300 to 900 feet south of SR-56, but it is within about 150 feet of the freeway where the trail bends northward around the Clews Horse Ranch.

The proposed project would not use any land dedicated to Trans County Trail use. Forecast future noise levels have not been calculated at the trail, but they were calculated for the adjacent San Diego Jewish Academy on the west and the Clews Horse Ranch on the east in the proposed project's Noise Study Report. Noise levels were calculated at four receptors (R42, R43, R44, and R45 in Figures 2-4d,

2-5d, 2-6d, and 2-7d) at the San Diego Jewish Academy and two receptors at Clews Horse Ranch (R46 and R47 in Figures 2-4e, 2-5e, 2-6e, 2-7e). Compared to future noise levels under the No Build Alternative at the San Diego Jewish Academy, future noise levels were calculated to remain the same at three receptors and rise 1 dBA $L_{eq(h)}$ at the other after implementation of any of the build alternatives (Table 3.1-3). At the Clews Horse Ranch, only the Direct Connector Alternative would raise the noise level, with a rise of 1 dBA at one receptor and 2 dBA at the other receptor. The comparative rise in noise at the trail can reasonably be expected to be similar; that is, a rise of no more than 1 or 2 dBA $L_{eq(h)}$. A rise of 1 or 2 dBA from future levels under the No Build Alternative would barely be perceptible and would not affect the use of the trail.

Westbound users of the trail are adjacent to well vegetated areas in the Carmel Creek open space area. All along the route from Carmel Country Road to I-5, tall vegetation associated with the Carmel Creek open space area buffers the trail visually from SR-56. In this area, with the proposed project Direct Connector Alternative, segments of the I-5 southbound to SR-56 east direct connector would be visible to the northwest but, in most parts of the trail, vegetation would obscure the view of the direct connector. Between El Camino Real and I-5 in some segments of the trail, views exist of the I-5 northbound to SR-56 eastbound connector above and between trees for westbound trail users. No prominent or obtrusive element would occur on views of the direct connector from the trail. Limited visibility of the direct connector would not affect the use of the trail. For the other three build alternatives, the visual impact would be less than that for the Direct Connector Alternative. Neither peaceful serenity nor a viewshed without manmade features are part of the user experience at this trail feature in the neighborhood of the proposed project.

Table 3.1-3. Future Noise Levels near Trans County Trail

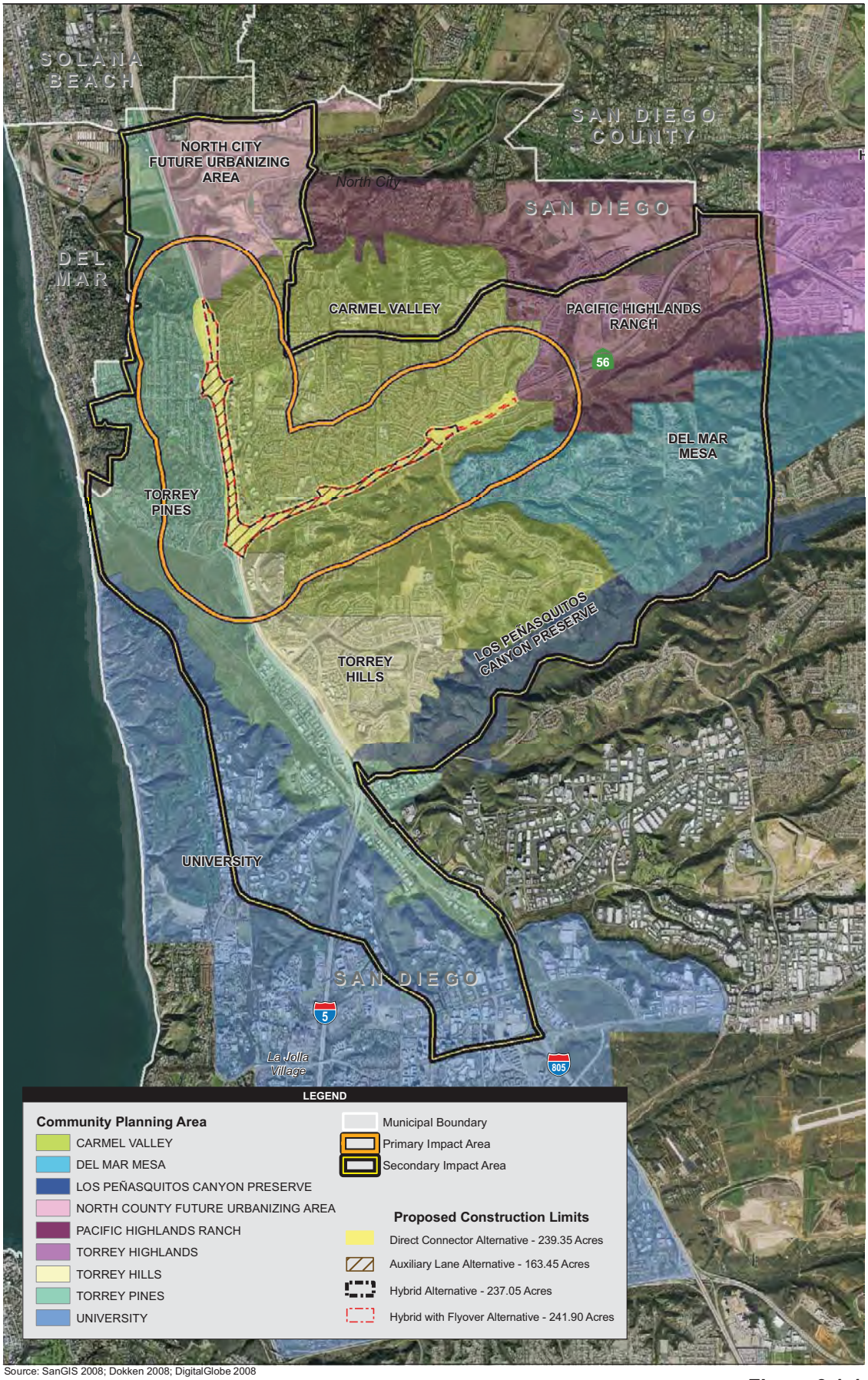
Receptor	No Build Alternative	Direct Connector Alternative	Auxiliary Lane Alternative	Hybrid Alternative	Hybrid with Flyover Alternative
San Diego Jewish Academy					
R42	67 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$	68 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$	66 dBA $L_{eq(h)}$
R43	66 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$	66 dBA $L_{eq(h)}$
R44	69 dBA $L_{eq(h)}$	69 dBA $L_{eq(h)}$	69 dBA $L_{eq(h)}$	69 dBA $L_{eq(h)}$	68 dBA $L_{eq(h)}$
R45	68 dBA $L_{eq(h)}$	69 dBA $L_{eq(h)}$	69 dBA $L_{eq(h)}$	68 dBA $L_{eq(h)}$	68 dBA $L_{eq(h)}$
Clews Horse Ranch					
R46	70 dBA $L_{eq(h)}$	71 dBA $L_{eq(h)}$	70 dBA $L_{eq(h)}$	70 dBA $L_{eq(h)}$	71 dBA $L_{eq(h)}$
R47	65 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$	65 dBA $L_{eq(h)}$	65 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$

Source: Parsons 2010

Therefore, the proposed project would not substantially impair the activities, features, or attributes of these Section 4(f) resources that would qualify the resources for protections under Section 4(f). In addition, the proposed project's noise and visual impacts identified for Torrey Pines State Reserve and the Trans County Trail would not substantially impair the activities, features, or attributes of the reserve or trail that would qualify it for protection under Section 4(f).

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

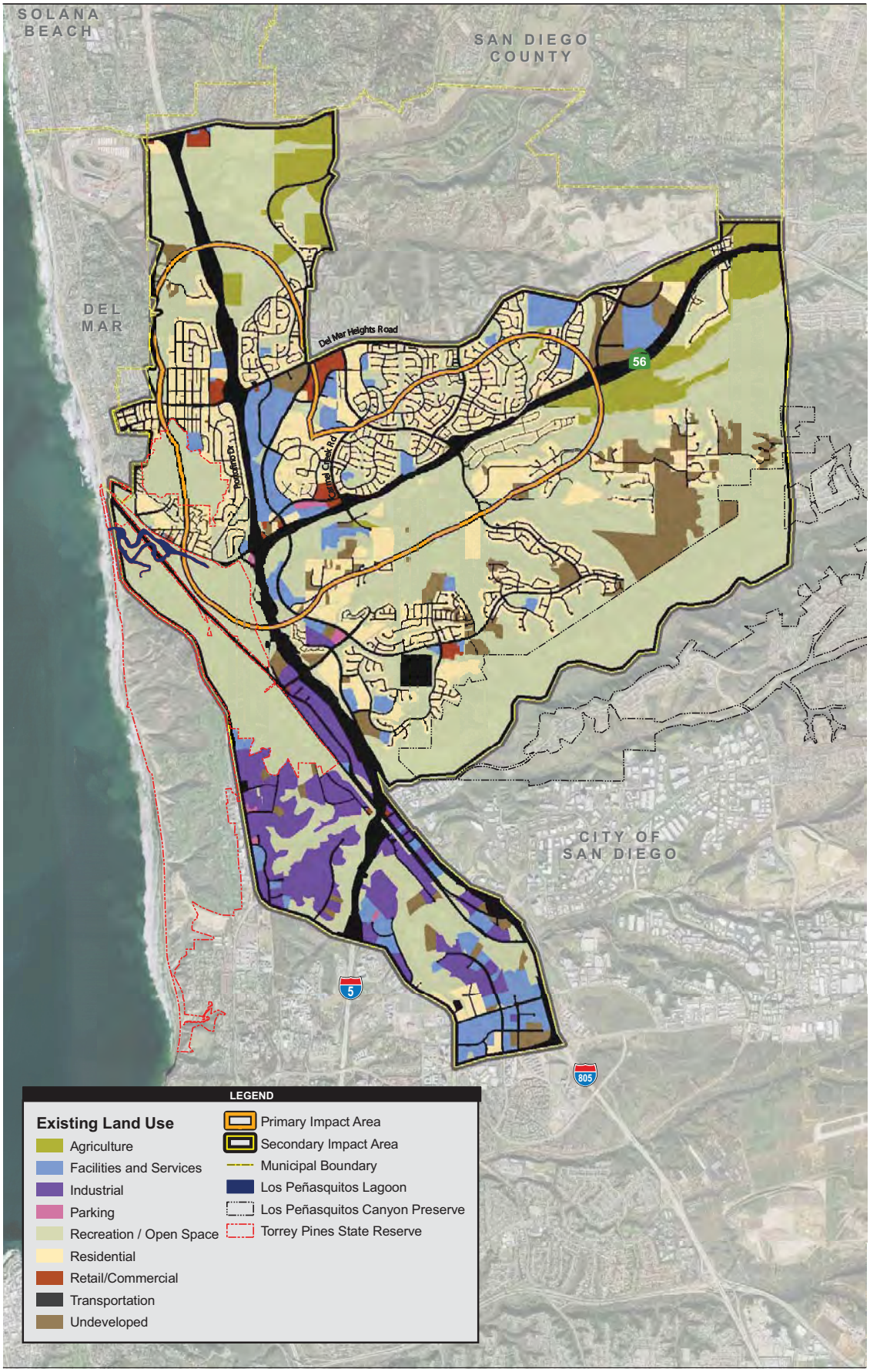
None of the public or private parks and recreational facilities within 0.5 mile of the proposed project would be adversely affected by any of the build alternatives. No mitigation is necessary.



Source: SanGIS 2008; Dokken 2008; DigitalGlobe 2008

4,000 2,000 0 4,000 Feet

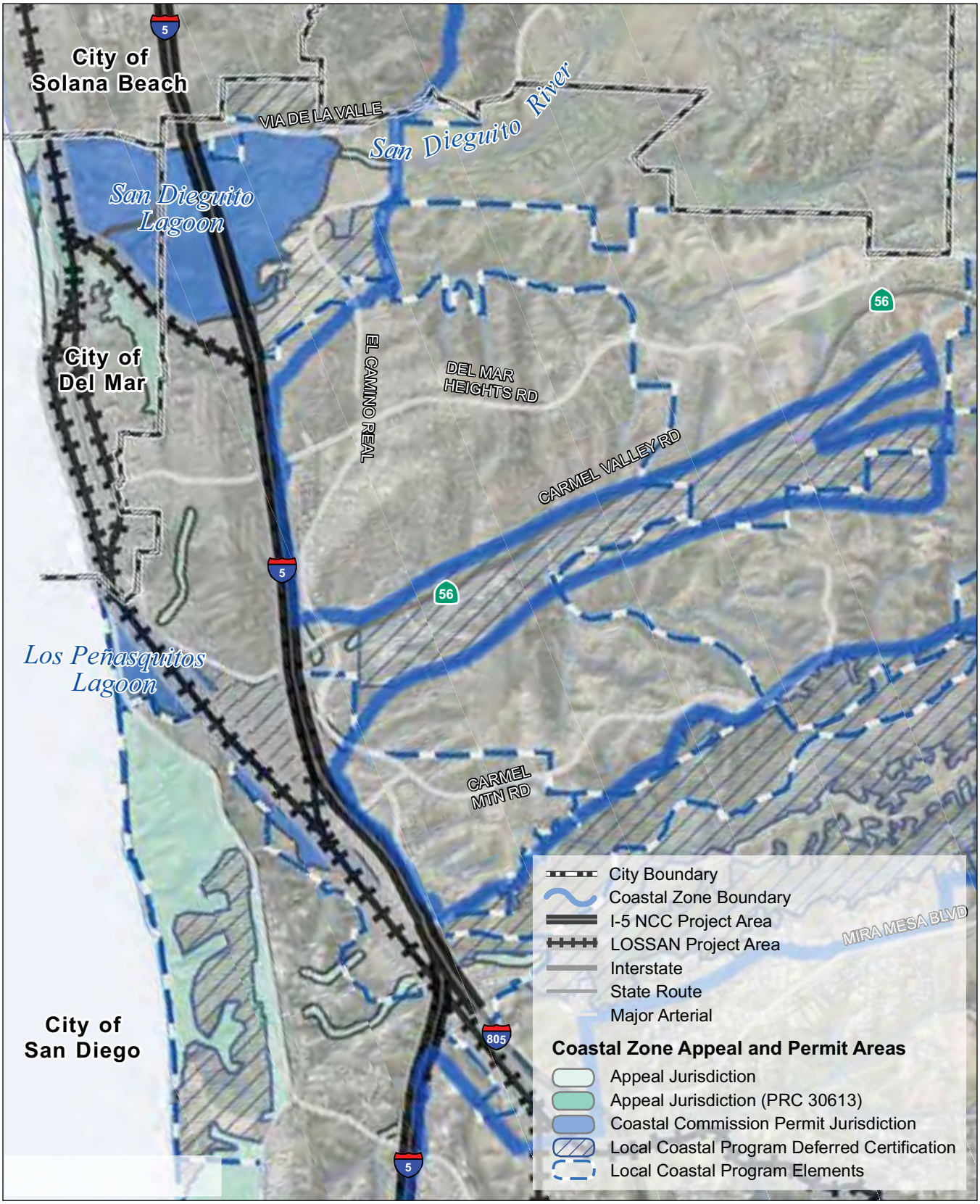
Figure 3.1-1
Community Planning Areas



Source: SanGIS 2008; Dokken 2008; DigitalGlobe 2008

4,000 2,000 0 4,000 Feet

Figure 3.1-2
San Diego Existing Land Uses



Sources: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG,USGS NHD Flowlines, Imagery: Digital Globe March 2008

0 1 2 4 Miles

Figure 3.1-3
Coastal Zone Boundaries Within Project Area

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3.2 GROWTH

This section discusses whether the proposed project would result in otherwise unforeseen direct, indirect, or secondary growth, or would otherwise influence growth. This section is based on the August 2011 CIA. The CIA technical study report was prepared for this project and created the support material for the following narrative sections.

3.2.1 REGULATORY SETTING

The Council on Environmental Quality regulations, which established the steps necessary to comply with NEPA, requires 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 regulations, 40 CFR 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.

CEQA also requires the analysis of a project's potential to induce growth. CEQA guidelines, Section 15126.2(d), require that environmental documents "discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

3.2.2 AFFECTED ENVIRONMENT

This section discusses whether the proposed I-5/SR-56 interchange project would result in unforeseen direct, indirect, or secondary growth, or would otherwise influence population growth. This discussion is based on guidance from the Caltrans Standard Environmental Reference and the Guidance for Growth-Related Indirect Impact Analyses (Caltrans 2006c).

The relationship between transportation, land use, and growth in a California context is complex. Highway projects can affect the location, rate, type, or amount of growth in an area. Some types of development may be directly induced by a project (e.g., projects serving specific types of land development). However, most land use changes in California are not direct consequences of a highway project, but rather occur indirectly due to changes in travel time and increased land accessibility in areas that may be ripe for development. The result may be a change in spatial distribution of development over time, such as commercial development around a new highway interchange. These types of growth-land use-transportation relationships are more complex and difficult to analyze than those for a project specifically designed to encourage or facilitate land use change and development.

Many factors influence land use and development in an area. Factors such as population and economic growth, desirability of certain locations, the costs and availability of developable land, physical and regulatory constraints, transportation, and the costs of sewer and water services all strongly influence where, when, and what type of development takes place.

SANDAG is the regional agency responsible for preparing population, housing, and employment projections for the San Diego region. SANDAG develops annual demographic estimates and long-range forecasts approximately every 4 years. The forecasts are based on general and community plans of each of the region's 19 jurisdictions. The proposed project is located within the North City Major Statistical Area.

The proposed SR-56/I-5 interchange project would traverse a highly urbanized part of northern San Diego. In this area, lands closer to the coast typically are higher density, smaller lot residential

developments compared to what is typical farther inland. Rural areas in this part of the city stayed relatively undeveloped until the 1970s. Development in these areas generally involves low-density residential developments on larger lots, with ample open space.

The San Diego region has experienced continual growth for an extended period of time. The history and character of the communities within the proposed project study area differ; however, a number of major historical events have led to rapid growth in the area: the completion of the Southern California Railway in 1883, the Navy's presence that began in the early 1900s, and the construction of I-5 in the 1960s. Generally, the most densely populated areas in the city are located within the older communities in the coastal area and west of I-5. However, more recent urbanization of the eastern rural parts of San Diego has expanded the county's urban population.

The majority of the proposed project study area is considered to be developed with urban uses, and few vacant developable parcels of land remain. As of 2008, an estimated 89 percent of the North City Major Statistical Area was considered developed, with 0.8 percent available for development and the remaining 10 percent undevelopable. In general, areas west of I-5 are developed with higher density residential and other uses, and the main form of growth likely would be in the form of redevelopment. Areas east of I-5 and along SR-56 are developed with condominium complexes, lower density residential, and commercial uses. Redevelopment is likely to occur in this area, as well. However, new construction also may occur in this area.

The City of San Diego is, and has always been, the most populated municipality within the county, and hosts the residential and economic centers for the region. Development of the San Diego metropolitan area has reflected the rapid population growth and urbanization seen throughout California in recent years. During the 1980s, economic diversification and high job growth in San Diego led to a 35 percent population increase. Historically, San Diego population growth rates have been relatively high compared with the rest of the nation. The 1990 Census revealed that during the 1980s, San Diego's growth was among the highest in the nation. Manufacturing, military presence, and tourism strongly influenced this growth.

Population forecasts published by SANDAG through 2050 suggest that population growth and its associated development will continue in the proposed project study area and region. As shown in Table 3.2-1, San Diego's population is expected to increase, with the change in growth estimated at 46 percent over the 42-year period from 2008 to 2050. In comparison to the general population growth trend for the county as a whole, which is forecast to grow 40 percent, San Diego is forecasted to experience a greater degree of growth throughout 2050. However, this growth is expected to occur at a slower pace than in previous years.

Table 3.2-1. Population Growth Projections within the Study Area

Area	2000	2008	2020	2030	2050	Percent Change 2000–2050
San Diego	1,223,400	1,310,617	1,542,528	1,689,254	1,945,569	46%
County of San Diego	2,813,833	3,131,552	3,535,000	3,870,000	4,384,867	40%

Source: SANDAG 2010d

Regional and local planning departments have growth management programs and policies to address future growth. The *2030 Regional Growth Forecast Update* (SANDAG 2006) was accepted for review and use by SANDAG on September 8, 2006. On February 26, 2010, SANDAG adopted the *2050 Regional Growth Forecast* (SANDAG 2010c). In general, growth projections between 2000 and 2030 are based on adopted land use plans and policies, whereas the growth projections between 2030 and 2050 are based on alternatives received from jurisdictions that extend beyond existing adopted plans

(SANDAG 2010d). Therefore, to increase the certainty of the population projections, this Draft EIR/EIS uses the 2030 regional growth forecasts.

Although the *2030 Regional Growth Forecast Update* examines growth from a regional perspective, San Diego has its own individual growth management plans or policies (or variation thereof), often contained within its General Plan, which is summarized below. The southern portion of the study area is located within the North City Major Statistical Area, which includes San Diego.

Overall goals for growth within San Diego are outlined in the Guidelines for Future Development (City of San Diego 1992b). Goal 1 is to manage the growth of the region through adequate and timely public facilities to serve the additional population. In addition, San Diego strives to develop an effective "development management system" that will monitor the distribution and timing of growth in relation to environmental, physical, and public facility and service performance goals.

3.2.3 ENVIRONMENTAL CONSEQUENCES

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

The No Build Alternative would not result in any unplanned growth-related effects.

BUILD ALTERNATIVES (ALTERNATIVES 2 THROUGH 5)

Transportation projects may reduce the time-cost of travel, thereby enhancing the attractiveness of surrounding land available for infill development to developers and consumers, and promote growth. When the change in accessibility provided by a transportation project facilitates land use change and growth in population and employment, one outcome can be growth-related impacts to environmental resources. Research has shown that although accessibility improvements rarely change the rate of growth of a region (such as a county or metropolitan area), changes in accessibility can influence the direction of growth in a region and the rate of growth in local areas.

In accordance with Caltrans Standard Environmental Reference and the Guidance for Growth-Related Indirect Impact Analyses (Caltrans 2006c), a first-cut screening regarding the proposed project's potential for growth-related impacts was conducted. The screening examined the proposed project potential to change accessibility within the project area and how, if at all, the proposed project type, project location, and growth-pressure may potentially influence growth.

The proposed project would improve access between I-5 and SR-56, particularly for those drivers heading north along I-5 from westbound SR-56, and those drivers heading east along SR-56 from southbound I-5. The proposed project aims to improve the local and regional movement of people and goods, while minimizing environmental and community impacts for planning design year 2030. The latest estimates are that regional employment and other economic factors will lag about 15 years per the analysis between Series 10 and 12. This provides a design year of essentially 2045. See Section 3.7 for more information. Although the proposed project would not result in new access to a previously inaccessible area, it could increase accessibility in the project vicinity by improving circulation along this segment of I-5. This reduction in congestion could influence travel behavior, trip patterns, neighborhood connectivity, or the attractiveness of some undeveloped areas near I-5 for infill development over others.

However, only 5 percent of the land within San Diego is considered available for future development, 38 percent of which is planned for residential uses. On review of the undeveloped properties within the proposed project area, much of the vacant land surrounding the project was determined to be zoned for infill redevelopment projects, approved projects, or open space. Because of the urbanized nature of the proposed project study area and the limited availability of developable land, no known projects in the

vicinity would be dependent on implementation of the proposed project. Therefore, further growth in the proposed project area and surrounding region is planned and would most likely occur with or without implementation of the proposed project.

The proposed project includes improvements to an existing highway that serves an urban area and would not result in accessibility to an otherwise remote area. The likelihood of a highway project causing growth-related impacts in an urban area typically is low because of its built-out land use pattern, policies controlling future growth as described above, and costs associated with redevelopment. Local jurisdictions have identified growth forecasts and the anticipated maximum build-out of each municipality. Although the proposed project would have a moderate influence on planned growth by improving accessibility to commercial and residential properties, the proposed project would not remove barriers to future growth or create access to a previously inaccessible area, thereby creating substantial unplanned growth near an established cohesive community.

The proposed project was linked to the PHR development, several miles to the east of the project site along SR-56, as a voter-initiated growth-control measure that had been in effect for 12 years. Proposition M, passed in November 1998, limited construction of PHR to 1,900 residential units until the proposed I-5/SR-56 interchange project was completed. Proposition C, passed in November 2010, amended Proposition M, allowing completion of parks, library, trails, and recreation and transportation facilities for PHR by removing the development timing restriction, based on completion of the proposed SR-56/I-5 interchange project. Proposition C allows PHR to develop only after the San Diego City Council approves a program of phased development, ensuring facilities are constructed before or concurrent with new development, paid for by developers and at no cost to taxpayers

The potential for moderate growth in the proposed project vicinity is inevitable and consistent with local land use plans and current trends. The analysis indicates that future growth-related effects associated with the proposed project are not considered reasonably foreseeable, as the majority of the proposed project study area is already developed, and areas currently undeveloped are planned for growth consistent with local land use plans. Growth would occur regardless of the proposed project. The improvement in circulation at the interchange associated with the proposed project would not substantially affect the location, rate, type, or amount of growth in the project vicinity because of limits on growth, including land use controls within local and regional plans and policies, and the highly urbanized nature of the surrounding land uses. The proposed project would have a moderate influence on growth, and no growth-related impacts would be attributable to the project. Therefore, no adverse effects associated with growth would be anticipated as a result of implementation of any of the build alternatives.

3.2.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

As discussed above, growth within the proposed project area has already been planned and approved and this growth would most likely occur with or without the proposed project. Any additional future growth-related effects associated with the proposed project are not considered reasonably foreseeable. No mitigation measures are proposed.

COMMUNITY IMPACTS

3.3 COMMUNITY CHARACTER AND COHESION

3.3.1 REGULATORY SETTING

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

Under the California Environmental Quality Act (CEQA), an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Because the proposed 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.

3.3.2 AFFECTED ENVIRONMENT

This section is based on the August 2011 CIA, a separate technical study that was prepared for the proposed project and created the support material for the following narrative sections. The CIA established a study area in which community character traits were analyzed. The CIA study area includes part of the municipalities of San Diego. Within the municipalities, distinct communities and community cohesion qualities exist. The CIA used available census information and field visits to document community character qualities within the study area, and to develop a community profile. Cohesive communities have been regularly linked to certain social characteristics, including high ratios of owner-occupied single-family residences, frequent interpersonal contact, ethnic homogeneity, and shared goals.

Neighborhoods with residential stability (i.e., length of tenure) also are indicative of areas with high community cohesion. The continued relationship between residents, neighbors, and the community typically enhance levels of cohesion within a community.

The CIA study area is a highly urbanized part of northern San Diego, generally characterized by its coastal location, established neighborhoods, resident- and visitor-serving commercial centers and activities, and preserves associated with coastal lagoons.

The portion of the City of San Diego within the CIA study area is composed of nine communities: Torrey Pines, Carmel Valley, Torrey Hills, Del Mar Mesa, Los Peñasquitos Canyon Preserve, PHR, the NCFUA, Torrey Highlands, and University. Although land use within each of these communities is discussed in detail in Section 3.1, Land Use, a brief summary of community land uses is included here. Primary land uses in the city portion of the CIA study area are residential, commercial, and industrial, with some land occupied by UCSD. Within the CIA study area, the eastern reach is primarily residential and open space, while the western segment primarily has residential and commercial/industrial uses.

Although nine community plans cover portions of the study area, only a few of these communities have a substantial amount of their areas within the study area: Torrey Pines, Carmel Valley, Torrey Hills, Del

Mar Mesa, and Pacific Highlands Ranch. Boundaries of the defined neighborhood areas generally follow major landmarks and thoroughfares.

Torrey Pines is west of I-5, with Del Mar to the northwest and Los Peñasquitos Lagoon along the south. It primarily includes parks and open space (42 percent), with residential uses north of Carmel Valley Road and industrial and commercial uses near Genesee Avenue. This area generally has a high proportion of owner-occupied homes and long residency tenures, and access to shared recreational areas contributes to the cohesion within the community.

Carmel Valley is a master planned community bordered by Carmel Valley Road on the north, I-5 on the west, and Los Peñasquitos Canyon Preserve on the south. It has designated residential areas and job centers along with parks and open space, and commercial, public service, and public utility buildings. The Carmel Valley community has a high proportion of owner-occupied homes and certain sections of the area have long-standing residents.

Torrey Hills is east of I-5 between Carmel Valley and Los Peñasquitos Creek and generally encompasses the open space of Los Peñasquitos Canyon Preserve. Access to shared recreational areas enhances cohesion within the community.

Del Mar Mesa is east of Carmel Valley and south of SR-56. The community of 2,042 acres generally is zoned for agricultural use, with a large portioned conserved as open space, but it is developing as a semi-rural community featuring large parcels and homes, golf courses, and resorts. Horse ranching also is practiced in Del Mar Mesa.

Pacific Highlands Ranch is on the north and south side of SR-56, east of Carmel Valley, near the eastern end of the study area. The eastern border of the community is located approximately west of the intersection of Camino del Sur. Like Del Mar Mesa, Pacific Highlands Ranch predominately is undeveloped land that is slowly developing with residential areas. It has recently shifted phases, from Future Urbanizing to Planned Urbanizing.

The University community planning area encompasses approximately 8,500 acres. The area is bounded by Interstate 805 to the east and the Pacific Ocean west. The University community planning area includes higher-density residential, commercial, and academic establishments. University is home to the UCSD campus and the adjoining University Town Centre.

As of 2000, the population in the study area was approximately 31,830, representing approximately 2.6 percent of the total population of the City of San Diego. Several areas within and adjacent to the study area are highly urbanized, resulting in elevated population densities. More densely populated areas are east of I-5 in Carmel Valley, although some dense block groups are west of I-5 in Torrey Pines. Within the area of primary impacts, the highest population densities are northeast of the proposed project in the residential areas north of SR-56. An area of moderate population density is west of I-5 and south of Del Mar Heights Road, along Portofino Drive.

The total minority[1] population within the City of San Diego is estimated to be 55.5 percent of the total population. All community planning areas (CPAs) in the study area were estimated to have substantially lower proportions of minority populations than the City of San Diego as a whole. The minority populations of the Carmel Valley, NCFUA, and Pacific Highlands Ranch CPAs are estimated to be slightly above 31 percent of the total population. Del Mar Mesa, Torrey Hills, and University CPAs have

[1] The term “total minority” includes all persons classified by the U.S. Bureau of the Census to be a minority. Minority populations include persons within the following categories: Black/African American, Asian, American Indian and Alaska Native, Native Hawaiian/Pacific Islander, “two or more races,” and “some other race.” It also includes Hispanic populations (of any race). In short, all persons other than White, non-Hispanic individuals are classified as minority.

slightly higher proportions of minority populations, at 36.8, 38.1, and 39.1 percent, respectively. The largest minority population for all CPAs is Asian and Pacific Islander (SANDAG 2010d).

The majority of individual block groups within the primary impact area have higher densities than the City of San Diego or San Diego County, particularly those north of SR-56. Block groups with large tracts of open space or industrial uses, such as those in the southern portion of the study area, have relatively low housing densities. Household and family sizes also are larger in block groups located in Carmel Valley, north of SR-56, and residential areas south of SR-56 and to the east of I-5, suggesting that these areas are more likely to house families with children younger than 18 (U.S. Census 2000).

The median household incomes for San Diego and San Diego County are $45,733 and $47,067, respectively. These median household incomes are lower than all but one of the household incomes for the block groups included in the study area. Some of these block groups, specifically those east of I-5 in Carmel Valley and west of I-5 in Torrey Pines, have median household incomes greater than $100,000.

The percentage of individuals with income below the poverty level in 1999, which is the latest data available for the study area from the U.S. Bureau of the Census, generally is low compared to entire City of San Diego and San Diego County, which exhibit proportions of 14.6 and 12.4 percent, respectively. The study area as a whole has a proportion of 6.1 percent of individuals with income below poverty, although many of the block groups have proportions of less than 6.1 percent. In 2007, the percentage of individuals below poverty level had dropped for both San Diego, with 13.3 percent, and San Diego County, with 11.3 percent. Based on 2000 comparisons, the percentage of individuals below poverty level likely is still generally low compared to the City of San Diego and San Diego County (U.S. Census 2000).

Within the study area, the labor force exhibits a high proportion of professional occupations (69.0 percent). Among industry sectors, professional, scientific, management, administrative, and waste management combined with educational, health, and social services are predominant (45.7 percent). The study area also exhibits a higher proportion of self-employed residents (12.2 percent) compared to the City of San Diego and the surrounding county. Conversely, those with occupations in construction, extraction, and maintenance make up a smaller proportion in the study area (1.7 percent) than the City of San Diego and San Diego County (EDD 2010).

Overall, the economic land uses within the area of primary impacts is primarily office spaces, especially near northbound I-5 and north of SR-56. Commercial spaces also are common, particularly near Carmel Valley Road and El Camino Real. Small industrial parcels are within the primary impact area but generally are not near the main interchange of I-5 and SR-56. Agricultural areas within the study area are generally located in the extreme northern and eastern edges of the primary impact area, near El Camino Real and San Dieguito Road, and south of SR-56 near the interchange with Carmel Valley Road (SanGIS 2009).

3.3.3 ENVIRONMENTAL CONSEQUENCES

This project is intended to improve the safe and efficient regional movement of people and goods, as is forecasted for 2030. Although the proposed project would not result in new access to a previously inaccessible area, it could increase accessibility in the project vicinity by improving circulation along this segment of I-5.

Currently, local streets and the surrounding communities experience increased demand and congestion during peak hours from I-5 and SR-56 traffic. The current circulation system forces drivers to exit the freeway and travel on local surface streets to transition from southbound I-5 to eastbound SR-56, and

from westbound SR-56 to northbound I-5. This causes congestion at the El Camino Real/Carmel Valley Road intersection.

During peak hours, to avoid traffic congestion at the SR-56/I-5 interchange, drivers use alternative routes including El Camino Real, Carmel Valley Road, and Carmel Creek Road, causing increased traffic on local surface streets near the proposed project area. The increased congestion impacts the surrounding communities by increasing traffic through adjacent neighborhoods. Continued regional development and interregional travel would further increase traffic volumes and reduce traffic operational quality.

CONSTRUCTION-RELATED IMPACTS

The following analysis discusses construction-related impacts within each jurisdiction along the I-5 and SR-56 corridor for the four build alternatives. Implementation of the proposed project build alternatives would result in temporary construction-related impacts in the primary study area. Construction related impacts could include, but would not be limited to, those related to temporary disruptions of vehicular or pedestrian access and mobility, increased noise, dust generation, light pollution during nighttime construction hours, and visual changes to the existing landscape of the study area. Construction-related impacts are anticipated to occur mainly within the primary impact area.

The construction of the Direct Connector Alternative, the Hybrid Alternative, and Hybrid with Flyover Alternative would have the largest impacts. Construction of the Auxiliary Lane Alternative would have similar but reduced impacts, as it would have restricted construction limits as compared to the other alternatives.

The existing Park-and-Ride facility in the primary impact area could be used at some time for construction staging activity and may have reduced parking availability; however, it most likely would be closed during construction. Although lane closures and detours would be necessary at certain times during construction, at no time would an overpass or underpass be entirely closed to traffic. Construction activity would occur mainly during regular business hours, but also could occur at night to minimize disruptions.

Various locations within the study area could experience temporary disruptions to existing travel patterns during construction activities because of lane restrictions, lane closures, or temporary detours. In turn, these disruptions could affect other major roads within the study area in San Diego, specifically the interchanges at Carmel Valley Road/SR-56 and El Camino Real/SR-56. Local roads may experience higher than normal traffic volumes as a result of disruptions on major roads and arterials.

Public transportation facilities and routes, particularly those within the area of primary impacts, also may experience service delays and disruptions. These disruptions also may delay or detour a few of the fixed bus routes in San Diego traveling north, south, east, and west from this portion of the study area.

Construction of the proposed alternatives may have the potential for secondary temporary economic impacts to a number of businesses as a direct result of disruptions to traffic flow and existing traffic patterns. Construction-related traffic has the potential to discourage travelers on I-5 and SR-56 from accessing interchanges to patronize nearby businesses. This is particularly the case for businesses located directly next to the proposed interchange. Businesses that are heavily dependent on patrons travelling along major roads in the study area could experience economic impacts associated with decreased visitation, resulting from congestion or detours. During construction of the proposed build alternatives, a number of incrementally positive economic impacts to businesses in the primary project area and the surrounding region may be realized. For the duration of construction activities, use of local labor and local procurement of materials, goods, and services would result in positive impacts to local

employment and business activity, a portion of which likely would occur in the primary impact area. However, no permanent employment or increase in business activity is anticipated as a result of construction activities associated with the proposed build alternatives.

Construction activities within the project area would be located near a number of communities within San Diego, including Carmel Valley, Del Mar Heights, Pacific Highlands Ranch, North City, and Torrey Preserve. Depending on the time of day when construction occurred and the extent and duration of construction activities, residents of these communities could experience longer wait times when traveling to and from I-5. However, as described above, Caltrans would implement measures to minimize impacts to access and traffic during construction activities.

In addition to the businesses and residential areas mentioned above, public service and recreational facilities within the study area also may experience temporary access impacts. Those within the primary impact area would be most likely to be affected and would include Torrey Hills Elementary School, Del Mar Hills Elementary, Del Mar Heights Elementary School, Solana Highland Elementary School, Carmel Del Mar Elementary School, and Sycamore Canyon Elementary School. Access to parks and recreation centers near I-5 also may be affected, including Overlook Park, Crest Canyon Open Space Park, Solana Highlands Park, Carmel Creek Park, Torrey Highlands Park, and Carmel Valley Community Park. However, Caltrans would implement measures identified in the TMP, such as detour signage and other features, to minimize potential access impacts to businesses and facilities. In addition, these impacts would be temporary and would not result in long-term access disruptions.

Construction of the proposed build alternatives would unavoidably result in noise and dust generation. Residential neighborhoods and community facilities within the primary impact area, particularly those immediately adjacent to the proposed project area, could experience temporary impacts related to construction noise and dust generation. This would include residents of the Torrey Hills, Torrey Pines, and Carmel Valley communities; and students and staff at the Jewish Academy in Carmel Valley. These temporary construction-related impacts are considered proximity impacts and would not be physical in nature.

Depending on the placement of the staging areas, construction equipment also has the potential to affect views along I-5 and SR-56. If construction occurred after daylight hours, construction equipment that requires lighting could result in temporary visual impacts related to temporary light pollution. Dust generation would be minimized by employing best management practices during construction, such as regular watering, covering exposed dirt piles, and maintaining the construction site. See Section 2.3.3, Project Phasing and Construction, for more information.

OPERATIONAL IMPACTS

Community cohesion throughout the project area would not be diminished as the project would not divide existing neighborhoods any more than under the existing conditions, nor would it separate residences from community facilities. The proposed project area is considered to be largely urbanized, despite the presence of open space and agricultural uses in the surrounding canyons. The proposed project would not create new geographic or social barriers that may hinder interaction, as it would be an improvement of an already existing transportation corridor. In fact, the proposed project would help to enhance connections by providing better access to a number of community facilities, residential neighborhoods, and commercial centers, improving cohesion in the respective communities by increasing use of public facilities and pedestrian activity.

Community character would be adversely affected by changes in visual quality associated with urban features (e.g., the connector and flyover bridges and the large retaining walls and soundwalls). See Section 3.8, Visual/Aesthetics, for a detailed discussion regarding the visual impacts of the proposed project.

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

With the No Build Alternative, local streets within the proposed project area would continue to be congested during peak hours as drivers continued to use local streets as an alternative to the freeway facilities.

DIRECT CONNECTOR ALTERNATIVE (ALTERNATIVE 2)

Implementation of the Direct Connector Alternative would not result in any substantial land use impacts that would affect adjacent communities. Although a few residential or business properties would be directly affected within the community, no residential or business displacements or relocations would occur. Partial right-of-way acquisitions and subsurface easements would be required of residential and business properties. See Section 3.4, Relocations and Real Property Acquisition, for further details.) The visual perspective of the proposed project would be substantially altered from nearby communities (as discussed in Section 3.8, Visual/Aesthetics.

Impacts to community cohesion from operation of the proposed project in San Diego likely would be positive. Overall, this alternative would result in increased access and flow to and from residential and business communities in the study area. Because the project would not affect uses within recreational facilities and open space, and would enhance access within the community, implementation of new project features is not expected to have an adverse effect on community character or cohesion.

AUXILIARY LANE ALTERNATIVE (ALTERNATIVE 3)

Implementation of the Auxiliary Lane Alternative would not result in any substantial land use impacts that would affect adjacent communities. Although a few residential or business properties would be directly affected within the community, no residential or business displacements or relocations would occur. Partial right-of-way acquisitions and subsurface easements would be required of residential and business properties. See Section 3.4, Relocations and Real Property Acquisition, for further details. The visual perspective of the proposed project would be substantially altered from nearby communities (as discussed in Section 3.8, Visual/Aesthetics).

Impacts to community cohesion from operation of the proposed project in San Diego likely would be positive. Overall, this alternative would result in increased access and flow to and from residential and business communities in the study area. Because the project would not affect uses within recreational facilities or open space, and would enhance access within the community, implementation of new project features is not expected to have an adverse effect on community character or cohesion.

HYBRID ALTERNATIVE (ALTERNATIVE 4)

Although this project alternative would impact slightly less area than the Direct Connector Alternative, the community character and cohesion and character impacts for this alternative are similar to those described in the Direct Connector Alternative. Partial right-of-way acquisitions and subsurface easements would be required of residential and business properties. See Section 3.4, Relocations and Real Property Acquisition, for further details. The visual perspective of the proposed project would be substantially altered from nearby communities (as discussed in Section 3.8, Visual/Aesthetics). Implementation of the Hybrid Alternative would combine elements of both of the previous alternatives, resulting in a greater degree of visual impact than the Auxiliary Lane Alternative, but less than the Direct Connector Alternative and Hybrid with Flyover Alternative.

Impacts to community cohesion from operation of the proposed project in San Diego likely would be positive. Overall, this alternative would result in increased access and flow to and from residential and business communities in the study area. Because the project would not affect uses within recreational

facilities or open space, and would enhance access within the community, implementation of new project features is not expected to have an adverse effect on community character or cohesion.

HYBRID WITH FLYOVER ALTERNATIVE (ALTERNATIVE 5)

Implementation of the Hybrid with Flyover Alternative would not result in any substantial land use impacts that would affect adjacent communities. Although a few residential or business properties would be directly affected within the community with partial right-of-way acquisitions and subsurface easements, no residential displacements or relocations would occur. One business, a gas station located at the northeast corner of the interchange, would be displaced. However, the gas station is not considered a key element of the community's character. Implementation of the Hybrid with Flyover Alternative would combine the Hybrid Alternative with a flyover connector from eastbound Carmel Valley Road to SR-56, resulting in a greater degree of visual impact than the Auxiliary Lane Alternative and the Hybrid Alternative, but less than the Direct Connector Alternative.

Impacts to community cohesion from operation of the proposed project in San Diego likely would be positive. Overall, this alternative would result in increased access and flow to and from residential and business communities in the study area. Because the project would not affect uses within recreational facilities or open space, and would enhance access within the community, implementation of new project features is not expected to have an adverse effect on community character or cohesion.

The study area is considered to be largely urbanized, despite the presence of open space and agricultural uses in the surrounding canyons. The proposed project would not create new geographic or social barriers that may hinder interaction, as it would be an improvement of an already existing transportation corridor. No residential displacements or negative effects to existing public facilities would occur. As a result, no negative effects to community character would occur.

3.3.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Caltrans staff members have held private and public project meetings with residents and community leaders and conducted numerous outreach events to inform and listen to stakeholders and the general public. The community input and suggestions to avoid and minimize project effects from this collaboration have been integrated into proposed project design and meet the requirements of the project purpose and need. See Chapter 5, Comments and Coordination, for further details on community input.

Construction Measures

As part of a continued community involvement process, Caltrans would keep the public informed about potential construction closures and detours.

Caltrans, after consulting with local agencies including fire and law enforcement, would implement a TMP for the construction stage throughout the duration of construction activities. The TMP would be made available to the public and to each jurisdiction within the study area. The TMP would be designed to minimize project-related traffic delays and accidents by adopting traditional traffic mitigation strategies and through an innovative combination of public and motorist information, demand management, incident management, system management, alternate route strategies, and construction strategies. The TMP would include detour signage, public transportation information, construction timing, and other useful construction information such as "businesses are open during construction" for the benefit of residents and motorists.

Although lane closures and detours would be necessary at certain times during construction, at no time would an overpass or underpass be entirely closed to traffic.

Permanent Measures

As discussed above, the proposed project would not have any permanent negative impacts to community cohesion. The proposed project would have negative effects to community character as a result of the visual impacts of the proposed project. See Section 3.8.4, Avoidance, Minimization, and/or Mitigation Measures, for a discussion of mitigation measures for visual/aesthetics impacts.

3.4 RELOCATIONS AND REAL PROPERTY ACQUISITION

The Draft Relocation Impact Statement (DRIS), a separate technical study prepared in November 2010 as an appendix to the CIA, serves as the basis for this analysis of relocation impacts. The appended CIA technical study report prepared for this project created the support material for the following narrative sections.

3.4.1 REGULATORY SETTING

Caltrans' Relocation Assistance Program (RAP) is based on the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 CFR Part 24. The purpose of RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. See Appendix D for a summary of the RAP.

All relocation services and benefits are to be administered without regard to race, color, religion, age, national origin, disability, or sex, in compliance with Title VI of the Civil Rights Act of 1964 (42 USC 2000d, et seq.). See Appendix C for a copy of the Caltrans Title VI Policy Statement.

3.4.2 AFFECTED ENVIRONMENT

Land uses surrounding the proposed project consist of single-family residential units, multi-family residential units, commercial land uses, and parks and open space. Single-family residential areas are present west of I-5 north and south of Del Mar Heights Road. Multi-family residential units are located near the interchange of I-5 and Del Mar Heights Road, as well as between SR-56 and Del Mar Heights Road, east of I-5. Commercial land uses occur along Del Mar Heights Road and along SR-56, with offices occurring along the northbound lanes of I-5 between the two roads. Additionally, commercial spaces are located near the interchange of Del Mar Heights Road and I-5, as well as along SR-56 near the proposed interchange realignment. A commercial area also is located along Carmel Creek Road.

Acquisitions occur when the right-of-way for a proposed transportation project requires purchasing property rights for permanent use of private property. Two types of effects on properties are considered:

Full Acquisition: occurs if the entire parcel is within the right-of-way of a build alternative or if the majority of the building lies within the footprint of an alternative.

Partial Acquisition: occurs if any part of a parcel is within the right-of-way of the alternative but does not require the displacement of the entire property. These impacts range from an edge of a parcel within the right-of-way to substantial portions that fall short of an entire displacement.

The four build alternatives would require partial residential and/or business acquisitions. The impacts for each of the build alternatives are discussed below.

3.4.3 ENVIRONMENTAL CONSEQUENCES

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

The No Build Alternative would not require any relocations or acquisitions.

BUILD ALTERNATIVES (ALTERNATIVES 2 THROUGH 5)

Temporary disruptions to traffic flow and existing traffic patterns from construction activities associated with all of the build alternatives may cause temporary economic impacts to businesses adjacent to the proposed project. Reduced access associated with construction activities could decrease patronage for these businesses during construction. Businesses and community facilities near the proposed project would have the potential to experience adverse economic impacts as a direct result of temporary disruptions to traffic flow and existing traffic patterns, even if they did not have to be relocated. Specific relocation impacts associated with each build alternative are summarized in Table 3.4-1. Most of the partial fee acquisitions would occur along the I-5 corridor.

Table 3.4-1. Summary of Residential and Nonresidential Displacements and Fee Acquisitions

	Direct Connector Alternative	Auxiliary Lane Alternative	Hybrid Alternative	Hybrid with Flyover Alternative
Residential Displacements (Units/Residents)	0	0	0	0
Nonresidential Displacements (Type/Employees)[1]	0	0	0	1 Business: Shell Gas and Car Service Station/ approximately 10 to 12 employees
Residential Acquisitions (Full/Partial)	0/27	0/15	0/15	0/15
Business Acquisitions (Full/Partial)	0/12	0/4	0/12	0/15

Note:
1 Type of nonresidential units and the number of employees is based on visual observation and research. This research did not include contacting the affected business.
Source: Compiled by AECOM in 2011

DIRECT CONNECTOR ALTERNATIVE (ALTERNATIVE 2)

The Direct Connector Alternative would not require any relocations or full residential or business acquisitions. This alternative would require 27 partial residential acquisitions and 12 partial business acquisitions. Although the Direct Connector Alternative would require partial right-of-way acquisitions of 27 residential properties, the parcel lot sizes would not be reduced to substandard sizes. This alternative will also result in a net loss of 25 parking spaces along Portofino Circle.

AUXILIARY LANE ALTERNATIVE (ALTERNATIVE 3)

The Auxiliary Lane Alternative would not require any relocations or full residential or business acquisitions. The Auxiliary Lane Alternative would require 15 partial residential acquisitions and 4 partial business acquisitions. Although the Auxiliary Lane Alternative would require partial right-of-way acquisitions of 15 residential properties, the parcel lot sizes would not be reduced to substandard sizes.

HYBRID ALTERNATIVE (ALTERNATIVE 4)

The Hybrid Alternative would not require any relocations. Additionally, this alternative would not require full residential or business fee acquisitions. However, the Hybrid Alternative would require 15 partial residential acquisitions and 12 partial business acquisitions. Similar to the previous alternatives, none of the 15 residential properties requiring partial right-of-way acquisitions under the Hybrid Alternative would be reduced to substandard lot sizes.

HYBRID WITH FLYOVER ALTERNATIVE (ALTERNATIVE 5)

As shown in Table 3.4-1, the Hybrid with Flyover Alternative would displace an owner-occupied gas station. This gas station includes a food and snack store, and a car service station with two service bays, providing car maintenance work for most service needs.

In addition, the Hybrid with Flyover Alternative would require 15 partial residential acquisitions and 15 partial business acquisitions. The 15 residential properties that would require partial right-of-way acquisitions under the Hybrid with Flyover Alternative would not be reduced to substandard lot sizes.

3.4.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Construction Measures

Temporary impacts to businesses during construction of any of the build alternatives would be minimized through implementation of a TMP that would include requiring signage for directions to commercial centers and providing for accessible ingress/egress routes into parking lots.

Displacement Measures

The proposed project has been designed to avoid displacements as much as possible; however, the Hybrid with Flyover Alternative would still displace a gas station. A search for potential relocation sites found 14 potentially suitable properties for sale. Of these 14 properties, nine were currently occupied by a gas station, one is a full-service car wash and auto detail center, and four were listed as sites suitable for a gas station.

Of the nine potential relocation sites currently configured as a gas station, only one currently includes car service bays on-site. However, car service bays could be constructed on-site for the remaining eight potential relocation sites currently configured as gas stations because ample undeveloped space exists on-site for construction of car service bays at each of them. A review of the sale listings for these eight potential relocation sites currently configured as gas stations without car service bays revealed that none the sites had developed more than approximately 15 percent of their space, leaving ample room for construction of two car service bays. Construction of these car service bays likely would require an amendment to the Conditional Use Permit (CUP) or some other type of amendment, depending on the zoning and permitting governing the relocation site.

The amount of developed area on the property of the full-service car wash and auto detail center is large enough to allow for the conversion of the property to a gas station with car service bays. The full-service car wash and auto detail center has approximately 2,000 square feet of developed area. This 2,000 square feet is greater than the 1,792 square feet of developed area for the potentially displaced property. Some of the existing structures possibly could be used by the potentially relocated gas station, but some demolition and construction on-site may be required. Nonetheless, the developed area of the full service car wash and auto detail center would be large enough to allow for any combination of conversion, demolition, and construction on-site to accommodate a gas station with car service bays.

Whether space exists on the remaining four sites is unclear because they either are not gas stations in the existing condition or are gas stations that may not have ample space for construction of car service bays. Nonetheless, these sites still would be included as potential relocation sites in the event that they may be determined to be adequate during the final relocation impact study process or the displaced occupant decided that they did not want to continue car service operations at the relocation site.

No potential relocation sites were found in the Carmel Valley community planning area, the area in which the proposed project site is located. Similarly, no potential relocation sites were found in the nearby cities of Del Mar or Solana Beach. All of the potential relocation sites are located in various community planning areas throughout the City of San Diego. However, because of the high demand for gasoline and car service, as well as the non-specific clientele market for gasoline, the existing gas station to be displaced is not dependent on the surrounding community for business and likely would find new patrons at a new suitable gas station site.

Nonetheless, the larger corporation to which the gas station belongs possibly may not see a relocation site outside of Carmel Valley as suitable because it is trying to capture a certain amount of market share of that community or benefit from the high volume of pass-by traffic associated with I-5 and SR-56 that currently must exit onto Carmel Valley Road and pass by the gas station. If that were to be the case, and an existing gas station site or site suitable for a gas station were not available at the time of relocation, the displacee would need to purchase a vacant site adjacent to high volumes of traffic on which a gas station and car service station could be constructed, or purchase a commercial or retail site within the area adjacent to high volumes of traffic that could be converted to a gas station and car service station with the processing of a use permit, rezone, or other action to make the site suitable for a gas station and car service station. However, this would be a worst-case scenario for the displacement of the gas station.

If any of the potential relocation sites described above were found to be adequate, it would be concluded that ample relocation sites existed for the displaced gas station. Additionally, new potential relocation sites may come on the market between now and the time that the proposed project construction would begin. Under any scenario, sufficient lead time would be critical for the successful relocation of this business. A minimum of 24 months would be considered, especially in light of the potential for numerous permitting requirements for any replacement site.

Relocation assistance payments and counseling would be provided to persons and businesses, in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, to ensure adequate relocation and a decent, safe, and sanitary home for displaced residents. All eligible displacees would be entitled to moving expenses. All benefits and services would be provided equitably to all residential and business displacees without regard to race, color, religion, age, national origin, disability, or sex, as specified under Title VI of the Civil Rights Act of 1964.

Partial Acquisitions Measures

Fair market value would be paid for all of the land and improvements required to construct and operate the proposed project.

A Parking Study was conducted along Portofino Circle to assess the existing parking conditions and level of impacts anticipated from the Direct Connector Alternative. Parking counts were taken on various days, during the morning, afternoon, and evening. At most, it was observed that approximately 25% of the parking spots were used (18 out of the 71 available on-street parking spaces). Four off-street parking spots would be created as a result of this alternative. Additional minimization and mitigation measures are discussed in Section 3.8.4.

3.5 ENVIRONMENTAL JUSTICE

This section is based on the August 2011 CIA, a separate technical study that was prepared for the proposed project and created the support material for the following narrative sections.

3.5.1 REGULATORY SETTING

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President Clinton on February 11, 1994. This EO 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 guidance. For 2000, this was $14,150 for a family of three.

All considerations related to environmental justice are to be administered without regard to race, color, religion, age, national origin, disability, or sex, in compliance with Title VI of the Civil Rights Act of 1964 (42 USC 2000d, et seq.). See Appendix C for a copy of the Caltrans Title VI Policy Statement.

3.5.2 AFFECTED ENVIRONMENT

The proposed project study area was delineated for the CIA using a combination of 2000 decennial census block groups, school district boundaries, generalized land uses, and municipality boundaries located within the proposed project vicinity. The 2000 Census data is still the most current data available for this analysis. It usually takes 2-3 years after completion of a decennial census before all data are available. Generally, economic indicators and median income are among the last information tabulated in detail; ethnicity data are available earlier.

The study area was delineated to encompass both primary (or direct) impacts and secondary (or indirect) impacts (see Figure 3.1-1). Ultimately, a study area was chosen that was encompassed by the boundaries of 15 Census block groups of varying size. A portion of each of these Census block groups fell within at least 0.5 mile of the centerlines of the proposed alternative alignments within the proposed project limits. Planning communities completely or partially within the study area include: Torrey Pines, Carmel Valley, PHR, Del Mar Mesa, Torrey Hills, the NCFUA (Subarea II, San Dieguito), Torrey Highlands, Los Peñasquitos Canyon Preserve, and University. The study area, which covers approximately 13,600 acres, is located entirely within the City of San Diego. The analysis for the four build alternatives is the same because the Census block groups with higher concentrations of minority and low-income populations would be equally affected by the four build alternatives.

Race and Ethnicity

Minority racial groups listed in the 2000 decennial census include Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, and Some Other Race/Two or More Races. Persons of Hispanic origin are reported not as a race but as an ethnic group and are calculated as a proportion of all races.

Table 3.5-1 shows the racial and ethnic breakdown for the study area within each of the potentially affected census block groups for 2000. The proportions of total minority populations range from 11.1 to 40.7 percent in census block groups within the study area.

Table 3.5-1. Study Area Race and Ethnicity – 2000

Geographical Area	Block Groups	White		Black/ American African		American Indian and Alaska Native	
City of San Diego		60.2%	736,207	7.9%	96,216	0.6%	7,543
Study Area							
Torrey Pines	83.24.1	87.1%	1616	0.6%	12	0.5%	10
	83.24.3	89.4%	590	0.6%	4	0.0%	0
	83.24.4	89.7%	1,712	0.8%	15	0.1%	2
	83.24.5	92.2%	511	2.0%	11	0.0%	0
	83.24.6	91.2%	518	1.2%	7	0.0%	0
	83.24.7	89.2%	724	0.9%	7	0.2%	2
	83.39.1	63.3%	1,120	1.6%	29	0.3%	5
Carmel Valley	83.27.1	85.1%	2,414	0.4%	12	0.0%	1
	83.29.1	82.8%	3,589	0.8%	35	0.2%	10
	83.30.1	80.0%	4,341	0.2%	13	0.1%	3
	83.31.1	82.2%	2,100	0.8%	21	0.0%	1
PHR	83.32.1	77.9%	2,659	0.3%	11	0.0%	0
Torrey Hills	83.33.1	72.0%	2,616	1.7%	61	0.1%	3
Del Mar Mesa	83.34.1	81.4%	1,225	0.2.%	3	0.0%	0
Geographical Area	**Block Groups**	**Asian**		**Native Hawaiian/ Pacific Islander**		**Some Other Race**	
City of San Diego		13.6%	166,968	0.5%	5,853	12.4%	151,532
Study Area							
Torrey Pines	83.24.1	7.5%	140	0.1%	2	1.2%	23
	83.24.3	7.3%	48	0.0%	0	0.6%	4
	83.24.4	5.3%	102	0.3%	5	1.5%	28
	83.24.5	3.2%	18	0.2%	1	0.7%	4
	83.24.6	4.9%	28	0.2%	1	0.4%	2
	83.24.7	5.2%	42	0.4%	3	1.1%	9
	83.39.1	28.0%	495	0.2%	3	2.7%	48
Carmel Valley	83.27.1	10.3%	292	0.1%	3	1.0%	28
	83.29.1	10.9%	471	0.2%	7	2.0%	85
	83.30.1	16.4%	888	0.1%	6	0.9%	51
	83.31.1	12.7%	324	0.0%	0	1.1%	27
PHR	83.32.1	17.4%	593	0.0%	1	0.8%	29
Torrey Hills	83.33.1	17.9%	650	0.2%	7	3.4%	122
Del Mar Mesa	83.34.1	9.9%	149	0.3%	5	5.8%	87
Geographical Area	**Block Groups**	**Two or More Races**		**Hispanic**		**Total Minority**	
San Diego		4.8%	59,081	24.5%	310,752	50.6%	619,508
Study Area							
Torrey Pines	83.24.1	2.9%	53	4.8%	90	16.4%	304
	83.24.3	2.1%	14	4.2%	28	13.9%	92
	83.24.4	2.3%	44	5.6%	107	14.5%	277
	83.24.5	1.6%	9	4.2%	23	11.2%	62
	83.24.6	2.1%	12	2.5%	14	11.1%	63
	83.24.7	3.1%	25	6.9%	56	15.6%	127
	83.39.1	4.0%	70	7.3%	129	40.7%	721

Geographical Area	Block Groups	Two or More Races		Hispanic		Total Minority	
Carmel Valley	83.27.1	3.0%	86	5.2%	147	18.5%	526
	83.29.1	3.2%	137	6.9%	301	21.7%	940
	83.30.1	2.3%	127	5.2%	280	24.2%	1,313
	83.31.1	3.2%	81	4.4%	113	21.1%	539
PHR	83.32.1	3.5%	119	4.9%	167	25.6%	872
Torrey Hills	83.33.1	4.8%	174	6.6%	238	30.6%	1,111
Del Mar Mesa	83.34.1	2.3%	35	12.4%	187	24.9%	375

Note:
The 1990 Census recorded five race categories: (1) White; (2) Black; (3) American Indian, Eskimo, or Aleut; (4) Asian or Pacific Islander; and (5) Other Race. The 2000 Census created separate categories for "Asian" and "Native Hawaiian and Other Pacific Islander," and created an additional race category, "Two or More Races." To compare both sets of Census race data, the 1990 category "Some Other Race" and 2000 category "Two or More Races" were added together for 2000. The 1990 Census recorded Asians and Pacific Islanders in the same race category, but in 2000 they were recorded separately. For the purpose of comparing Census data in this analysis, they were added together for 2000.
Source: U.S. Census 2000

Census block group 83.39.1 is located at the southwestern edge of the study area and extends east and north (see Figure 3.5-1 for its location). This block group covers a large area: containing the land west of I-805, north to Carmel Valley, and south to Miramar Road. A relatively small portion of this census block group is actually located within the primary impact area. This block group has the highest total minority percentages. This block group does not demonstrate a total minority percentage higher than the total minority percentage for the City of San Diego (50.6 percent) or San Diego County (45.0 percent), nor does this block group exhibit a total minority percentage more than 50 percent; therefore, it would not be considered an area of potential environmental justice concern. This majority of block group 83.39.1 is located in the secondary impact area. The portion located in the primary impact area does not contain residential land uses. The remaining block groups in this part of the study area demonstrate proportions of total minorities that are not meaningfully greater than those seen within the general population of the City of San Diego or San Diego County, nor are they more than 50 percent minority, and they would not be of potential environmental justice concern.

Income

Persons living with income levels below poverty are identified as "low-income" using the annual statistical poverty thresholds established by the U.S. Bureau of the Census. The U.S. Bureau of the Census estimated that the nationwide weighted-average poverty level for a family of three in 2009 (the most recent year for which data are available) is $17,098. The Department of Health and Human Services, which maintains its own simplified poverty guidelines, estimated the poverty level in 2009 for a family of three in California to be $18,310. For the analysis presented in this document, however, U.S. Bureau of the Census thresholds for 1999 (used for the 2000 tabulation) were used. The weighted-average poverty threshold for a family of three in California in 1999 was $13,290.[2] In practical terms, it is not likely that low-income population patterns in the study area have shifted dramatically since the 2000 census.

Table 3.5-2 shows the percentage of people with income considered below poverty within the potentially affected census blocks in comparison to the City of San Diego and San Diego County. The

[2] Although the use of the two, more recent, poverty levels may be preferable, their use is not tenable for a number of reasons. First, the application of Department of Health and Human Services guidelines to U.S. Bureau of Census data would result in inaccurate numbers of people living in poverty because of the subtle differences in their respective tabulation methodologies. Second, the more recently collected U.S. Bureau of the Census data (i.e., the American Community Survey) are not detailed enough to determine proportions of people living below poverty within the narrowly defined study area; 2000 data are the most comprehensive, most complete, and most customizable dataset available for the block groups within the study area. Third, Bureau of the Census 2000 data are used throughout this report to analyze socioeconomic conditions, and their use in this section creates internal consistency for the document.

proportions of people living in poverty range from 0.0 percent to 31.1 percent in census block groups within the study area. The block group having the highest proportions of individuals living below the poverty threshold is 83.39.1. This block group exhibits a percentage more than twice as high as the percentage for the City of San Diego (14.6 percent) and San Diego County (12.4 percent). As seen in Figure 3.5-1, block group 83.39.1 covers a large area and contains much of the land adjacent to I-805 and I-5 to the west, from Carmel Valley to the north, to Miramar Road to the south, partially within the primary impact area. The only portion of this block group within the primary impact area is a very small area just south Carmel Valley Road on the west side of I-5. Within that area, no residences or businesses exist; therefore, no low-income or minority population could be directly affected by the proposed project. The remaining block groups in this part of the study area do not have meaningfully greater proportions of low-income populations than the general population of the region, and would not be of potential environmental justice concern.

Table 3.5-2. Median Household Income, Per Capita Income, and Individuals with Income below Poverty, 1999 – Study Area, San Diego, and San Diego County

Geographical Area	Block Groups	Median Household Income	Per Capita Income	Income Below Poverty Level	
				Percent	Number
San Diego County		$47,067	$22,926	12.40%	338,399
San Diego		$45,733	$23,609	14.60%	172,527
Study Area		$96,707	$47,381	6.10%	1,933
Torrey Pines	83.24.1	$109,654	$49,489	2.70%	49
	83.24.3	$127,002	$50,665	2.40%	16
	83.24.4	$91,862	$57,697	2.60%	49
	83.24.5	$87,051	$45,387	1.60%	9
	83.24.6	$71,688	$50,541	0.00%	0
	83.24.7	$83,159	$64,140	1.00%	8
	83.39.1	$42,717	$21,910	31.10%[1]	574
Carmel Valley	83.27.1	$83,254	$47,854	10.40%	295
	83.29.1	$62,888	$39,424	7.20%	294
	83.30.1	$90,386	$41,828	5.00%	268
	83.31.1	$88,217	$37,306	6.20%	154
Pacific Highlands Ranch	83.32.1	$147,685	$52,872	2.40%	83
Torrey Hills	83.33.1	$127,271	$50,540	3.50%	126
Del Mar Mesa	83.34.1	$141,065	$53,685	0.50%	8

Note:
[1] This may be attributed to a high volume of University of California, San Diego housing in the area and is, therefore, not truly indicative of an economically underserved community.
Source: U.S. Census 2000

3.5.3 ENVIRONMENTAL CONSEQUENCES

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

Under the No Build Alternative, the proposed improvements to I-5/SR-56 would not occur. The No Build Alternative would not affect any low-income or minority populations. In addition, no low-income or minority populations have been identified that would be adversely affected by the proposed project as determined above.

BUILD ALTERNATIVES (ALTERNATIVES 2 THROUGH 5)

Public outreach efforts were conducted for the proposed project but did not identify issues of concern or controversy related to low-income or minority populations. A public scoping meeting was held on March 7, 2005, and a public information meeting was held on June 26, 2008.

Field reconnaissance of the residential development within census block groups near the proposed project revealed that they were not likely to contain high concentrations of low-income or minority populations. All of the homes were single-family detached residential units with between two and five bedrooms, and all appeared to be in good condition. Based on these field observations, it is likely that most of the residents belong to middle or upper-middle income brackets with a very low concentration of poverty within the neighborhood. Additionally, no outward signs were observed during field reconnaissance to indicate that high concentrations of racial and ethnic minorities were present within either neighborhood, which could be disproportionately affected by the proposed project. No apparent indications were observed of concentrations of racial and ethnic minorities above what is seen in the general population of the study area, the City of San Diego, or the County of San Diego.

The residents within census block group 83.39.1 are not likely to be affected by the proposed project because they are located well south and west of the primary impact area. The remaining block groups in this part of the study area do not have meaningfully greater proportions of low-income populations than the general population of the region, and would not be of potential environmental justice concern.

Because the majority of other planned or ongoing projects in the study area are residential developments similar to existing developments and would introduce housing targeted for middle income or higher residents, implementation of the proposed project is not anticipated to result in any cumulative impacts to low-income populations.

Potential impacts to minority populations or low-income populations include short-term construction-related impacts, changed access for motorists, and reduced community character. Low-income populations throughout the study area may be affected by delays for the bus route during the construction period. However, these impacts would not disproportionately affect low-income populations, as more affluent residents who are more likely to use cars would be affected by the delays as well. Furthermore, increased traffic capacity and reduced traffic congestion would improve bus service once the proposed project was completed. The proposed project also would include roadway shoulders for bicyclists, which would benefit nonmotorist travel. All other impacts, such as changes in access for motorists and reduced community character, would affect the local population regardless of their income level or racial/ethnic background.

3.5.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Based on the foregoing discussion and analysis, the proposed I-5/SR-56 interchange project build alternatives would not cause disproportionately high and adverse effects on any minority or low-income populations, as per EO 12898 regarding environmental justice. Avoidance, minimization, and/or mitigation are not required because the proposed project would not disproportionately affect minority or low-income populations.

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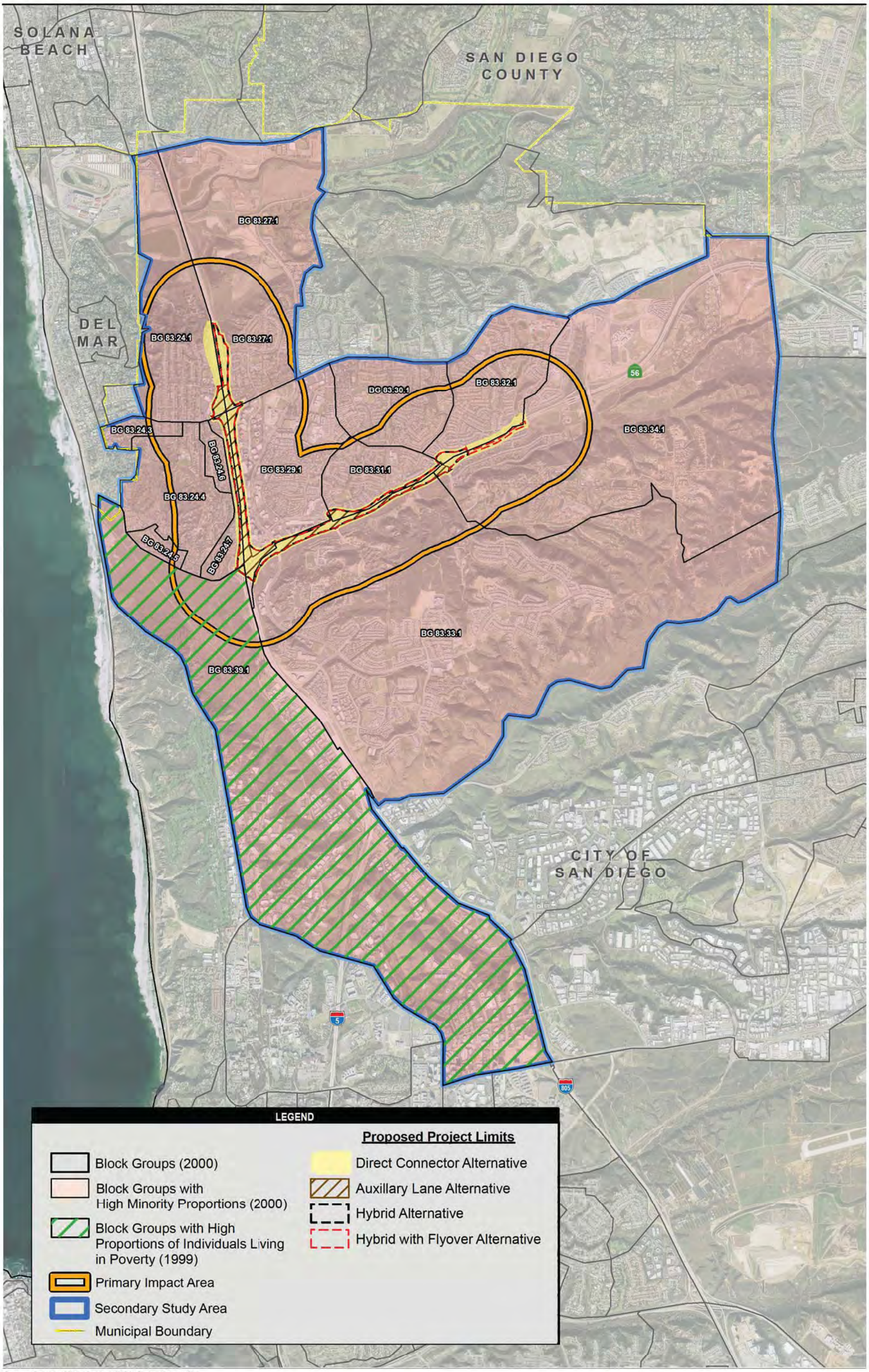


Source: SanGIS 2008; Dokken 2008; DigitalGlobe 2008

4,000 2,000 0 4,000 Feet

Scale: 1 = 48,000; 1 inch = 4,000 feet

Figure 3.5-1
Block Group Used for Environmental Justice Analysis

3.6 UTILITIES AND EMERGENCY SERVICES

3.6.1 AFFECTED ENVIRONMENT

UTILITIES

Numerous utilities exist in the proposed I-5/SR-56 interchange project vicinity, including: San Diego Gas & Electric (SDG&E) gas pipelines and electrical lines; Kinder Morgan Energy oil pipelines; City of San Diego sewer and water pipelines; AT&T and Pacific Bell telecommunication lines; and Time Warner, Cox Communications, and XO Communications cable and fiber-optic lines. The electrical, telephone, cable, and fiber-optic lines are located both above and below ground. No facilities are longitudinal encroachments, or parallel to, an existing Caltrans right-of-way. Solid waste services are provided by Waste Management Inc.

EMERGENCY SERVICES

CHP and emergency vehicles use the general-purpose lanes, median, outside shoulders, and other areas within the Caltrans right-of-way.

Fire protection and emergency medical services are provided to the City of San Diego by the San Diego Fire-Rescue Department. Fire Station 24, located at 13077 Hartfield Avenue, is approximately 1 mile east of the proposed project site. Fire Station 24 houses one engine, one ambulance, and one brush firefighting engine. Fire Station 47, located at 6041 Edgewood Court Bend, is approximately 2.74 miles east of the proposed project site. Fire Station 47 has one engine. The San Diego Fire-Rescue Department is responsible for emergency medical calls, fire response, and inspection and plan check services for the region (City of San Diego 2009a).

The City of San Diego Police Department provides police protection services to the city. Nine divisions serve the City of San Diego, with the Northwestern and Northern Divisions serving the proposed project area. The Northwestern Division is located at 12592 El Camino Real, approximately 0.7 mile northeast of the proposed project site. The Northwestern Division serves a population of 58,426 and an area of 41.5 square miles, including the neighborhoods of Sorrento Valley, Torrey Preserve, Del Mar Heights, Carmel Valley, the NCFUA, Torrey Highlands, and Black Mountain Ranch (City of San Diego 2009b). The Northern Division is located at 4275 Eastgate Mall, approximately 4.2 miles southeast of the proposed project site. The Northern Division serves a population of 249,873 and an area of 68.2 square miles (City of San Diego 2009c).

3.6.2 ENVIRONMENTAL CONSEQUENCES

UTILITIES

No Build Alternative (Alternative 1)

Under the No Build Alternative, no disruption to utilities would occur. Future planned improvements independent of the proposed project, including the addition of two managed/high-occupancy lanes on I-5 and improvements to the Del Mar Heights Road interchange, may move forward. Construction activities associated with these other planned improvements would require the relocation of utility lines. Any construction-related disruption to the provision of utility services would be temporary.

Build Alternatives (Alternatives 2 through 5)

Construction of the proposed project build alternatives would require relocation of existing utilities within the roadway construction zone and permanent right-of-way. The sections of existing roadway requiring relocation of utilities would include the Del Mar Heights Road east/west arterial roadway, westbound SR-56 to northbound I-5, the northbound I-5 off-ramp at Del Mar Heights Road, the northbound I-5 on-ramp at Carmel Valley Road, and the Portofino Circle north/south arterial roadway west of I-5. In Appendix G, Utility Relocations, Tables F-1 through F-3 list the utilities that would require relocation or further evaluation within the Caltrans right-of-way, require relocation or further evaluation outside of the Caltrans right-of-way, or have no conflicts with the proposed project and would not require relocation or further evaluation.

Table F-1 in Appendix G, Utility Relocations, lists the utilities that would require relocation or further evaluation within the Caltrans right-of-way for the build alternatives. Most of these utilities would require minor relocation, such as temporary diversion and replacement into a new housing structure or relocation into non-sensitive or previously disturbed areas. The evaluation of electrical relocation work that would be required will occur after a preferred alternative has been identified between draft and final environmental document. Additionally, Caltrans would provide the environmental clearance for the relocation of all SDG&E utilities.

The relocations listed under Table F-1 would be addressed as part of the proposed project. Coordination with utility owners is ongoing; the environmental impacts associated with the utility relocations would be fully assessed once the nature and location of the relocations was known. Utility services is not anticipated to be interrupted during construction and utility relocation activities. All utility relocations would occur in coordination with the respective utility companies throughout the project design process.

Table F-2 in Appendix G, Utility Relocations, lists the utilities that would require relocation outside of the Caltrans right-of-way footprint. As the Caltrans right-of-way is expanded along northbound I-5, the AT&T transcontinental fiber-optic cable that currently parallels the freeway between Carmel Valley Road and Del Mar Heights Road would be relocated along High Bluff Drive and El Camino Real before commencement of the proposed I-5/SR-56 interchange project. A categorical exemption has been prepared for the intended relocation of the AT&T transcontinental fiber-optic cable. Additionally, Caltrans is coordinating with the City of San Diego for the relocation of the sewer line along Carmel Valley Road.

None of the proposed build alternatives would result in increased permanent or temporary demands on water, wastewater, solid waste, or other utility services in the area. Irrigation using reclaimed water would be used when available for landscaping along the roadway.

EMERGENCY SERVICES

No Build Alternative (Alternative 1)

Under the No Build Alternative, future planned improvements independent of the proposed project may continue to move forward. Construction activities associated with the addition of two managed/high-occupancy lanes on I-5 and improvements to the Del Mar Heights Road interchange may cause potential delays to emergency services. Additionally, future emergency service response times would not benefit from improved roadway operations associated with the build alternatives, and increased future traffic congestion could increase response times. Table 3.6-1 compares current travel times to projected No Build Alternative travel times in 2030.

Table 3.6-1. Round Trip Travel Times

Routes	Direction of Travel in AM and PM	Current Travel Times (mins)	2030 Travel Times (minutes)				
			No Build	Direct Connector	Auxiliary Lanes	Hybrid	Hybrid with Flyover
Local Street Routes	W to N in AM/ S to E in PM	18–30	46–57	30–36	46–57	37–45	37–45
	S to E in AM/ W to N in PM	20–24	36–38	27–32	33–40	29–35	29–35
Freeway Routes	W to N in AM/ S to E in PM	24	51	19	39	37	33
	S to E in AM/ W to N in PM	17	33	19	27	26	25

Source: Dokken 2010b and LLG 2009

Build Alternatives (Alternatives 2 through 5)

During construction for each of the build alternatives, emergency response times would be potentially affected when existing roadways were temporarily disrupted. However, emergency access to all areas along the project alignment would be maintained during construction. As shown in Table 3.6-1, all alternatives would result in increased travel times when compared to existing conditions, except that the Direct Connector Alternative would decrease travel time by approximately 5 minutes for some of the freeway routes. However, projected travel times for all the build alternatives would be reduced as compared to the projected No Build Alternative in 2030, except for the Auxiliary Lane Alternative's AM west-to-north and PM south-to-east local street route travel times. Therefore, for most build alternatives, emergency response times would be reduced by the improved roadway operation and would create a net benefit to public safety.

3.6.3 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

UTILITIES

Before construction, each utility facility would be evaluated for proper avoidance or relocation. When utility relocation was necessary, Caltrans would coordinate closely with the utility companies to determine where and how to move these facilities in the most appropriate, safe, cost-effective, and non-disruptive manner.

Additionally, utility poles are considered fixed objects within roadway shoulders that pose a danger to vehicles that may leave the roadway. Removing these fixed objects would assist in minimizing traffic accidents involving fixed objects. Placing these utilities underground would also minimize the occurrence of service interruption to customers when poles are interfered with or downed.

EMERGENCY SERVICES

To minimize any potential adverse delays to emergency access or response times, the following strategies would be employed by Caltrans to aid in incident management, as per Caltrans' standard practice:

- The Construction Zone Enhancement Enforcement Program (COZEEP) would involve the presence of CHP to improve project safety by encouraging motorists to slow down and use care while driving through construction zones.

- The Freeway Service Patrol program, a cooperative effort between Caltrans, SANDAG, and the CHP, would help to alleviate incident-related traffic congestion by operating tow services to aid stranded or disabled vehicles on urban freeways during morning and afternoon commuter periods.

- A TMP would be prepared to provide clearly identifiable access to and from all homes, schools, and businesses. The TMP would specify how through-access for emergency providers would be maintained at all times during construction. Emergency service providers would be continually informed and updated of all detours and other traffic modifications or delays.

3.7 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

3.7.1 REGULATORY SETTING

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

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

3.7.2 AFFECTED ENVIRONMENT

This section is based on the December 2009 *Final Traffic Study, Combined Traffic Operations and Volumes Report* and the October 2010 *Traffic Summary*. The technical study and summary conclusions created the support material for the following narrative sections and the summary below. The proposed project study area includes approximately 5.5 miles of I-5, between I-805 and Via de la Valle, and 3.0 miles of SR-56 between I-5 and Carmel Valley Road. The study area has urban street facilities and freeway facilities. The urban street facilities include signalized and unsignalized intersection locations, and local Circulation Element streets within the local jurisdiction of the City of San Diego. The freeway facilities include the freeway mainline, merge and diverge locations, ramps, and weaving sections within the jurisdiction of Caltrans.

As discussed in Chapter 1, Proposed Project, the proposed I-5/SR-56 interchange project has been designed to address both the existing and anticipated future traffic operational deficiencies associated with the absence of direct freeway-to-freeway connectors in the southbound (SB) I-5 to eastbound (EB) SR-56 and westbound (WB) SR-56 to northbound (NB) I-5 directions. The existing I-5/SR-56 interchange network requires that drivers exit the freeway at Carmel Valley Road to travel from southbound I-5 to eastbound SR-56 (S-E) and from westbound SR-56 to northbound I-5 (W-N). The ramp intersections along El Camino Real and Carmel Valley Road that serve these freeway-to-freeway movements experience congestion during peak periods in the morning and again in the evening. Furthermore, during periods of increased travel demand, drivers use alternative routes including El Camino Real, Carmel Creek Road, and Carmel Country Road, to travel between I-5 and SR-56 and avoid traffic congestion related to the “missing moves” at the I-5/SR-56 interchange. The neighboring communities experience increased demand and congestion because of these “cut through” traffic volumes.

Vehicular travel within the proposed project area consists of regional traffic (i.e., traffic originating from or bound for locations outside of the proposed project area) and local traffic (i.e., traffic originating from and bound for locations within the proposed project area). An urban highway network generally has principal arterials, minor arterials, collectors, and local street systems. An effective design should ensure that regional traffic is served by and confined to the principal arterial system (the freeways for

most urban highway networks) and the local traffic is served by and confined to the remaining parts of the network as much as is practicable.

EXISTING STREET NETWORK

I-5 is a principal north/south interstate freeway facility. It has a posted speed limit of 65 miles per hour and provides direct access to Encinitas, Carlsbad, Oceanside, San Diego, and Orange and Los Angeles counties. I-5 has been planned to accommodate five lanes plus two HOV lanes in each direction by 2030. The northbound bypass facility currently consists of four lanes south of the I-5/SR-56 interchange. The southbound bypass opened to traffic on April 2, 2007, and has four lanes south of the I-5/SR-56 interchange, with two lanes leading to I-5 and two lanes to I-805 south of the split.

SR-56 is currently a four-lane state route running east/west, connecting I-5 to I-15; from Carmel Country Road to Black Mountain Road, it is classified as a four-lane freeway. It has a posted speed limit of 65 miles per hour (mph). SR-56 has been modeled with four lanes and no HOV/managed lanes for the interim 2015, and six lanes and two HOV/managed lanes for the long-term 2030. The proposed project area includes four interchanges on SR-56: El Camino Real; Carmel Creek Road; Carmel Country Road; and Carmel Valley Road.

Via De La Valle is classified in the Via De La Valle Community Plan as a six-lane major street from I-5 to San Andres Drive and a four-lane major street from San Andres Drive to the City border just east of El Camino Real. From El Camino Real to Paseo Delicias, Via De La Valle is classified as a rural collector on the County of San Diego Circulation Element. Bus stops are provided and the posted speed limit is generally 45 mph within the proposed project study area.

San Dieguito Road is classified as a collector on the County of San Diego Circulation Element. San Dieguito Road is a two-lane roadway divided by a two-way-left-turn lane in the immediate proposed project vicinity. The posted speed limits on San Dieguito Road are 45 and 50 mph.

Del Mar Heights Road is a four-lane undivided roadway from Camino Del Mar to I-5 and a six-lane primary arterial from I-5 to Carmel Valley Road. Bus stops are provided, and the posted speed limit is 40-55 mph within the proposed project study area. Bike lanes are provided, and on-street parking is prohibited.

Townsgate Drive is a four-lane major road from Del Mar Heights Road to El Camino Real. Bike lanes are provided, and on-street parking is prohibited. The posted speed limit is 30 mph.

Carmel Valley Road (western segment) is a two-lane undivided roadway from Camino Del Mar to I-5 interchange ramps and a six-lane prime arterial from I-5 interchange ramps to El Camino Real. An enhanced raised median is under construction on Carmel Valley Road from Mango Drive to Camino Del Mar. The posted speed limit on Carmel Valley Road from Camino Del Mar to Pointe Del Mar Way is 30 mph, and from Pointe Del Mar to the I-5 interchange it is 40 mph.

Carmel Valley Road (eastern segment) is a 4-lane major road from Del Mar Heights Road to SR-56 interchange ramps. Bike lanes are provided, and on-street parking is prohibited.

Valley Center Drive is a 4-lane major road from El Camino Real to Carmel Creek Road. The posted speed limit is 40 mph. Bike lanes are provided, and on-street parking is prohibited.

Carmel Mountain Road is a 5-lane major road from I-5 NB ramps to Vista Sorrento Parkway and a 6-lane primary arterial from Vista Sorrento Parkway to El Camino Real. Bike lanes are provided, and on-street parking is prohibited. A new interchange of Carmel Mountain Road with I-5 is under construction.

Camino Del Mar is a 3-lane collector from Del Mar Heights Road to Carmel Valley Road and a two-lane collector roadway south of Carmel Valley Road. The speed limit generally is 30 mph, and bike lanes are provided in both directions. On-street parking is prohibited.

Mango Drive is a 2-lane collector roadway from Del Mar Heights Road to Carmel Valley Road. On-street parking is provided on both sides of the road.

Portofino Drive is a two-lane collector roadway from Del Mar Heights Road to Carmel Valley Road. On-street parking is provided on both sides of the road.

High Bluff Drive is a four-lane major road from Del Mar Heights Road to El Camino Real. The posted speed limit is 30 mph. Bike lanes are provided, and on-street parking is prohibited.

El Camino Real is a two-lane undivided roadway from Via de la Valle to Rosecroft Way. It is a four-lane major road from Rosecroft Way to Del Mar Heights Road, and a six-lane primary arterial from Del Mar Heights Road to Carmel Mountain Road. The speed limit is 50 mph, and bike lanes are provided in both directions. On-street parking is prohibited.

Carmel Country Road is a four-lane major roadway from Del Mar Heights Road to SR-56 interchange ramps. The posted speed limit is 45 mph. Bike lanes are provided, and on-street parking is prohibited.

Carmel Creek Road is a four-lane major road from Carmel Country Road to the SR-56 interchange ramps. The posted speed limit is 45 mph. Bike lanes are provided, and parking is prohibited.

Carmel Canyon Road is a four-lane major road from Del Mar Heights Road to Carmel Country Road. It extends west of Carmel Country Road as a 2-lane collector called Del Mar Trails Road. The posted speed limit generally is 40 mph. Bike lanes are provided, and on-street parking is prohibited.

Forty-one key intersections have been analyzed for this project and key intersection locations are shown on Figure 3.7-1:

- SB I-5 Ramps/Via de la Valle
- NB I-5 Ramps/Via de la Valle
- El Camino Real West/Via de la Valle
- El Camino Real/San Dieguito Road
- Camino Del Mar/Del Mar Heights Road
- Mango Drive/Del Mar Heights Road
- Portofino Drive/Del Mar Heights Road
- SB I-5 Ramps/Del Mar Heights Road
- NB I-5 Ramps/Del Mar Heights Road
- High Bluff Drive/Del Mar Heights Road
- El Camino Real/Del Mar Heights Road
- Signature Pointe Driveway/Del Mar Heights Road
- Carmel Country Road/Hartfield Avenue/Del Mar Heights Road
- Carmel Canyon Road/Del Mar Heights Road
- Carmel Valley Road/Del Mar Heights Road
- El Camino Real/Townsgate Drive
- Carmel Country Road/Townsgate Drive
- El Camino Real/High Bluff Drive
- Carmel Country Road/Carmel Creek Road
- Carmel Creek Road/Del Mar Trails Road
- Camino Del Mar/Carmel Valley Road
- Portofino Drive/Carmel Valley Road

- Sorrento Valley Road/Carmel Valley Road
- SB I-5 Ramps/Carmel Valley Road
- NB I-5 Ramps/Carmel Valley Road
- Old Camino Real/Carmel Valley Road
- El Camino Real/Valley Center Drive
- El Camino Real/WB SR-56 Off-ramp/Carmel Valley Road
- El Camino Real/EB SR-56 On-ramp/Carmel Valley Road
- Carmel Creek Road/WB SR-56 Ramps/Valley Center Drive
- Carmel Creek Road/EB SR-56 Ramps
- Carmel Country Road/Carmel Canyon Road
- Carmel Country Road/WB SR-56 Off-ramp
- Carmel Country Road/EB SR-56 Ramps
- Carmel Valley Road/WB SR-56 Ramps
- Carmel Valley Road/EB SR-56 Ramps
- Sorrento Valley Road/Carmel Mountain Road
- SB I-5 Ramps/Carmel Mountain Road
- NB I-5 Ramps/Carmel Mountain Road
- Vista Sorrento Parkway/Torrey View Court/Carmel Mountain Road
- El Camino Real/Carmel Mountain Road

Thirty-eight roadway segments have been analyzed:

- Via de la Valle between Jimmy Durante Boulevard to SB I-5 Ramps
- Via de la Valle between NB I-5 Ramps to San Andres Drive
- Via de la Valle between San Andres Drive to El Camino Real
- Del Mar Heights Road between Camino Del Mar to Mango Drive
- Del Mar Heights Road between Mango Drive to Portofino Drive
- Del Mar Heights Road between NB I-5 Ramps to High Bluff Drive
- Del Mar Heights Road between High Bluff Drive to El Camino Real
- Del Mar Heights Road between El Camino Real to Carmel Country Road
- Del Mar Heights Road between Carmel Country Road to Carmel Canyon Road
- Del Mar Heights Road between Carmel Canyon Road to Carmel Valley Road
- Townsgate Drive between El Camino Real to Carmel Country Road
- Valley Center Drive between El Camino Real to Carmel Creek Road
- Carmel Valley Road between Camino Del Mar to Sorrento Valley Road
- Carmel Valley Road between Sorrento Valley Road to I-5
- Carmel Valley Road between I-5 to El Camino Real
- Carmel Mountain Road between Sorrento Valley Road to SB I-5 Ramps
- Carmel Mountain Road between NB I-5 Ramps to Vista Sorrento Parkway
- Carmel Mountain Road between Vista Sorrento Parkway to Carmel Mountain Road
- Camino Del Mar between Del Mar Heights Road to Carmel Valley Road
- Camino Del Mar South of Carmel Valley Road
- Portofino Drive between Del Mar Heights Road to Carmel Valley Road
- High Bluff Drive between Del Mar Heights Road to El Camino Real
- El Camino Real between Via de la Valle to San Dieguito Road
- El Camino Real between San Dieguito Road to Del Mar Heights Road
- El Camino Real between Del Mar Heights Road to Townsgate Drive
- El Camino Real between Townsgate Drive to High Bluff Drive
- El Camino Real between High Bluff Drive to Valley Center Drive
- El Camino Real between Valley Center Drive to Carmel Valley Road
- El Camino Real between Carmel Valley Road to Carmel Mountain Road
- Carmel Creek Road between Carmel Country Road to Del Mar Trails Road
- Carmel Creek Road between Del Mar Trails Road to Valley Center Drive

- Carmel Country Road between Del Mar Heights Road to Townsgate Drive
- Carmel Country Road between Townsgate Drive to Carmel Creek Road
- Carmel Country Road between Carmel Creek Road to Del Mar Trails Road
- Carmel Country Road between Del Mar Trails Road to WB SR-56 Ramps
- Carmel Canyon Road between Del Mar Heights Road to Carmel Country Road
- Carmel Canyon Road between Carmel Country Road to Carmel Creek Road
- Carmel Valley Road between Del Mar Heights Road to WB SR-56 Ramps

The following freeway mainlines and local bypasses have been analyzed:

- I-5 north of Via de la Valle
- I-5 between Via de la Valle and Del Mar Heights Road
- I-5 between Del Mar Heights Road and Carmel Valley Road
- I-5 between Carmel Valley Road and Carmel Mountain Road
- I-5 south of Carmel Mountain Road
- SR-56 between El Camino Real and Carmel Creek Road
- SR-56 between Carmel Creek Road and Carmel Country Road
- SR-56 between Carmel Country Road and Carmel Valley Road
- SR-56 east of Carmel Valley Road
- I-5 between Del Mar Heights Road and Carmel Valley Road (local bypass)
- I-5 between Carmel Valley Road and Carmel Mountain Road (local bypass)
- I-5 south of Carmel Mountain Road (local bypass)

3.7.3 ENVIRONMENTAL CONSEQUENCES

The lack of direct freeway-to-freeway connectors in the southbound I-5 to eastbound SR-56 and westbound SR-56 to northbound I-5 directions ("missing moves") results in congestion on both urban street and freeway facilities. One objective for the proposed project is to ensure that regional traffic movements are made on I-5 and SR-56 while local traffic movements are made on El Camino Real, Carmel Valley Road, Carmel Creek Road, and Del Mar Heights Road. By drawing regional traffic volumes from local streets to the freeway facilities, the improvements proposed in the Direct Connector, Hybrid, and Hybrid with Flyover Alternatives work toward achieving this goal with varying levels of success.

This section describes those varying levels of success for each build alternative and provides a comparison of projected future conditions (under the No Build Alternative as well as the build alternatives) to existing conditions. The analysis includes comparisons based on traffic volumes, level of service (LOS), and travel times.

3.7.3.1 METHODOLOGY

The primary analysis tool used for a majority of the transportation planning studies done in San Diego County is SANDAG's Regional Transportation Model. The Transportation Model incorporates land-use plans from local jurisdictions, projected population and job growth rates, and plans for major transportation investments as well as other regional improvements. The combination of these pieces provides a snapshot of how the region's transportation network is anticipated to behave in the future. SANDAG produces a new forecast every three to five years to incorporate updated data, changing trends, and new policies.

The traffic projections for the I-5/SR-56 Interchange Project were developed using SANDAG's Series 10 traffic model, which is consistent with the 2030 RTP. SANDAG has updated its RTP, to reflect the regions latest development strategies and major transportation improvements until the year 2050. The 2050 RTP includes a revised traffic model (Series 12) which builds upon some of the assumptions that

were presented in Series 10. The differences between the models include the removal of High Occupancy Vehicle (HOV) Lanes on State Route 56, the configuration of the I-5 North Coast Corridor Project from a 10 General Purpose (GP) + 4 Managed Lane (ML) to an 8 GP + 4 ML facility, and the removal of Bus Rapid Transit (BRT) along El Camino Real. It should be noted that the managed lanes on SR-56 are still a part of the "2050 Unconstrained Highway Network".

Traffic forecasts for the I-5/SR-56 Interchange project were developed by comparing the differences between the Series 10 Regional Transportation Model base and future years, and then applying growth factors to historical traffic volumes. Since the region has migrated to a new economic and demographic growth forecast (Series 12), Caltrans District 11 has engaged in an initial comparative analysis between the Series 10 and Series 12 regional traffic model traffic volumes, as well as several selected freeway links for the full build 5/56 connector alternative.

The results of this initial comparison indicate that the regional traffic growth forecasts were roughly similar for Series 10 and 11, with total estimated vehicle-miles traveled being within 1% by the year 2030. However, by 2008 the effects of the recession had deepened and affected growth forecasts nationally. The Series 12 growth forecast used 2008 as a new base year, and new estimates were developed for future land use, population and employment out to the year 2050. The latest estimates are that regional employment and other economic factors will lag about 15 years behind the previous estimates of Series 10 and 11. Essentially, the traffic demands throughout the region that were previously predicted for year 2030 are now predicted to be reached by year 2045.

In looking at three representative locations along the project (specifically on SR-56 from Carmel Creek Rd. to I-5/SR-56 Interchange, the West-North Proposed Interchange Connector, and the South-East proposed Interchange Connector) it is found that he total traffic demand volumes for 2040 in Series 12 were generally 10 to 15 percent lower than the traffic demand volumes for 2030 in Series 10. These differences are not considered substantial enough to warrant changes to the geometric configurations of the various alternatives being proposed in the study for those horizon years."

The project development team collectively selected 2015 as the interim (opening day) scenario and the 2030 as the long-term (design horizon) scenario for forecasting. Model runs were developed to simulate traffic conditions for both 2015 and 2030 No Build, Direct Connector, Auxiliary Lane, Hybrid and Hybrid with Flyover alternative scenarios, as well as the existing scenario.

The 2030 forecasts assume that a number of regional improvements would occur over the next two decades. These improvements would include, but would not be limited to, the following:

- widening I-5 from La Jolla Village Drive in San Diego to Harbor Drive in Oceanside/Camp Pendleton, to an average configuration of 10 general purpose lanes and four HOV/managed lanes;
- widening SR-56 from I-5 to I-15, to an average configuration of six general purpose lanes and two HOV lanes (for the 2015 analysis this was modeled as four lanes);
- widening I-805 from Palomar Street to I-5, to an average configuration of eight general purpose lanes and two to four HOV/managed lanes;
- double tracking the LOSSAN rail corridor; and
- adding an arterial BRT to El Camino Real.

The analyses also included consideration of the concerns voiced by the surrounding communities during proposed project Steering Committee meetings (see Chapter 5, Comments and Coordination for additional details). The Steering Committee includes representatives from the Carmel Valley, Del Mar

Mesa, Torrey Hills, and Torrey Pines community planning groups, who have been meeting with representatives from the City of San Diego, Caltrans, SANDAG, and the project development team to discuss progress on the proposed I-5/SR-56 interchange project and offer feedback from the community. During those meetings, the following community concerns have been identified:

- The severity of congestion in the future if no improvements are made at the I-5/SR-56 interchange
- Impacts to I-5 in each of the proposed alternatives
- Traffic impacts related to removing the existing eastbound SR-56 slip off-ramp to Carmel Creek Road and restricting access to southbound I-5 from the westbound SR-56 loop on-ramp at Carmel Creek Road
- "Cut through" traffic using local streets within Carmel Valley to avoid congestion related to the "missing moves" (absence of direct connectors for the S-E and W-N interchange movements)
- System constraints on SR-56, east of Carmel Valley, and the effect on the value of the proposed direct connectors
- Recent economic changes and the effect on the need for improvements at the I-5/SR-56 interchange
- Completion of Pacific Highlands Ranch (PHR) and the effect on the need for improvements at the I-5/SR-56 interchange

Future Removal of Existing Eastbound SR-56 Slip Off-Ramp

The Direct Connector, Auxiliary Lane, Hybrid, and Hybrid with Flyover Alternatives were analyzed with and without the proposed removal of the existing eastbound SR-56 slip off-ramp (slip ramp) to Carmel Creek Road. The slip ramp, which was originally intended to serve as a temporary network feature, allows traffic to exit the freeway at Carmel Creek Road from the N-E direct connector.

A number of concerns were identified with maintaining the slip ramp. Due to the limited decision sight distance in advance of the slip ramp exit combined with high operating speeds, there are concerns with the operations of the slip ramp in the future. In addition, traffic analysis indicated operational concerns for vehicles entering eastbound SR-56 from El Camino Real and vehicles exiting eastbound SR-56 to Carmel Creek Road. This is due to a combination of inadequate existing interchange spacing and an anticipated increase in the number of future slip ramp users. All proposed build alternatives recommend removal of the slip ramp (see Figure 3.7-8).

Removal of the slip ramp would divert an estimated 75 percent of potential future users of the facility to the northbound I-5 to Carmel Valley Road off-ramp. The remaining 25 percent would be diverted to other alternate routes, such as Carmel Country Road and Del Mar Heights Road. The Direct Connector, Auxiliary Lane, and Hybrid Alternatives propose three right turn lanes at the northbound I-5 to Carmel Valley Road off-ramp termini to mitigate for the addition of traffic at this intersection. It is likely that the ramp would be constructed to accommodate three right turn lanes, but striped for only two right turn lanes until traffic volumes warranted the third right turn.

The removal of the slip ramp would affect future travel times in the project area; travel times are discussed more fully in Section 3.7.3.4.

For further details on the methodology of the traffic study, refer to the December 2009 *Final Traffic Study, Combined Traffic Operations and Volumes Report* (LLG 2009).

3.7.3.2 TRAFFIC VOLUMES

According to SANDAG's *2030 San Diego Regional Transportation Plan* (SANDAG 2007), the San Diego region faces a large increase in travel demand over the next two decades. In 1990, the daily travel demand was nine million trips. The region's current population (2007–2008) generates an estimated 16.7 million daily trips by some sort of motorized travel today. By 2030, this number is projected to increase to 22 million daily trips. Traffic projections anticipate that this would result in an approximately 30 percent growth in traffic demand in the proposed project area.

In recent years, a decline has occurred in travel demand in the San Diego region from numbers reached in 2007 and 2008. This is attributed to a variety of causes including rising gas prices and the ongoing economic recession. Historically, these types of travel trends have resulted in a short-term flattening of the region's traffic volume versus time curve, but have not resulted in any long-term downhill trends. Therefore, observed temporary reductions in travel demand are not expected to appreciably affect the projected long term traffic volume forecasts for the region.

Freeway Facilities

Table 3.7-1 shows a comparison of the existing and projected average daily traffic (ADT) on the freeway facilities for the No Build, Direct Connector, Auxiliary Lane, Hybrid, and Hybrid with Flyover Alternatives in 2015 and 2030.

Compared to existing conditions, all alternatives, including the No Build, are projected to have increases in freeway facility ADT in the project area in 2015 and 2030. The increases in ADT are a result of population growth and future development in the San Diego region and would occur regardless of whether the I-5/SR-56 project is constructed.

No Build Alternative (Alternative 1)

Forecasts for the No Build Alternative indicate that freeway and ramp traffic volumes would approximately double by 2030 along the northbound local bypass and the slip ramp to Carmel Creek Road. Traffic volumes are anticipated to approximately double at 7 of the 19 local street interchange ramps within the proposed project limits. The largest change in ramp traffic volumes with the No Build Alternative would occur at the El Camino Real to eastbound SR-56 on-ramp, where volumes would increase from 16,000 ADT under existing conditions to more than 32,000 ADT by 2030.

Direct Connector Alternative (Alternative 2)

With the proposed Direct Connector Alternative improvements, 2015 and 2030 traffic volumes along the I-5 and SR-56 freeway mainlines are forecasted to increase relative to the No Build Alternative. This increase would be attributed to the construction of the proposed direct connectors, which would entice many travelers to use proposed the I-5/ SR-56 interchange instead of alternate local street routes or other interchanges serving west-east corridors within the region. Traffic volumes are anticipated to increase along the extended local bypasses because they would contain all of the local street traffic entering and exiting the freeway between the Carmel Valley Road and Del Mar Heights Road interchanges. The construction of the proposed collector-distributor system would increase traffic volumes on the Carmel Valley Road to southbound I-5 on-ramp and decrease traffic volumes on the west-south direct connector. Furthermore, the proposed removal of the existing slip ramp would increase traffic volumes on the northbound I-5 to Carmel Valley Road off-ramp and the eastbound SR-56 to Carmel Country Road off-ramp.

Table 3.7-1. Existing and Projected (2015 & 2030) Freeway ADT

Segment	Direction	Existing ADT	2015 Projected Freeway ADT 2030 Projected Freeway ADT (2030 ADT Build – 2030 ADT No Build)				
			No Build Alternative	Direct Connector Alternative	Auxiliary Lane Alternative	Hybrid Alternative	Hybrid with Flyover Alternative
I-5 between Via de la Valle and Del Mar Heights Road	Southbound I-5	112,400	156,750 180,690	160,450 185,050 (4,360)	156,750 180,690 (0)	156,750 180,690 (0)	156,750 180,690 (0)
	Northbound I-5	110,900	153,820 176,350	158,400 181,700 (5,350)	153,820 176,350 (0)	158,400 181,700 (5,350)	158,400 181,700 (5,350)
I-5 between Del Mar Heights Road and Carmel Valley Road	Southbound I-5	112,600	153,030 179,550	160,350 188,050 (8,500)	153,030 179,550 (0)	153,030 179,550 (0)	153,030 179,550 (0)
	Northbound I-5	113,500	153,030 172,940	161,900 183,200 (10,260)	153,030 172,940 (0)	161,900 183,200 (10,260)	161,900 183,200 (10,260)
SR-56 between El Camino Real and Carmel Creek Road	Eastbound SR-56	46,200	63,450 76,270	70,100 84,000 (7,730)	63,450 76,270 (0)	63,450 76,270 (0)	63,450 76,270 (0)
	Westbound SR-56	45,000	60,930 70,850	68,580 79,460 (8,610)	60,930 70,850 (0)	68,580 79,460 (8,610)	68,580 79,460 (8,610)
SR-56 between Carmel Creek Road and Carmel Country Road	Eastbound SR-56	40,100	56,620 67,570	66,040 79,030 (11,460)	59,240 71,070 (3,500)	59,660 71,600 (4,030)	59,660 71,600 (4,030)
	Westbound SR-56	39,500	54,740 63,110	65,780 76,330 (13,220)	56,340 65,210 (2,100)	65,780 76,330 (13,220)	65,780 76,330 (13,220)
SR-56 between Carmel Country Road and Carmel Valley Road	Eastbound SR-56	34,600	52,830 62,170	57,200 67,300 (5,130)	52,830 62,170 (0)	52,830 62,170 (0)	52,830 62,170 (0)
	Westbound SR-56	33,100	49,620 56,240	55,000 62,500 (6,260)	49,620 56,240 (0)	55,000 62,500 (6,260)	55,000 62,500 (6,260)

Source: Dokken 2010b and LLG 2009

Auxiliary Lane Alternative (Alternative 3)

With the exception of the northbound I-5 to Carmel Valley Road off-ramp, 2015 and 2030 freeway and ramp traffic volumes are anticipated to remain relatively unchanged in the Auxiliary Lane Alternative as compared to the No Build Alternative. As with all of the proposed build alternatives, traffic would be re-routed to the northbound I-5 Carmel Valley Road off-ramp because of the proposed removal of the existing slip ramp in the Auxiliary Lane Alternative. The increase in traffic volumes along SR-56 between Carmel Creek Road and Carmel Country Road would be the result of traffic doubling back to Carmel Creek Road, caused by the removal of the slip ramp

Hybrid Alternative (Alternative 4)

Forecasted 2015 and 2030 freeway and ramp traffic volumes for the Hybrid Alternative are similar to the Direct Connector Alternative in the west-to-north direction and similar to the Auxiliary Lane Alternative in the south-to-east direction. As with the Direct Connector Alternative, the collector-

distributor system proposed in the Hybrid Alternative would increase traffic volumes along the Carmel Valley Road to the southbound I-5 on-ramp and decrease traffic volumes along the west-to-south direct connector.

Hybrid with Flyover Alternative (Alternative 5)

With the exception of the El Camino Real to eastbound SR-56 on-ramp, forecasted 2015 and 2030 freeway and ramp traffic volumes for the Hybrid with Flyover Alternative are similar to the Hybrid Alternative. Volumes for the El Camino Real to eastbound SR-56 on-ramp would decrease as compared to the Hybrid Alternative because of construction of the proposed flyover ramp. The flyover ramp would provide direct access to the eastbound SR-56 fast lane from eastbound Carmel Valley Road, allowing drivers to bypass both the intersection and on-ramp at El Camino Real.

Local Street Facilities

Table 3.7-2 compares the existing and projected ADT for three key local street segments for the No Build, Direct Connector, Auxiliary Lane, Hybrid, and Hybrid with Flyover Alternatives in 2015 and 2030. See Figure 3.7-2 for information regarding ADT at other locations within the proposed project area.

Table 3.7-2. Existing and Projected (2030) Local Street ADT

	Existing ADT	2015 Local Street ADT 2030 Local Street ADT (2030 Build – 2030 No Build)				
		No Build Alternative	Direct Connector Alternative	Auxiliary Lane Alternative	Hybrid Alternative	Hybrid with Flyover Alternative
Carmel Valley Road (Near I-5/SR-56 Interchange)	43,000	57,510 66,480	51,620 64,530 (-1,950)	65,390 76,980 (10,500)	61,000 75,250 (8,770)	61,000 75,250 (8,770)
Carmel Creek Road (between Del Mar Trails Road and Valley Center Drive)	12,400	13,380 13,740	10,520 10,090 (-3,650)	12,360 12,340 (-1,400)	10,790 10,390 (-3,350)	10,790 10,390 (-3,350)
Del Mar Heights Road (between El Camino Real and Carmel Country Road)	19,100	31,440 45,740	25,000 38,370 (-7,370)	31,440 45,740 (0)	27,950 41,740 (-4,000)	27,950 41,740 (-4,000)

Source: Dokken 2010b and LLG 2009

Compared to existing conditions, most segments for most alternatives, including the No Build Alternative, are projected to have increases in local street ADT in the proposed project area in 2015 and 2030. The projected increases in ADT would be a result of population increase and future development in the San Diego region, and would occur regardless of whether the proposed I-5/SR-56 project is constructed. For the Del Mar Heights Road segment shown in Table 3.7-2, the ADT more than doubles for all alternatives in 2030, when compared to existing conditions. The Carmel Valley Road segment also would experience large increases in ADT, increasing from an existing ADT of 43,000 to a high of 76,980 ADT in 2030, with the Auxiliary Lane Alternative. Carmel Creek Road presents a different scenario: with the No Build Alternative, the ADT increases by 980 in 2015 and 1,340 in 2030 over existing conditions, yet the ADT decreases compared to existing conditions for all the build alternatives. The Direct Connector Alternative yields the greatest predicted decrease in 2030 ADT (-3,650) compared to the No Build Alternative for this segment of Carmel Creek Road.

No Build Alternative (Alternative 1)

For the three urban street segments highlighted in Table 3.7-2, the No Build Alternative would result in an increase in 2015 and 2030 ADT for each segment. Forecasts for the No Build Alternative indicate

that local street traffic volumes would more than double by 2030 along Del Mar Heights Road east of I-5. This would mean the addition of 19,000 to 25,000 ADT by 2030 on Del Mar Heights Road (see Table 3.7-2). Local street traffic volumes would approximately double along Carmel Country Road between Del Mar Heights Road and Carmel Creek Road. The largest increases in local street traffic volumes would be within the Carmel Valley and Pacific Highland Ranch communities.

Direct Connector Alternative (Alternative 2)

With the proposed Direct Connector Alternative improvements, 2015 and 2030 local street traffic volumes are forecasted to decrease relative to the No Build Alternative throughout the Carmel Valley and Pacific Highlands Ranch communities (see Table 3.7-2 and Figure 3.7-2). Notable decreases in traffic volumes are anticipated along Del Mar Heights Road east of I-5, Carmel Valley Road near the I-5/SR-56 interchange (the Direct Connector Alternative has the largest decrease in ADT of all build alternatives compared to No Build), and Carmel Creek Road north of SR-56. Construction of the proposed direct connectors would ensure that the freeway route would be more attractive than alternate local street routes for drivers traveling between I-5 at Del Mar Heights Road and SR-56 at Carmel Valley Road. The “cut through” traffic volumes would be reduced by drawing travelers from the local streets to the freeway facilities, thereby reducing congestion and improving traffic operational quality in the neighboring communities.

Auxiliary Lane Alternative (Alternative 3)

In general, the forecasted local street traffic volumes for the Auxiliary Lane Alternative are somewhat similar to the No Build Alternative for 2015 and 2030. As shown in Table 3.7-2 for that segment of Carmel Valley Road, the Auxiliary Lane Alternative is anticipated to create an additional 7,880 ADT in 2015 and 10,500 ADT when compared to the No Build Alternative. This alternative would have the greatest increase in ADT among all the alternatives on this segment of Carmel Valley Road. This is because this alternative would not include any direct freeway-to-freeway connectors. A slight increase in local street traffic volume (as compared to the No Build Alternative) is anticipated along Carmel Country Road between Del Mar Trails Road and the westbound SR-56 ramps. Slight decreases in traffic volumes relative to the No Build Alternative are anticipated along Carmel Creek Road between Del Mar Trails Road and Valley Center Drive. These changes would be attributable to the proposed removal of the slip ramp, which would reduce the number of vehicles traveling on Carmel Creek Road and reroute traffic to Carmel Valley Road and Carmel Country Road.

Hybrid and Hybrid with Flyover Alternatives (Alternatives 4 and 5)

The predicted ADT for 2015 and 2030 is the same for the Hybrid and Hybrid with Flyover Alternatives. For the Carmel Valley Road segment near the proposed I-5/SR-56 interchange, these alternatives would result in an increase of 3490 ADT in 2015 and 8,770 ADT in 2030 when compared to the No Build Alternative. This is because of the removal of the slip off-ramp to Carmel Creek Road, which would result in the transfer of those trips to Carmel Valley Road. However, on the segments of Carmel Creek Road and Del Mar Heights Road shown in Table 3.7-2, the Hybrid and Hybrid with Flyover Alternatives would result in decreases in 2030 ADT compared to the No Build Alternative, in the amount of -3,350 and -4,000 ADT, respectively.

EFFECT OF PACIFIC HIGHLANDS RANCH DEVELOPMENT ON TRAFFIC VOLUMES

PHR is north of the SR-56/Carmel Valley Road interchange. PHR is expected to generate 74,220 ADT at full build-out.[3] Of the 74,220 ADT generated by PHR, a total of 4,230 ADT are expected to use the

[3] The total anticipated residential development of Pacific Highlands Ranch is estimated at 4,907 single- and multi-family dwelling units, a fire or police station site, three elementary school sites, two high school sites, 6.4 acres for a library, 118 acres of agricultural use, 21 acres of commercial use, and 21 acres of industrial park use.

proposed SB I-5 to EB SR-56 and WB SR-56 to NB I-5 direct connectors. A combined ADT of 42,220 has been forecasted with the proposed direct connectors. Therefore, PHR traffic would make up approximately 10 percent of the total traffic volume, using the proposed south-to-east and west-to-north direct connectors. Of the 74,220 ADT generated by PHR, a total of 16,740 ADT are expected to use the existing NB I-5 to EB SR-56 and WB SR-56 to SB I-5 direct connectors. A combined ADT of 69,980 has been forecasted for the existing direct connectors by 2030. As such, PHR traffic would make up approximately 24 percent of the total traffic volume, using the existing north-to-east and west-to-south direct connectors.

LEVEL OF SERVICE

Traffic conditions are described in terms of Level of Service (LOS). The concept of LOS uses qualitative measures that characterize operational conditions within a traffic stream. The levels are given letter designations from A through F, with LOS A representing the best operating conditions and LOS F the worst. LOS for freeways and signalized intersections are shown in Figures 3.7-3 and 3.7-4, respectively.

For a given LOS, design capacity is the maximum traffic rate of flow for which a highway can provide that LOS. Design capacity varies based on a number of factors, including LOS selected; width of lanes; number of lanes; presence or absence of shoulders; grades; horizontal alignment; operating speed; lateral clearance; side friction generated by parking, driveways, and intersections; and volumes of trucks, buses, recreational vehicles, bicycles, and pedestrians.

For the analysis, “LOS E or better” operations were adopted as a performance goal for the freeway facilities, against which the project operational impacts were assessed. “LOS D or better” operations were adopted as a performance goal for the urban street facilities.

Congestion Management Program

Traffic conditions also are monitored under a state-mandated Congestion Management Program (CMP). The purpose of the CMP is to monitor the performance of the roadway transportation system, develop programs to address near-term and long-term congestion, and better integrate transportation and land use planning. SANDAG, as the designated Congestion Management Agency (CMA) for the San Diego region, must develop, adopt, and regularly update the CMP. The CMP roadway system is monitored regularly (biennially) against the adopted LOS standard. If the roadway standard is met for a given segment, then the segment is reevaluated in 2 years. If the roadway standard is not met for a given segment, then the causes of congestion are evaluated further. For purposes of CMP analysis, LOS is defined as:

- A qualitative measure describing operational conditions within a traffic stream; generally described in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. LOS ratings typically range from LOS A, which represents free flow conditions, to LOS F, which is characterized by forced flow, heavy congestion, stop-and-go traffic, and long queues forming behind breakdown points.

CMP legislation requires that a LOS standard be established for the CMP roadway system. If a roadway segment falls below the established standard, then a Deficiency Plan must be prepared. The current CMP LOS standard for the San Diego region, established by the original 1991 CMP, is LOS E. Per the 2008 Congestion Management Program Update, the portion of I-5 in the proposed project area currently is operating at LOS E. The portion of SR-56 in the proposed project area currently is operating between LOS A to D.

Local Street Facilities

Street Segments

Under existing conditions, the following six roadway segments operate at LOS F:

- Via de la Valle between Jimmy Durante Boulevard and the SB I-5 Ramps
- Via de la Valle between San Andres Drive and El Camino Real
- Carmel Valley Road between Camino Del Mar and Sorrento Valley Road
- Camino Del Mar between Del Mar Heights Road and Carmel Valley Road
- Camino Del Mar south of Carmel Valley Road
- El Camino Real between Via de la Valle and San Dieguito Road

Compared to existing conditions, all proposed build alternatives would result in an overall degradation in LOS on local streets. Again, because even the No Build results in a decrease in LOS, the proposed project would not be the cause of the decline. By 2030, the lack of freeway-to-freeway connectors for the south-to-east and west-to-north movements at the I-5/SR-56 interchange would result in very congested traffic conditions at the interchange and considerable increase in demand on the "cut through" local street routes within the Carmel Valley community. At Carmel Valley Road between I-5 and El Camino Real, the 2030 No Build Alternative is projected to result in LOS F (existing LOS is C and 2015 LOS is E). At Del Mar Heights Road between the I-5 NB ramps and High Bluff Road, the 2030 No Build Alternative is projected to result in LOS F (existing LOS is C and 2015 LOS is D). The only local street segment that maintains the same LOS in 2030 as exists currently is El Camino Real between Carmel Valley Road and Carmel Mountain Road.

By 2030, the No Build, Auxiliary Lane, Hybrid, and Hybrid with Flyover Alternatives would have failing street segments (LOS E or below) on Del Mar Heights Road between Camino Del Mar and High Bluff Road and on Carmel Valley Road between I-5 and El Camino Real. Average peak hour travel speeds would range from 9 to 15 mph through these areas.

The Direct Connector Alternative would provide operational improvement along Del Mar Heights Road between the I-5 northbound ramps and Carmel Valley Road, which would operate at LOS D or better for all segments. Although the Direct Connector Alternative would provide some improvement along Carmel Valley Road between I-5 and El Camino Real, this segment would still operate at LOS E in 2030 despite the construction of both the south-east and west-north direct connectors. This is because of the traffic volumes that would be rerouted to Carmel Valley Road as a result of the removal of the slip ramp and construction of the proposed collector-distributor system.

With the Direct Connector Alternative, none of the street segments shown in Table 3.7-3 would operate below LOS E in 2015 or 2030. With the Auxiliary Lane Alternative, two street segments would operate at LOS F in 2030 (Carmel Valley Road from I-5 to El Camino Real and Del Mar Heights Road from the I-5 NB ramps to High Bluff Drive). For both the Hybrid and Hybrid with Flyover Alternatives, one local street segment shown in Table 3.7-3 (Carmel Valley Road from I-5 to El Camino Real) would operate at LOS F in 2030. A summary of the street segment operations at key locations for the proposed project is provided in Table 3.7-3.

Table 3.7-3. Street Segment Operations

Street Name	Street Segment	Existing LOS	2015 LOS (for proposed project alternatives) 2030 LOS (for proposed project alternatives)				
			No Build	Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
Carmel Valley Road	Sorrento Valley Road to I-5	A	B B	B B	B B	B B	B B
	I-5 to El Camino Real	C	E **F**	C E	D **F**	E **F**	E **F**
El Camino Real	Valley Center Drive to Carmel Valley Road	C	C D	C D	C D	C D	C D
	Carmel Valley Road to Carmel Mountain Road	B	B B	B B	B B	B B	B B
Carmel Country Road	Del Mar Trails Road to the SR-56 WB ramps	B	C D	C C	C D	C D	C D
Del Mar Heights Road	Mango Drive to Portofino Drive	D	E E	E E	E E	E E	E E
	I-5 NB ramps to High Bluff Drive	C	D **F**	C D	D **F**	D E	D E

Source: Dokken 2010b and LLG 2009

Intersections

As stated in the traffic study, the following five intersections currently operate at LOS E or F under existing conditions:

- El Camino Real West at Via de la Valle (LOS E in AM peak)
- NB I-5 Ramps at Del Mar Heights Road (LOS F in PM peak)
- Portofino Drive at Carmel Valley Road (LOS E in PM peak)
- The NB I-5 Ramps at Carmel Valley Road (LOS E in PM peak)
- El Camino Real at EB SR-56 On-ramp and Carmel Valley Road (LOS E in PM peak)

A total of 41 intersections were chosen for analysis in the traffic study, the majority of which lie in the Carmel Valley and Del Mar Heights communities. Of the 41 intersections analyzed, five were determined to have failing traffic operations in either the AM or PM peak hour under existing traffic conditions. With the No Build Alternative, this number would increase to 20 out of 41 by 2030. During peak hours, drivers would have to wait through multiple signal phases at these locations. Whether traveling just a few blocks to the local grocery store or 20 miles to the work place, each of these intersections would have the potential to add more than 80 seconds to a trip.

As early as 2015, the No Build Alternative would result in failing LOS at two key intersections—El Camino Real/Carmel Valley Road eastbound PM and Carmel Valley Road/I-5 ramps southbound PM. The Auxiliary Lane Alternative would result in failing LOS at the following key intersections—El Camino Real/Carmel Valley Road eastbound PM and Carmel Valley Road/I-5 ramps northbound AM and PM and southbound PM. The Hybrid Alternative would result in failing LOS at the Carmel Valley Road/I-5 ramps southbound PM and El Camino Real/Carmel Valley Road eastbound PM. For the intersections shown in Table 3.7-4, only the Direct Connector Alternative and the Hybrid with Flyover Alternative do not result in any intersections operating at LOS F in 2015.

The number of failing intersections in 2030 would drop from 20 to 12 with the proposed Direct Connector Alternative improvements. Operational improvement would occur at several key intersections, including the southbound I-5 ramps at Del Mar Heights Road, El Camino Real at Del Mar

Heights Road, the southbound I-5 ramps at Carmel Valley Road, and El Camino Real at the westbound SR-56 off-ramp.

Despite the improvements proposed in the Auxiliary Lane Alternative, the number of failing intersections in 2030 would increase from 20 to 21, when compared to the No Build Alternative. Although proposed ramp and local street widening would improve traffic operations for the key intersections of El Camino Real at the westbound SR-56 off-ramp and Carmel Valley Road at the southbound I-5 ramps, operations at some intersections along Carmel Country Road would degrade because of the removal of the slip ramp to Carmel Creek Road.

Despite the improvements proposed in the Hybrid and Hybrid with Flyover Alternatives, the number of failing intersections in 2030 would remain at 20 as with the No Build Alternative. Traffic operations would improve at a few key intersections, including El Camino Real at the westbound SR-56 off-ramp and Carmel Valley Road at the southbound I-5 ramp. Additionally, the Hybrid with Flyover Alternative would provide improved operations at the intersection of El Camino Real and the eastbound SR-56 on-ramp, although the intersection would continue to fail during PM peak hours. As with the Auxiliary Lane Alternative, operations with the Hybrid and Hybrid with Flyover Alternatives would degrade at some intersections along Carmel Country Road because of the removal of the slip ramp. Table 3.7-4 provides a summary of the intersection operations at key project locations.

Table 3.7-4. Intersection Operations

Intersection	Direction of Travel	Peak Hour	Existing	2015 LOS (for proposed project alternatives) 2030 LOS (for proposed project alternatives)				
				No Build	Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
Carmel Valley Road/ I-5 ramps	NB	AM	C	D E	D D	**F** E	E E	D E
		PM	E	E E	D E	**F** **F**	E **F**	E **F**
	SB	AM	C	E **F**	C C	D E	E **F**	D **F**
		PM	C	**F** **F**	C C	**F** **F**	**F** **F**	E **F**
El Camino Real/Carmel Valley Road	EB	AM	B	D E	C D	C E	C E	C D
		PM	E	**F** **F**	D E	**F** **F**	**F** **F**	D **F**
	WB	AM	C	D E	C D	D D	C D	C D
		PM	C	C D	C C	C C	C C	C C
Carmel Country Road/SR-56 ramps	EB	AM	C	C C	C D	C D	D D	D D
		PM	C	C D	C D	D E	D E	D E
	WB	AM	C	C C	D E	D D	D E	D E
		PM	C	C C	C C	C C	C C	C C
Del Mar Heights Road/I-5 ramps	NB	AM	D	E **F**	E E	E **F**	E **F**	E **F**
		PM	**F**	D E	D E	D E	D E	D E
	SB	AM	C	D E	C C	D E	D E	D E
		PM	C	D E	C C	D E	D E	D E

Source: Dokken 2010b and LLG 2009

Freeway Facilities

Freeway Mainline

Under existing conditions, the following three freeway segments operate at LOS F during AM peak hours:

- WB SR-56 between El Camino Real and Carmel Creek Road
- WB SR-56 between Carmel Creek Road and Carmel Country Road
- WB SR-56 between Carmel Country Road and Carmel Valley Road

Table 3.7-5 provides a summary of the freeway mainline operations at these key project locations. Compared with existing conditions and beginning as early as 2015, nearly every alternative at every freeway segment shows maintenance of the existing LOS or a slight decline in LOS. Several segments of the SR-56 freeway show improvement over existing conditions between El Camino Real and Carmel Creek Road and Carmel Creek Road and Carmel Country Road. The greatest improvement in LOS for the WB SR-56 between El Camino Real and Carmel Creek Road segment, would be a change from an existing LOS of F to a 2030 LOS of C for the westbound AM peak hour traffic. For the WB SR-56 between Carmel Creek Road to Carmel Country Road segment, the greatest improvement in LOS would be a change from an existing LOS of F to a 2015 LOS of C for the westbound AM peak hour traffic.

Table 3.7-5. Freeway Mainline Operations

Freeway Segment	Direction of Travel	Peak Hour		2015 LOS (for proposed project alternatives) 2030 LOS (for proposed project alternatives)				
			Existing	No Build	Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
I-5: Del Mar Heights Road to Carmel Valley Road	NB	AM	C	B C	B C	B C	B C	B C
		PM	C	C D	D E	C D	D E	D E
	SB	AM	C	D E	D E	C D	C D	C D
		PM	C	C C	C D	C C	C C	C C
SR-56: El Camino Real to Carmel Creek Road	EB	AM	A	A A	A A	A A	A A	A A
		PM	C	C C	B B	C C	C C	C C
	WB	AM	**F**	**F** **F**	B[1] C	D E	B[1] C	B[1] C
		PM	B	B C	A A	A B	A A	A A
SR-56: Carmel Creek Road to Carmel Country Road	EB	AM	A	B B	A B	B B	B B	A A
		PM	D	**F** E	C D	**F** **F**	**F** **F**	C C
	WB	AM	**F**	**F** **F**	C E	D D	C E	C E
		PM	A	B A	A B	A A	A B	A B

[1] With collector-distributor on westbound SR-56
Source: Dokken 2010b and LLG 2009

According to the traffic study, both the northbound and southbound I-5 freeway mainline would operate at LOS E or better between Via De La Valle and Carmel Valley Road for all of the alternatives under consideration through the 2030 design year. The latest estimates are that regional employment and

other economic factors will lag about 15 years per the analysis between Series 10 and 12. This provides a design year of essentially 2045. Even during peak hours, drivers could expect average travel speeds above 20 mph on I-5.

Westbound SR-56 is anticipated to have failing traffic operations (AM peak hour) between El Camino Real and Carmel Country Road with the No Build Alternative by 2015. During peak hours, drivers would experience severely reduced travel speeds through this area, with extensive traffic jams. Under these conditions, performing simple maneuvers such as lane changes would become very difficult.

With the improvements proposed by the Direct Connector, Auxiliary Lane, Hybrid and Hybrid with Flyover Alternatives, westbound SR-56 would no longer have failing operations between El Camino Real and Carmel Creek Road.

Traffic operations in 2030 along the eastbound SR-56 freeway mainline between Carmel Creek Road and Carmel Country Road would degrade to LOS F (PM peak hour) with the Auxiliary Lane and Hybrid Alternatives. This is because of the lack of proposed freeway improvements for eastbound SR-56, in combination with the removal of the slip ramp. Figure 3.7-1 illustrates the key freeway project locations.

Local Bypasses

Under existing conditions, the I-5 local bypasses operate between LOS A to LOS C. Both the northbound and southbound local bypasses would operate at LOS E or better for all of the alternatives under consideration through the 2030 design year. The latest estimates are that regional employment and other economic factors will lag about 15 years per the analysis between Series 10 and 12. This provides a design year of essentially 2045. See Section 3.7 for more information. Even during peak hours, drivers could expect average travel speeds above 20 mph on the local bypasses.

Freeway Weaves

The traffic study also analyzed existing conditions and projected conditions in locations where weaving of traffic occurs. Weaving occurs when traffic veering right and traffic veering left must cross paths within a limited distance; this commonly occurs at on- and off-ramps where traffic getting off the freeway intermixes with traffic getting on the freeway. Under existing conditions, two weaving sections within the proposed project area were found to operate at LOS E or F:

- SR-56 eastbound between El Camino Real and Carmel Creek Road (on the frontage road) during the PM peak hour (LOS E)
- SR-56 westbound between Carmel Creek Road and El Camino Real during the AM peak hour (LOS F)

In 2015 and 2030, these two weaving segments would continue to operate at a LOS F (AM peak hour, PM peak hour, or both) with the No Build Alternative. During peak hours, the lack of spacing between vehicles in the traffic stream and severely reduced travel speeds would make maneuvering noticeably difficult at these locations.

The Auxiliary Lane Alternative would eliminate the weave segment in the eastbound direction by removing the slip ramp; however, the westbound direction would still operate at a LOS F, as with the No Build Alternative. The proposed removal of the slip ramp and implementation of the collector-distributor system would eliminate these problematic weaving segments with the Direct Connector, Hybrid, and Hybrid with Flyover Alternatives.

Freeway Ramp Merges and Diverges

Under existing conditions, the merge at the on-ramp from Carmel Valley Road to westbound SR-56 operates at LOS F during the AM peak hour. By 2015, the following merge locations would also operate at LOS F:

- On-ramp from Carmel Country Road to eastbound SR- 56 (all alternatives in PM)
- On-ramp from Carmel Valley Road to eastbound SR-56 (all alternatives in PM)
- On-ramp from Carmel Valley Road to southbound I-5 (all alternatives in AM)
- On-ramp from Carmel Valley Road to westbound SR-56 (all alternatives in AM)

Two merge segments would have failing operations (either AM or PM peak hour) with the No Build Alternative by 2030. These merge segments are located at the entrance points for the Carmel Valley Road southbound I-5 on-ramp and the Del Mar Heights Road northbound I-5 on-ramp. The merge at the Carmel Valley Road southbound I-5 on-ramp would continue to fail in 2030 for all of the build alternatives despite the proposed improvements. The merge at the Del Mar Heights Road northbound I-5 on-ramp would improve from LOS F to LOS D with the Direct Connector, Hybrid, and Hybrid with Flyover Alternatives.

Under existing conditions, four diverge locations currently operate at LOS E or worse during peak hours:

- Off-ramp from eastbound SR-56 to Carmel Creek Road—PM peak hour
- Off-ramp from westbound SR-56 to Carmel Creek Road—AM peak hour
- Off-ramp from westbound SR-56 to Carmel Country Road—AM peak hour
- Off-ramp from westbound SR-56 to Carmel Valley Road—AM peak hour

In 2015, the following ramp diverge locations would operate at LOS F during the AM peak hours:

- Bypass exit from mainline SB I-5 (No Build, Auxiliary Lane, Hybrid, and Hybrid with Flyover Alternatives)
- Off-ramp from westbound SR-56 to Carmel Creek Road (No Build)
- Off-ramp from westbound SR-56 to Carmel Valley Road (all alternatives)
- Off-ramp from westbound SR-56 to Carmel Country Road (all alternatives)
- Off-ramp from eastbound SR-56 to Carmel Valley Road (Direct Connector Alternative)

The following ramp diverge locations were identified in the traffic study to have failing traffic operations (AM peak hour) with the No Build Alternative by 2030: the southbound local bypass exit from the I-5 mainline, the southbound I-5 to Carmel Valley Road off-ramp, and the westbound SR-56 to Carmel Creek Road off-ramp.

Compared to the No Build Alternative, 2030 traffic operations for the diverge at the southbound local bypass exit would improve from LOS F to LOS B with the Direct Connector Alternative, but would continue to fail with the Auxiliary Lane, Hybrid, and Hybrid with Flyover Alternatives. The diverges at the southbound I-5 to Carmel Valley Road off-ramp and the westbound SR-56 to Carmel Creek Road off-ramp would improve from LOS F to LOS C or better with the Direct Connector, Auxiliary Lane, Hybrid, and Hybrid with Flyover Alternatives.

Freeway Ramp Capacity

All on- and off-ramps currently operate under capacity within the proposed project area. All on-ramps within the proposed project area are anticipated to continue operating under capacity for all of the alternatives under consideration through the 2030 design year. The latest estimates are that regional employment and other economic factors will lag about 15 years per the analysis between Series 10 and

12. This provides a design year of essentially 2045. See Section 3.7 for more information. All off-ramps are anticipated to operate under capacity with the Direct Connector Alternative. The eastbound SR-56 to Carmel Country Road off-ramp would operate approximately 5-10 percent over capacity with the Auxiliary Lane and Hybrid Alternatives by 2030. This is because of the proposed removal of the slip ramp, which would reroute traffic to this off-ramp, in combination with a lack of proposed improvements at the off-ramp with the Auxiliary Lane and Hybrid Alternatives.

3.7.3.4 TRAVEL TIME

As discussed in the previous two sections, traffic volumes are anticipated to increase in the proposed project area, regardless of whether the proposed project is constructed. This increase in traffic volume would lead to a degradation of LOS (increase in congestion) within the proposed project area. This in turn would affect travel times within the proposed project area. A travel time study was conducted of the round-trip travel times (in minutes of travel) under existing conditions and in 2030 with the No Build, Direct Connector, Auxiliary Lane, Hybrid, and Hybrid with Flyover Alternatives (Figures 3.7-5 and 3.7-6). Table 3.7-6 presents the results for both the "cut through" local street routes and the freeway routes. To determine the round-trip travel times, it was assumed that drivers who would be traveling in the westbound to northbound direction in the morning would return in the southbound to eastbound direction in the evening, and vice-versa.

Table 3.7-6. Round Trip Travel Times

Routes	Direction of Travel in Morning and Evening	Current Travel Times (min)	2030 Travel Times (minutes)				
			No Build	Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
Local Street Routes	W-N in AM and S-E in PM	18-30	46-57[a]	30-36[b]	46-57[a]	37-45[a]	37-45[a]
	S-E in AM and W-N in PM	20-24	36-38[a]	27-32[b]	33-40[a]	29-35[b]	29-35[b]
Freeway Route	W-N in AM and S-E in PM	24	51[a]	19	39[a]	37[a]	33[b]
	S-E in AM and W-N in PM	17	33[a]	19	27[a]	26[b]	25[b]

Key: W-N: west-to-north; S-E: south-to-east
[a] Increase of more than 100%
[b] Increase over baseline
Source: Dokken 2010b and LLG 2009

Figures 3.7-7 through 3.7-10 illustrate existing and forecasted movements of the proposed project.

No Build Alternative (Alternative 1)

As shown in Table 3.7-6, the No Build Alternative would result in a near doubling of travel times when compared to existing conditions for all routes in both directions of travel in the morning and evening.

Direct Connector Alternative (Alternative 2)

Compared to existing conditions, the Direct Connector Alternative would result in slightly longer travel times on the freeway routes (up to a 2-minute increase)[4] in the S-E AM and W-N PM peak hour routes, but would result in an up to 5-minute decrease[5] in travel time compared to existing conditions in the W-N AM and S-E PM peak hour routes. When compared to the No Build Alternative in 2030, the Direct Connector Alternative would shorten travel times on the freeway routes by 14 to 32 minutes. The Direct Connector Alternative is projected to have a similar effect on local street routes (a very slight increase in travel times over existing conditions—0 to 1 minute), but a noticeable decrease in travel times on

[4] Difference in S-E in AM and W-N PM Route
[5] Difference in W-N in AM and S-E in PM Route.

local streets when compared to the No Build Alternative (9- to 27-minute decrease). The Direct Connector Alternative has the shortest projected travel times among all the alternatives.

Auxiliary Lane Alternative (Alternative 3)

Like the No Build Alternative, the Auxiliary Lane Alternative is projected to result in increased travel times of 50 percent over existing conditions for local street routes. Compared to existing conditions, the Auxiliary Lane Alternative is projected to result in an increase in travel times on freeway routes as well (10 to 15 minutes). However, when compared to the No Build Alternative, the Auxiliary Lane Alternative would result in a 6- to 12-minute improvement in travel times on freeways routes. Overall, however, the travel times predicted with the Auxiliary Lane Alternative are the longest among all the build alternatives.

Hybrid Alternative (Alternative 4)

Compared to existing conditions, the Hybrid Alternative also would result in increased travel times on both local street routes and freeway routes. In 2030 on local street routes, the Hybrid Alternative would result in shorter travel times when compared to the No Build Alternative (a 9- to 20-minute improvement), but when compared to the Direct Connector Alternative, it would result in travel times that would be 1 to 15 minutes longer. A similar result would occur for freeway routes, with a 7- to 14-minute improvement when compared to the No Build Alternative but a 7- to 18-minute increase in travel times compared to the Direct Connector Alternative.

Hybrid with Flyover Alternative (Alternative 5)

As shown in Table 3.7-6, the Hybrid with Flyover Alternative would result in the same travel times on local street routes as with the Hybrid Alternative. Differences in travel times between the Hybrid and Hybrid with Flyover Alternatives, however, would be seen on freeway routes. The addition of the flyover would result in a 1- to 4-minute improvement on freeway routes when compared with the Hybrid Alternative.

3.7.3.5 Accident Rate and Safety

Accident rates for the proposed project area from January 2005 through December 2007 were obtained from the Traffic Accident Surveillance and Analysis System (TASAS) records of the CHP accident database. As shown in Table 3.7-7, the accident rate for the I-5 and SR-56 mainlines and ramps within the project limits is below the state average for similar types of facilities except at a few key locations. The fatality/injury rate and total accident rate for northbound I-5 exceed the statewide average. Furthermore, the fatality/injury rates for the southbound on-ramp from eastbound and westbound Del Mar Heights Road, eastbound SR-56 on-ramp from Carmel Valley Road, and eastbound SR-56 on-ramps from Carmel Country Road exceed the statewide average. The proposed project would improve safety within the project area with efficient freeway-to-freeway connections that maintain regional highway traffic on I-5 and SR-56 and local traffic movements on surface streets.

Table 3.7-7. TASAS Accident Rates

Segment	Actual Rates (a/mvmt*)			Statewide Averages (a/mvmt*)		
	Fatalities	Fatalities Plus Injuries	All Reported Accidents	Fatalities	Fatalities Plus Injuries	All Reported Accidents
MAINLINE						
Northbound I-5	0.004	0.37	1.05	0.005	0.32	1.02
Southbound I-5	0.007	0.25	0.59	0.005	0.32	1.02
Eastbound SR-56	0	0.19	0.40	0.009	0.30	0.86
Westbound SR-56	0	0.08	0.41	0.009	0.30	0.86
RAMPS EXCEEDING STATEWIDE AVERAGE						
Southbound I-5 On-Ramp from Eastbound Del Mar Heights Road	0	0.74	0.13	0.003	0.22	0.60
Southbound I-5 On-Ramp from Westbound Del Mar Heights Road	0	0.52	0.92	0.001	0.24	0.70
Eastbound SR-56 Segment onto Carmel Valley Road	0.912	0.91	0.91	0.002	0.08	0.25
Eastbound SR-56 On-Ramp from Carmel Country Road	0	0.73	0.97	0.007	0.21	0.55

* Accidents per million vehicle miles of travel
Source: Dokken 2011

3.7.3.6 Pedestrian and Bike Access

The proposed project would include enhancements of non-motorized and pedestrian features for safe transport of individuals to residences and commercial businesses in the area. In accordance with Caltrans Deputy Directive 64, the proposed project would incorporate elements to ensure a safer, more welcoming roadway design with all users in mind, including bicyclists and pedestrians of all ages and abilities in locations where roadway improvements are proposed along local streets, sidewalks and bicycle facilities. Standard sidewalks and curb returns, incompliance with the Americans with Disabilities Act (ADA) (2006) and all applicable provisions of the Department's Design Information Bulletin 82 entitled Pedestrian Accessibility Guidelines for Highway Projects would be constructed along Del Mar Heights Road, Carmel Valley Road, El Camino Real, Carmel Creek Road, and Carmel Country Road where the proposed project includes roadway improvements.

The City of San Diego General Plan states a desire to add sidewalks and bike facilities to promote walking and biking as alternatives to driving (City of San Diego 2008). For new construction, the ADA regulations require for curb ramps to be provided at any intersection having curbs or other barriers to entry from a street-level pedestrian walkway.

Generally, pedestrian facilities include sidewalks, handicapped-access curb ramps, crosswalks, paths, improved lighting, and other similar facilities applicable for pedestrian use. Bicyclists utilize some of these pedestrian facilities when appropriate. Bicycle routes use three designated classes of bikeways, including the Class I Bicycle Path, the Class II Bicycle Lane, and the Class III Bicycle Route. All are collectively referred to as bikeways.

More specifically, a Class I Bicycle Path is a completely separate bikeway generally used by both bicycle riders and pedestrians. A Class II Bicycle Lane is an area adjacent to a vehicle travel lane, generally a road shoulder, that has a solid white stripe painted between the bike lane and the vehicle travel way. Signs along the bike lane indicate "Bike Lane," and bicycle stencils are painted on the bikeway surface. A Class III Bicycle Route is a shared facility where a bicycle rider shares the same roadway with motorized traffic. A bike route also is designated by a "Bike Route" sign and often is used

where sufficient roadway width is not available for a bicycle lane, and/or when on-street parking cannot be removed to gain the additional roadway width needed.

The entire California coastline includes the Pacific Coast "Bikecentennial" Bicycle Route. For the Nation's bicentennial Independence Day celebration, Caltrans established a bikeway that extends between Oregon and the national border between the U.S. and Mexico. This bike route is over 900 miles in length and has been a major attractor of bicycle riders worldwide. This bikeway serves many users; short segments serve as ideal commuter access between adjoining communities; longer segments serve to accommodate the recreation bicycle users as well as some commuters; and the full length of this bikeway within San Diego County serves the interregional user.

Currently the following bikeways exist in Del Mar: Class I bikeways along the San Dieguito River (Coast-to-Crest Trail), Class II bikeways along Camino Del Mar/Torrey Pines Road and Via de la Valle, and Class III along Del Mar Heights Road. A Class I bike path exists along SR-56 and ends on the east side of I-5, between El Camino Real and I-5, at the south end of the CVREP. Cyclists must use the shoulders of Carmel Valley Road to access the west side of I-5. High traffic volumes along the local road, commercial driveways, and freeway ramps make it difficult for riders and pedestrians to travel between the two sides of the freeway. Sidewalks exist for pedestrians, but no bicycle paths or lanes are available (City of San Diego 2009d).

The City of San Diego completed a bike path feasibility study in spring 2007, and is working closely with Caltrans to include improved connections for bicyclists and pedestrians between the east and west sides of I-5 at Carmel Valley Road within the proposed project area (City of San Diego 2009d).

The Los Peñasquitos Creek Trail Connection, the Sorrento Valley Road bike facility improvements, and the Carmel Valley Bicycle/Pedestrian Trail are proposed improvements addressed under the I-5 NCC Project. These bike improvements are community enhancements that would improve the existing pedestrian and bicycle circulation. Design and construction of these features would occur in coordination with the City of San Diego and would include future formal cooperative agreements with Caltrans, where Caltrans would build these features and the local jurisdictions would be responsible for their maintenance. As such, implementation of the proposed I-5/SR-56 interchange project build alternatives would keep existing bicycle and pedestrian access. However, temporary disruptions to pedestrian and bicycle access would result. The TMP would minimize short-term impacts during project construction. Pedestrian and bike access would be maintained along Carmel Valley Road and modified per the chosen build alternative.

3.7.3.7 CONSTRUCTION IMPACTS

Implementation of any of the build alternatives could result in temporary disruptions to existing travel patterns because of lane restrictions, lane closures, or temporary detours that could affect residences, businesses, and motorists using I-5, SR-56, and local streets. The TMP would minimize proposed project-related traffic delay and accidents by the effective application of traditional and innovative traffic management strategies.

There are 19 schools located within the study area, of which seven are completely within the area of direct impacts. Notre Dame Academy and Del Mar Hills Academy of Arts and Sciences are the schools closest to the proposed project area, approximately 730 feet north of SR-56 and 930 feet west of I-5, respectively. Solana Highlands Elementary School and Del Mar Heights Elementary School are located within the direct impact area along I-5, and the San Diego Jewish Academy, Carmel Del Mar School, and Sycamore Ridge Elementary School are located within the direct impact area along SR-56. Public access to all education facilities would be maintained at all times during construction.

3.7.3.8 COMPARATIVE SUMMARY OF TRAFFIC IMPACTS

As discussed above, the No Build Alternative would operate at LOS F for the majority of the study intersections and freeway segments with expected future traffic. Queues would exceed storage capacity and forecasted travel times would almost double existing values.

Intersections, roadway segments, and freeway mainlines would show improved operations under the Direct Connector Alternative. The direct connectors would relieve the local traffic on Carmel Valley Road and El Camino Real. Queues exceeding storage capacity at the ramps would be minimized, but storage lengths would be exceeded at a few locations because of tight interchange geometrics. Forecasted travel times are faster with the Direct Connector alternative than with the other alternatives during the AM, midday, and PM peak hours. Traffic diversion through surrounding communities would not be expected with the Direct Connector Alternative, as the direct freeway route would provide the fastest travel time.

The Auxiliary Lane Alternative would generate traffic operations with LOS F at critical intersections along Carmel Valley Road and El Camino Real. Queues would exceed storage capacity. Forecasted travel times would be the same or slightly better than with the No Build Alternative, but because of the poor interchange operations at Carmel Valley Road and El Camino Real, the operation of the freeway routes would not be favorable and would be worse than with the Direct Connector Alternative. As such, traffic would be diverted through local communities, which would increase congestion in the surrounding neighborhoods.

Under the Hybrid and Hybrid with Flyover Alternatives, the proposed west-to-north connector would provide relief to westbound SR-56 to northbound I-5 traffic, but traffic operations from southbound I-5 to eastbound SR-56 would be substantially degraded. The Hybrid with Flyover Alternative also would create a lane imbalance between the I-5 ramps along Carmel Valley Road in the eastbound direction. The Auxiliary Lane, Hybrid, and Hybrid with Flyover Alternatives would provide relief where improvements are proposed. However, these alternatives would have little to no effect in relieving congestion at the I-5/Carmel Valley Road and SR-56/El Camino Real interchanges.

3.7.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

Under the No Build Alternative, traffic operating conditions would continue to degrade as future traffic volumes would increase on I-5, SR-56, and local roadways. The No Build Alternative would force drivers to continue to exit the freeway to travel between southbound I-5 to eastbound SR-56 and westbound SR-56 to northbound I-5. Most peak hour operations along the I-5, SR-56, and local roadway segments and intersections in both 2015 and 2030 would degrade to LOS E or F. Avoidance, minimization, or mitigation of the deteriorating future traffic operating conditions along I-5 and SR-56 segments and intersections, associated with increased traffic congestion under the No Build Alternative, is not considered feasible, as mitigation would require modifications to the existing facilities.

BUILD ALTERNATIVES (ALTERNATIVES 2 THROUGH 5)

Because no direct impacts were identified for operation of the proposed build alternatives, no associated avoidance, minimization, or mitigation measures are proposed. Implementation of avoidance and minimization measures would not be feasible to avoid or reduce traffic impacts for any of these alternatives as the proposed actions would not generate traffic. Minimization and avoidance measures for construction-related impacts are discussed next.

CONSTRUCTION-RELATED AVOIDANCE AND MINIMIZATION

Traffic and Transportation

To help minimize inconveniences resulting from traffic delays during construction of any of the build alternatives and inform the public about traffic interruptions and construction status, preparation of a TMP by Caltrans traffic operations staff would provide clearly identifiable and safe access, to and from homes and businesses. A TMP is a program of activities for alleviating or minimizing work-related traffic delays on state highway and freeway systems by the effective application of traditional traffic-handling practices, combining innovative strategies including public awareness, motorist information, incident management, construction methods and staging, demand management, and alternate route planning. The goals and objectives of the TMP are to reduce traffic delay or time spent in the queue to less than 30 minutes, maintain traffic flow throughout the corridor and the surrounding areas, provide a safe environment for the work force and motoring public, and minimize impacts to local businesses.

Public Information – A public awareness program utilizing brochures, paid advertising, media releases, open houses, telephone hotlines, and the Caltrans District 11 Web site would be developed to inform the public of upcoming detours and the construction schedule.

Motorist Information – Message signs, commercial and highway advisory traffic radio announcements, the Caltrans Highway Information Network, and SANDAG's 511 service would be used during construction to disseminate updated road conditions and routes information to motorists.

Incident Management – The TMP would prepare for incidents that may negatively affect traffic by providing quick re-installation of call boxes and implementation of a COZEEP, which would offer police assistance and surveillance within construction areas, additional freeway service patrol during the midday gap in existing service, traffic surveillance stations, 911 cellular calls, and emergency pullouts.

Construction Operations – The following strategies would aim to improve traffic congestion within construction zones: incentive/disincentive clauses to enforce lane closure deadlines, ramp metering to adjust traffic flow in the affected areas, off-peak/night/weekend work to limit construction effects on commuter traffic, and planned ramp and lane closures.

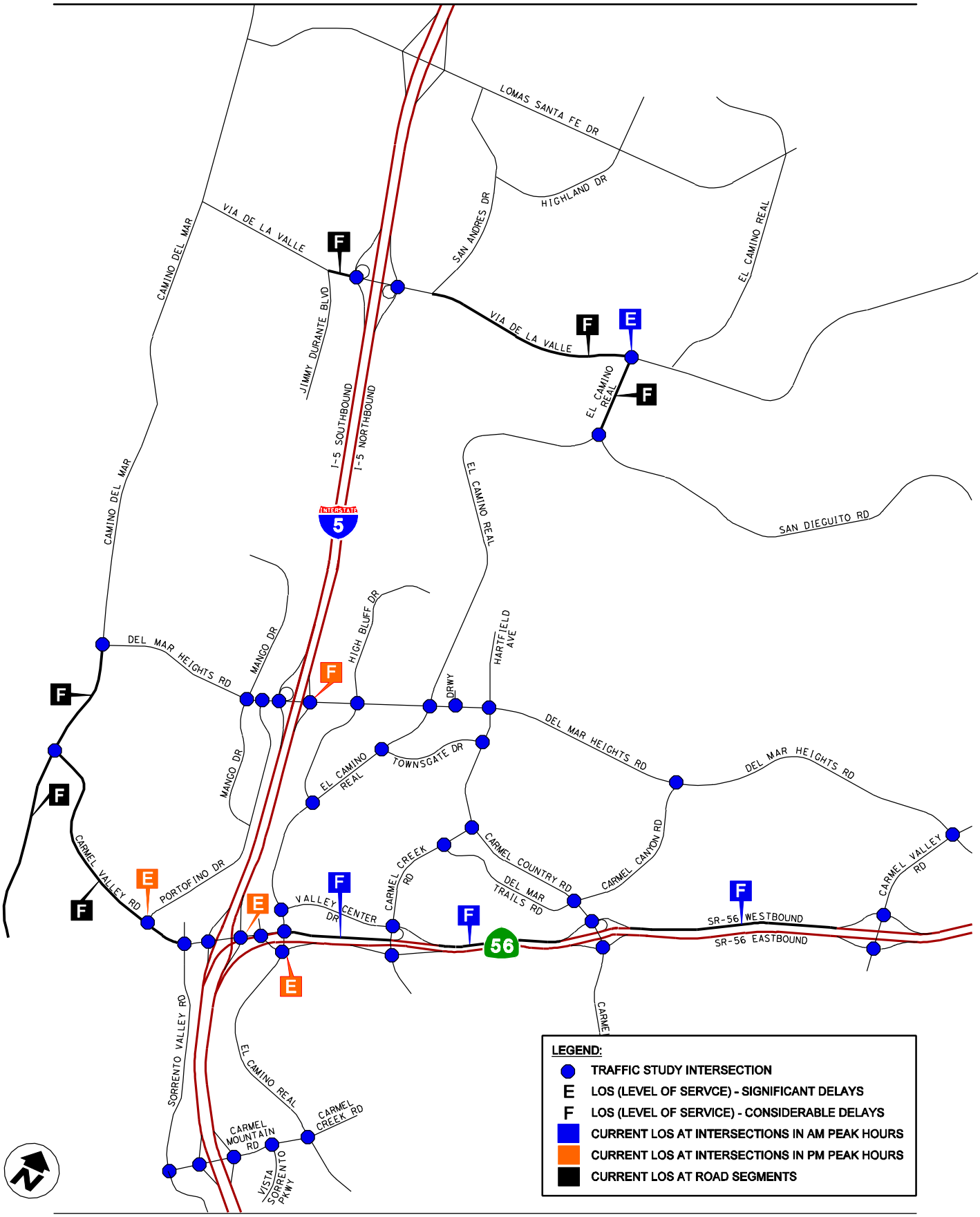
Demand Management – The promotion of alternate modes of transportation (e.g., park and ride lots, incentivizing public transportation) and the alteration of peak traffic times (e.g., encouraging employers in the surrounding businesses to implement variable work hours) would help lower loading on roadways.

Alternate Route Strategies – The Coast Highway (Camino Del Mar) would be the only viable alternate route, and it currently operates at a low LOS.

Any traffic impacts to schools in the proposed project area would be noted in the TMP. Furthermore, all access to schools would be maintained during the construction phase of the proposed project.

Pedestrian and Bicycle Facilities

During construction of transportation facilities, particularly construction of new facilities, the work can act as both a physical and psychological barrier to pedestrians and bicycle users. Where freeway construction would cross bikeways and sidewalks, access may be restricted or severed entirely. The TMP also would include components for pedestrian and bicyclists along with consideration for the motoring public. In addition to the items listed for the motoring public, signs would be used, as appropriate, to provide notices of bikeway and pedestrian walkway closures, detours, and other pertinent information. Temporary access would be provided where possible.



Source: Dokken 2011

Figure 3.7-1
Traffic Study Area with Notable Current LOS Conditions

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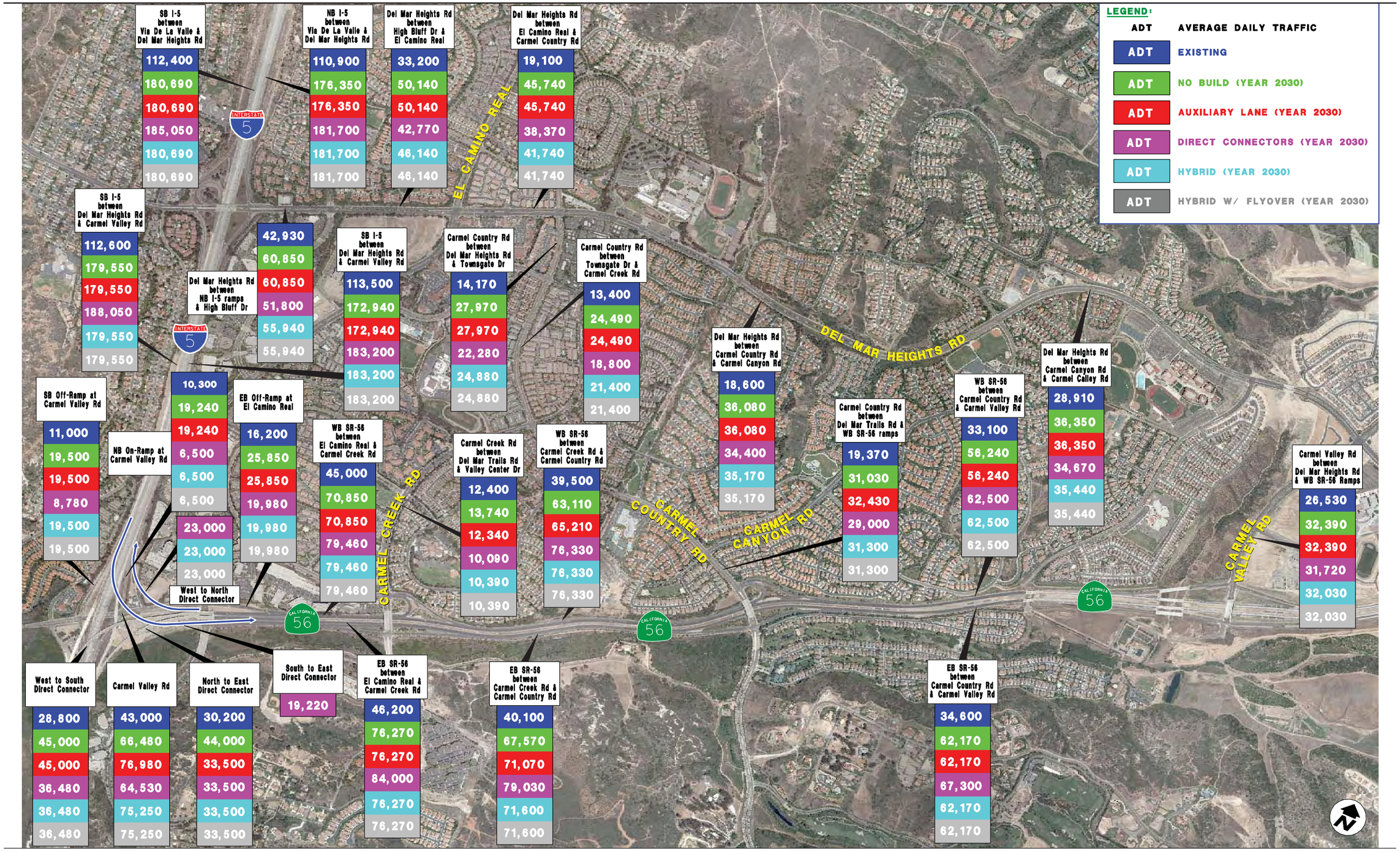

Source: Dokken 2011

Figure 3.7-2
Existing and Future Average Daily Traffic for the Project Area

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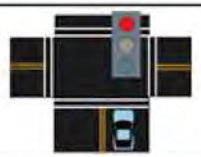
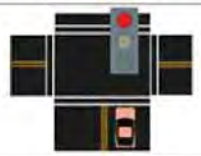
Level of Service	Flow Conditions	Technical Descriptions
A		Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. **No delays**
B		Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. **No delays**
C		Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. **Minimal delays**
D		Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. **Minimal delays**
E		Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. **Significant delays**
F		Very congested traffic with traffic jams, especially in areas where vehicles have to merge. **Considerable delays**

Level of Service	Delay per Vehicle (seconds)
A	 ≤10
B	11-20
C	21-35
D	36-55
E	56-80
F	 >80

Factors Affecting LOS of Signalized Intersections

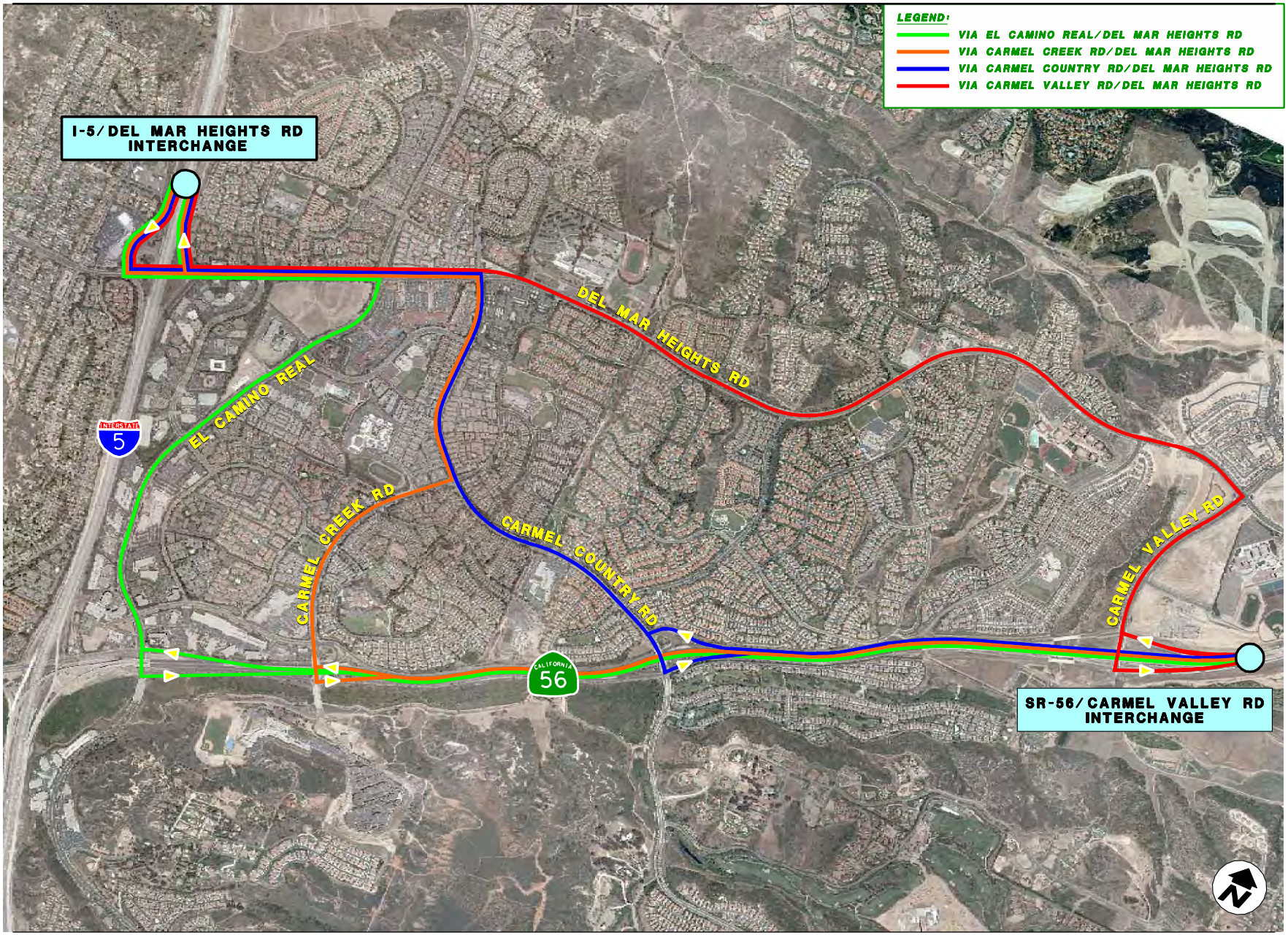
Traffic Signal Conditions:
- Signal Coordination
- Cycle Length
- Protected left turn
- Timing
- Pre-timed or traffic activated signal
- Etc.

Geometric Conditions:
- Left- and right-turn lanes
- Number of lanes
- Etc.

Traffic Conditions:
- Percent of truck traffic
- Number of pedestrians
- Etc.

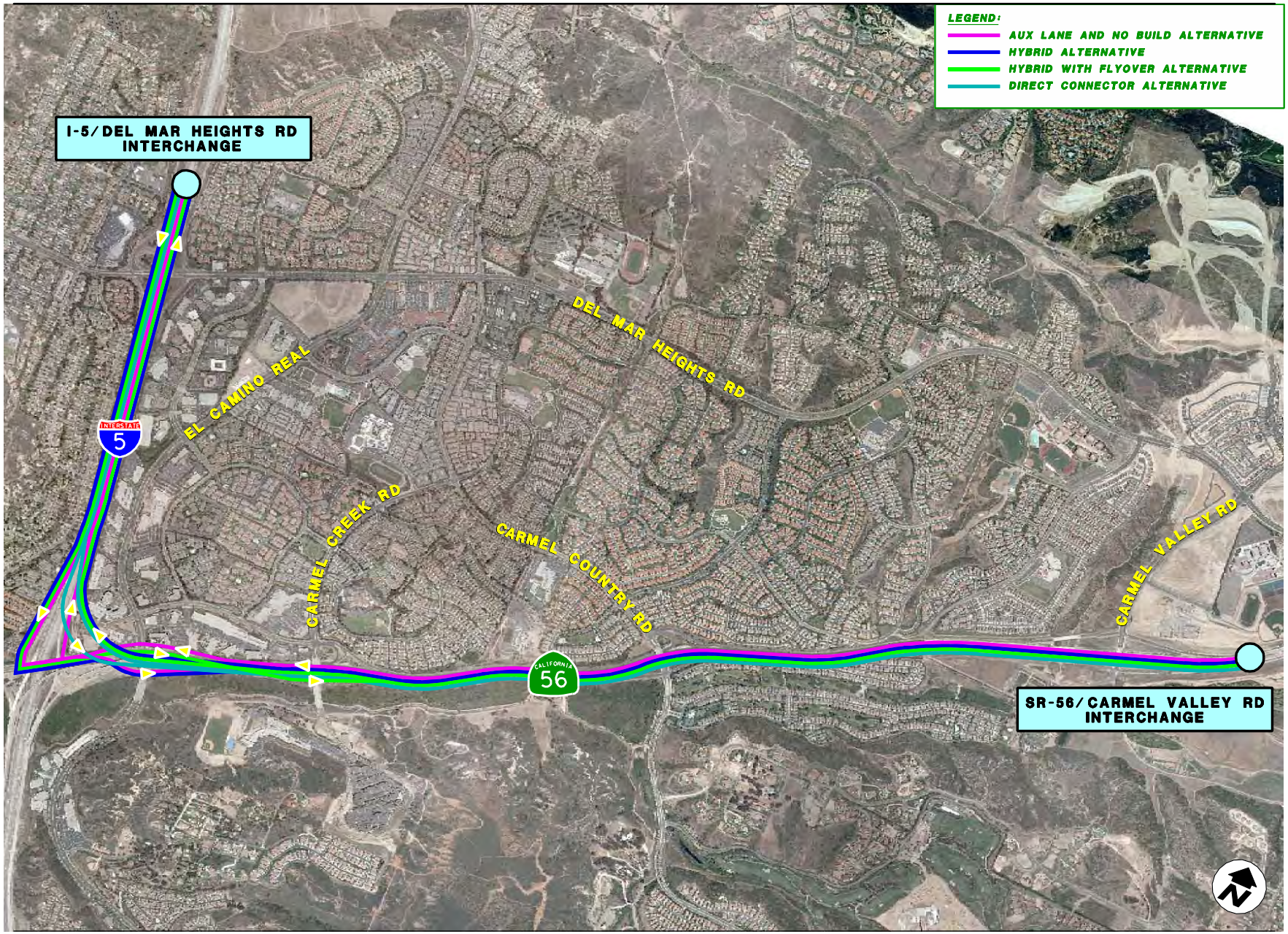
Source: Dokken 2011

Figure 3.7-3 and 3.7-4
Level of Service for Freeway Segments and Signalized Intersections



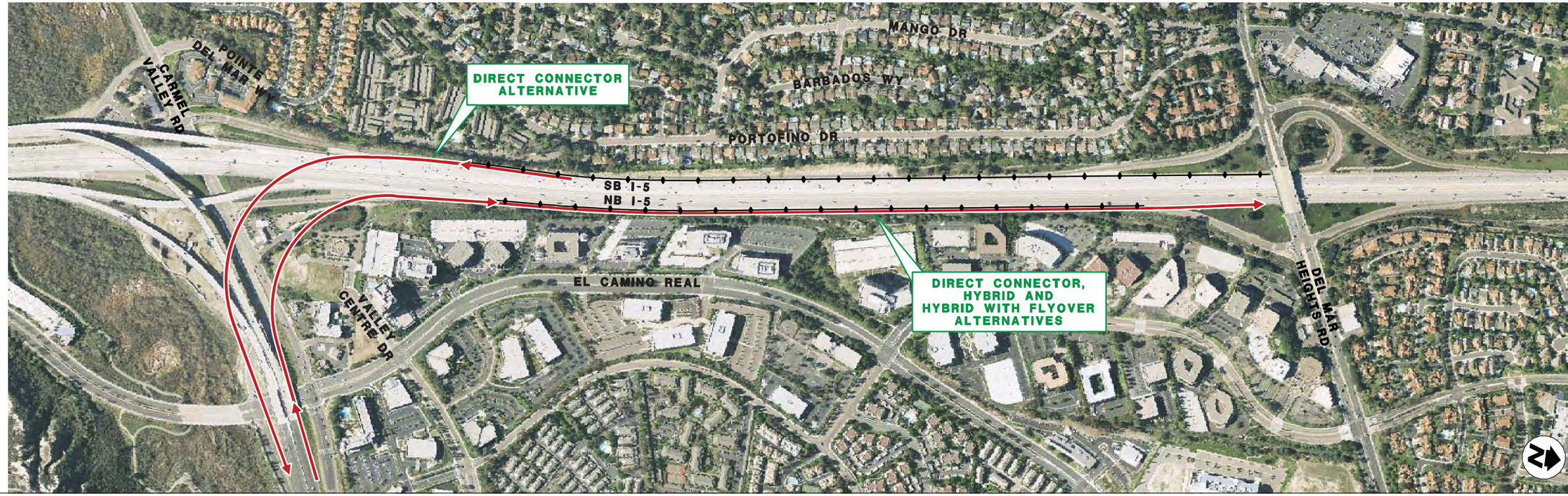
Source: Dokken 2011

Figure 3.7-5
Travel Time Study Local Routes



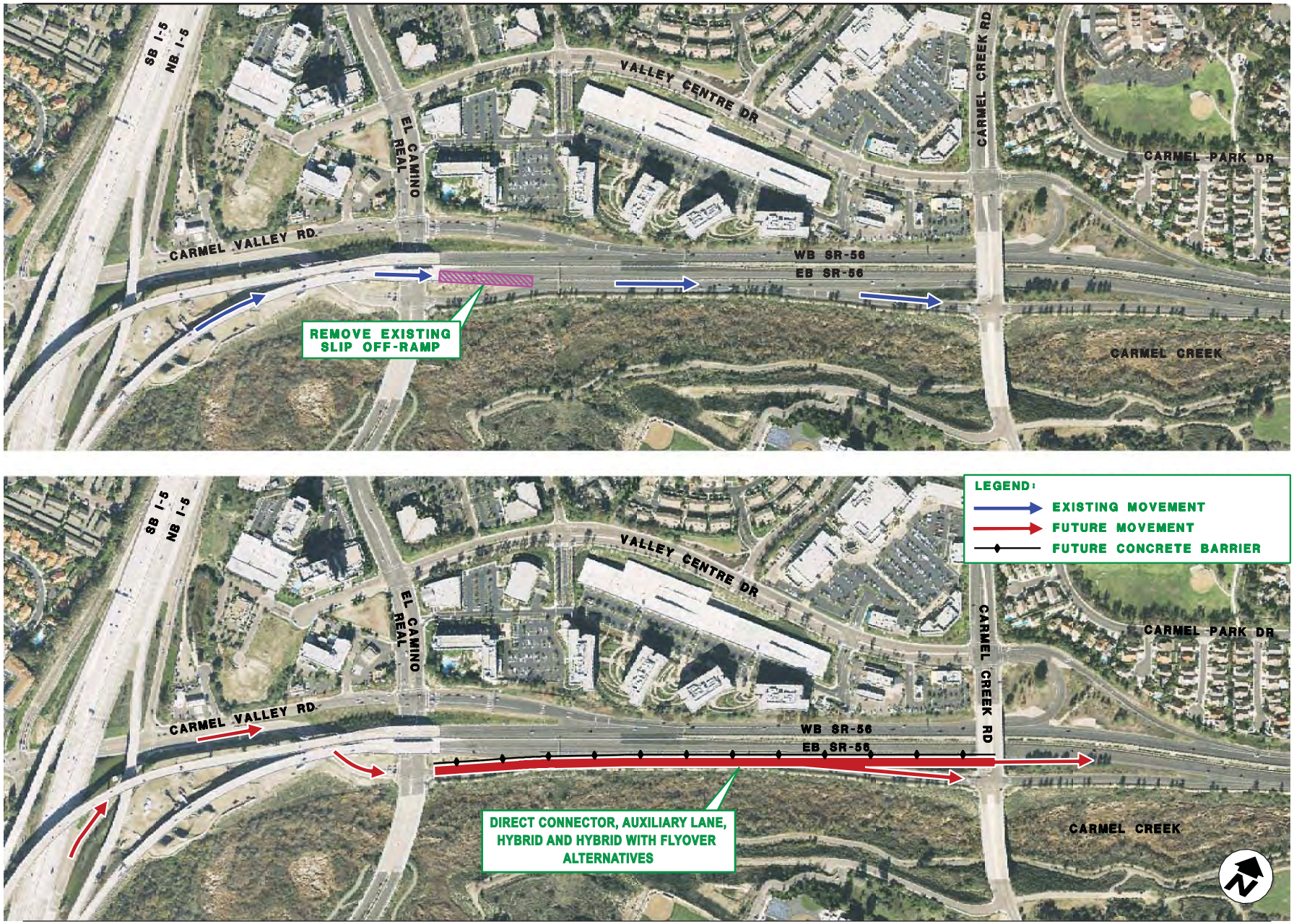
Source: Dokken 2011

Figure 3.7-6
Travel Time Study Freeway Routes



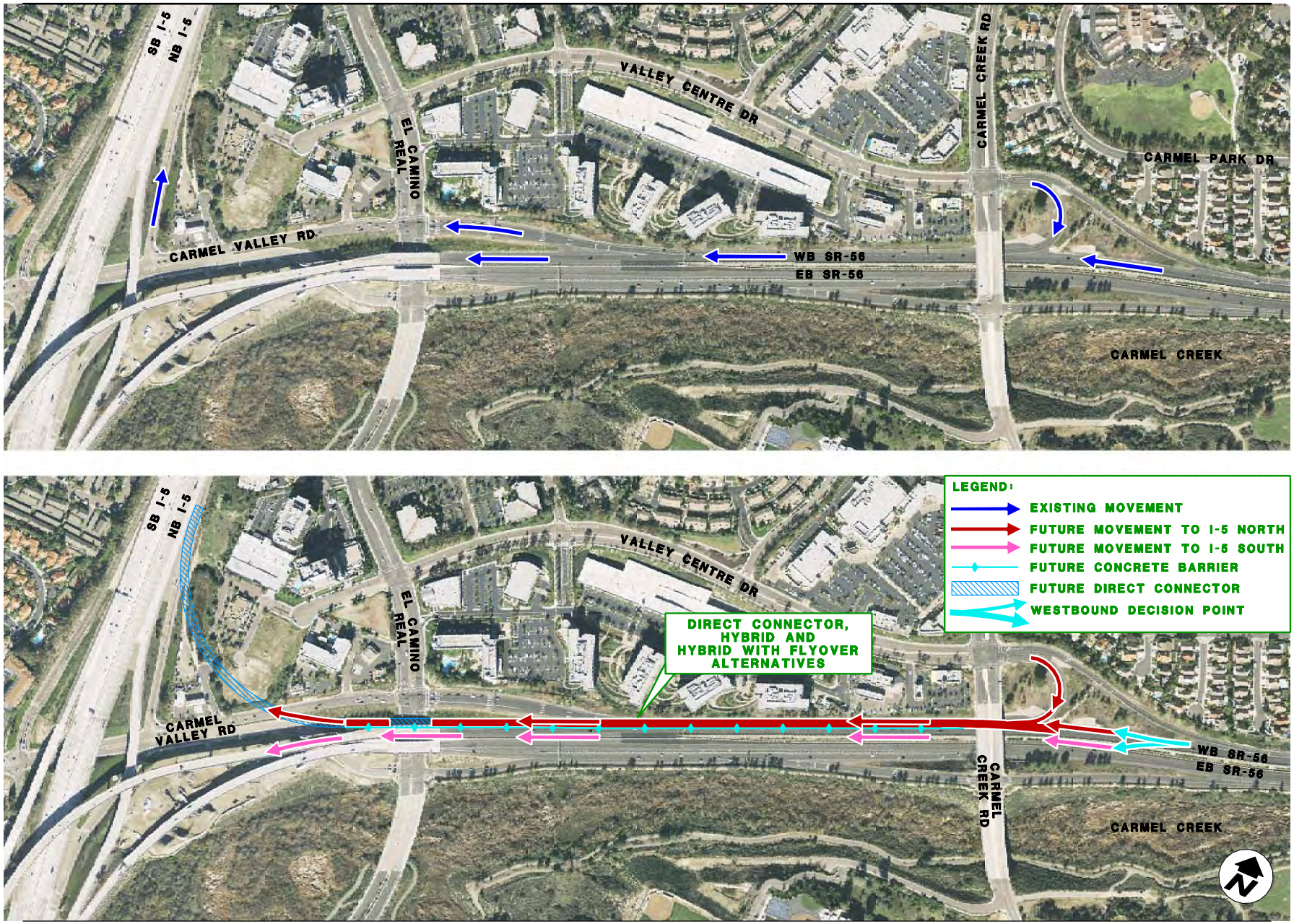
Source: Dokken 2011

Figure 3.7-7
Existing and Future Movements with Proposed Connectors



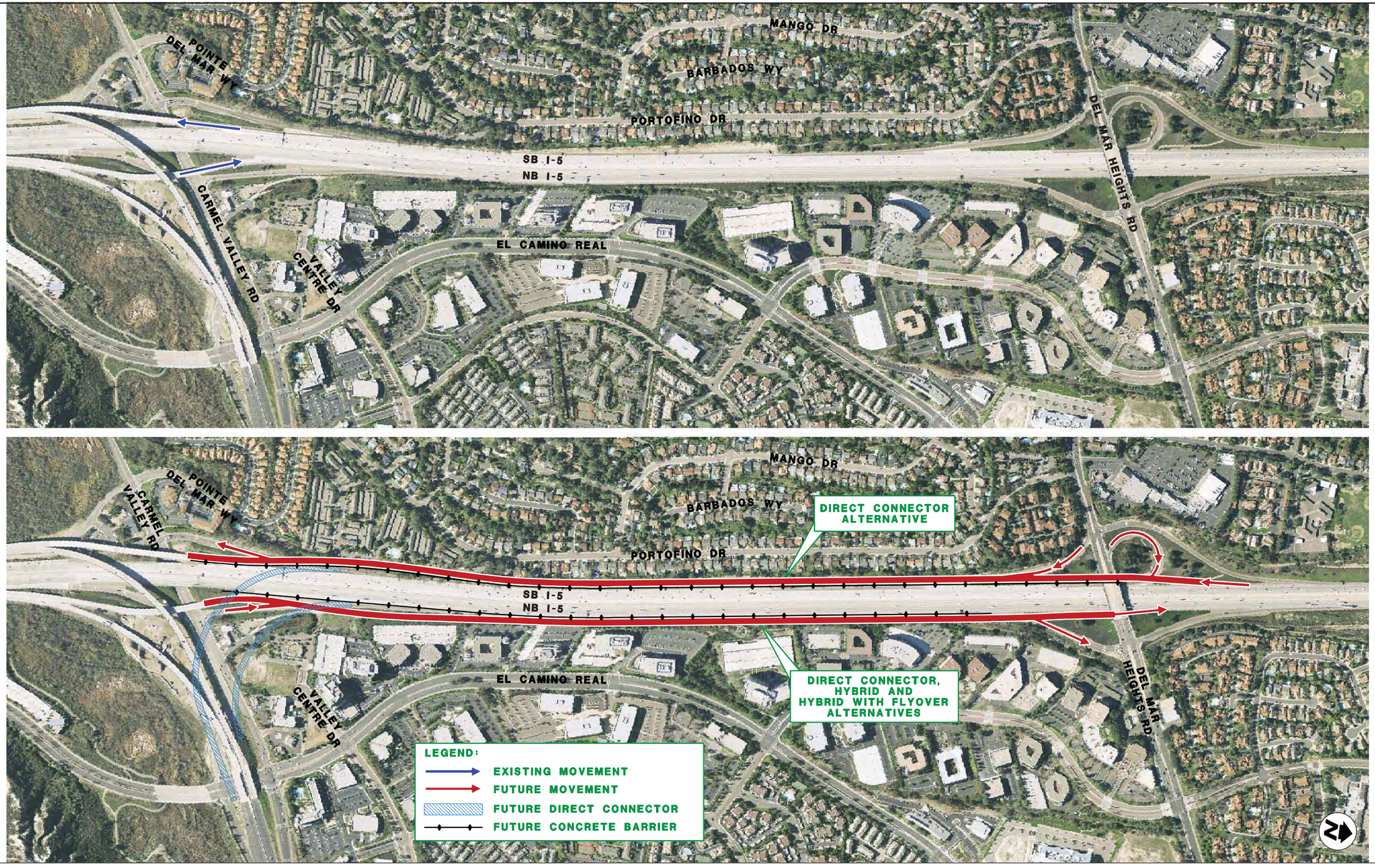
Source: Dokken 2011

Figure 3.7-8
Existing and Future Movements for Eastbound SR-56



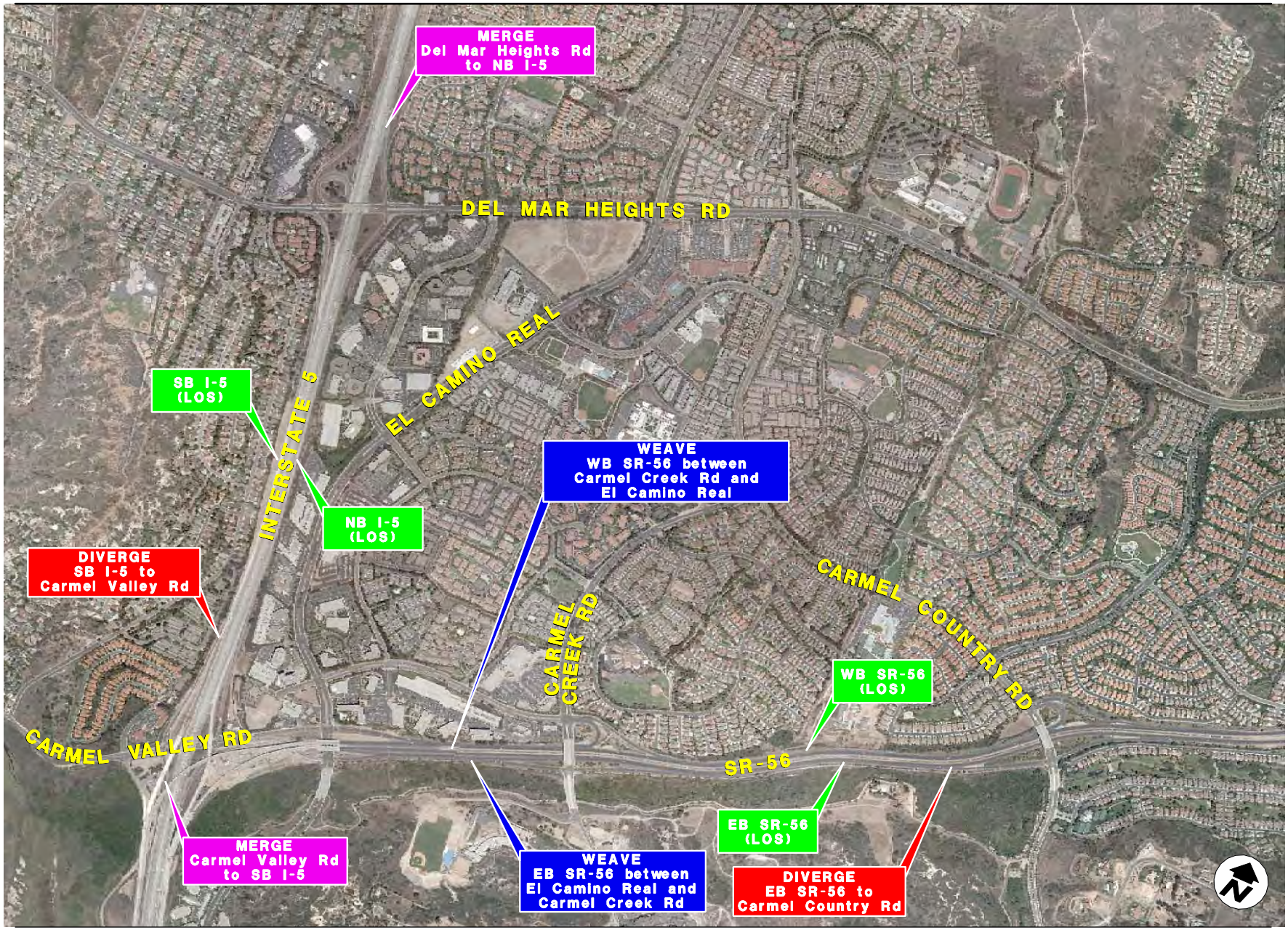
Source: Dokken 2011

Figure 3.7-9
Existing and Future Movements for Westbound SR-56



Source: Dokken 2011

Figure 3.7-10
Existing and Future Movements for the I-5 Local Bypass



Source: Dokken 2011

Figure 3.7-11
Freeway Key Project Locations

3.8 VISUAL/AESTHETICS

3.8.1 REGULATORY SETTING

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

National Environmental Policy Act (NEPA) establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically (emphasis added) and culturally pleasing surroundings (42 U.S.C. 4331[b][2]). To further emphasize this point, FHWA in its implementation of NEPA (23 U.S.C. 109[h]) directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Likewise, National Environmental Policy Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of aesthetic, natural, scenic and historic environmental qualities" (CA Public Resources Code Section 21001[b]).

CALIFORNIA COASTAL ACT OF 1976

This project is within the coastal zone boundaries established by the California Coastal Act of 1976. The Coastal Commission has developed planning and development requirements designed to protect and enhance California's coastal resources. This project is subject to those requirements. See Section See Section 3.1.2, Consistency with State, Regional, and Local Plans and Programs, for additional details.

3.8.2 AFFECTED ENVIRONMENT

Caltrans completed a Visual Impact Assessment (VIA) for the proposed project in November 2011. The evaluation of visual changes or impacts was based on an assessment of the existing visual character of the landscape as seen from six selected key view points and the degree to which the project would change those views. The key views were selected to illustrate the most critical visual changes that would affect the largest number of viewers. The key views represent the major viewpoints of motorists traveling in all four directions on I-5 and SR-56. Changes visible to pedestrians also were considered, but the changes were determined to be less visible to that group than what motorists would experience on highways. The viewpoints illustrate the locations where proposed construction features would be most visible and would have the greatest visual impact on the most viewers. Figure 3.8-1 shows the locations of the key viewpoints summarized below, and Figures 3.8-2 through 3.8-10 compare the existing key views with each of the proposed alternatives (see Figures 3.8-1 through 3.8-10 at the end of Section 3.8.2, Affected Environment).

This interchange is located in the coastal zone at the north edge of the Los Peñasquitos Lagoon. The interchange is surrounded by sedimentary mesas, densely vegetated ridges, eroded bluffs and escarpments, grass covered hills, steep sided river valley, and a flat estuarian lagoon.

Overall the area around the project site has been developed, the predominant visual elements have become modern buildings, shopping centers, and a network of roadways, including three multilane and Interstate highways, major connector roads, and congested surface streets. Modern architecture includes glass and steel office buildings, eclectic shopping malls, stucco and terra cotta single and

multi-family residential buildings. Residential development in the area is primarily suburban in form and consists primarily of single-family residences.

The clean lines of concrete freeway bridges, concrete and steel railings and tall, steel lighting standards are the primary visual elements of the freeway interchange. The observer's attention is primarily focused on traffic in this congested vehicular environment.

KEY VIEW 1

Key View 1 depicts the view looking northeast toward the intersection of I-5 and SR-56 from the Torrey Pines State Park viewpoint, adjacent to the parking area for the Park Information Center. Although this is a distant view of the proposed project, it is a critical one because it captures the visual change from an established state park viewing area with a sensitive viewer group and long duration of view (Figure 3.8-2).

KEY VIEW 2

Key View 2 represents the view looking south from southbound I-5 as vehicles approach the off-ramp to Carmel Valley Road (Figure 3.8-3).

KEY VIEW 3

Key View 3 represents views from vehicles driving on northbound I-5. Key View 3 is divided into three more detailed views along northbound I-5, to more accurately illustrate each alternative's distinct project features. Key View 3a represents the view looking toward Carmel Valley Road from northbound I-5 just south of the intersection with SR-56 (Figure 3.8-4). Key View 3b represents the view looking north from northbound I-5 just past the Carmel Valley Road exit (Figure 3.8-5). Key View 3c shows the view looking north from northbound I-5 just south of Del Mar Heights Road (Figure 3.8-6).

KEY VIEW 4

Key View 4 depicts views from vehicles driving on westbound SR-56. Similar to Key View 3, Key View 4 is divided into two views to provide a better representation of each alternative's proposed project features. Key View 4a represents the view looking west towards the El Camino Real to I-5 North exit from westbound SR-56 just west of Carmel Creek Road (Figure 3.8-7). Key View 4b shows the view looking west from westbound SR-56 at the El Camino Real to I-5 north off-ramp (Figure 3.8-8).

KEY VIEW 5

Key View 5 provides an additional viewpoint specific to the unique proposed project design features of the Direct Connector Alternative. Key View 5 shows the view looking east from eastbound Carmel Valley Road west of the I-5 freeway, which would include the two direct connector structures proposed with this alternative (Figure 3.8-9).

KEY VIEW 6

Similar to Key View 5, Key View 6 provides an additional viewpoint specific to unique proposed project design features under the Hybrid with Flyover Alternative. Key View 6 depicts the view from eastbound SR-56 east of the existing northbound I-5 to eastbound SR-56 direct connector at the slip off-ramp to Carmel Creek Road (Figure 3.8-10).

EXISTING VISUAL QUALITY

The existing quality or character of views was determined by evaluating three visual elements: vividness (the memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern); intactness (the integrity of visual order in the natural and built landscape, and the extent to which the landscape is free from visual encroachment); and unity (the degree to which the visual resources of the landscape join together to form a coherent, harmonious visual pattern, refers to the compositional harmony or compatibility between landscape elements).

A high rating for visual quality/character was defined as an area where the landscape exhibits well-maintained, attractive urban development or distinctive rural landscapes and natural open space. This would include areas of existing undisturbed mature vegetation and/or natural landscape features or development exceptionally well planned to integrate with the natural landscape. Moderate ratings were applied to areas that contain reasonably attractive development and natural features, but that are not visually distinctive or unusual within the region. These areas would have some degree of landscape vividness, intactness, or unity present. Low ratings were assigned in those areas where the landscape has been notably degraded by land uses and has little to no diversity in landforms and vegetation. These areas typically lack unity and/or intactness.

Viewer groups in the proposed project area include residents, users of Torrey Pines State Park, local street users, highway users, office/retail/commercial workers, and pedestrians and cyclists. The VIA assessed each group's sensitivity, exposure, and awareness.

Source: Esri Imagery World 2D 2009

0 0.3 0.6 1.2 Miles

Figure 3.8-1
Key View Locations

Existing View

Direct Connector Alternative (Alternative 2)

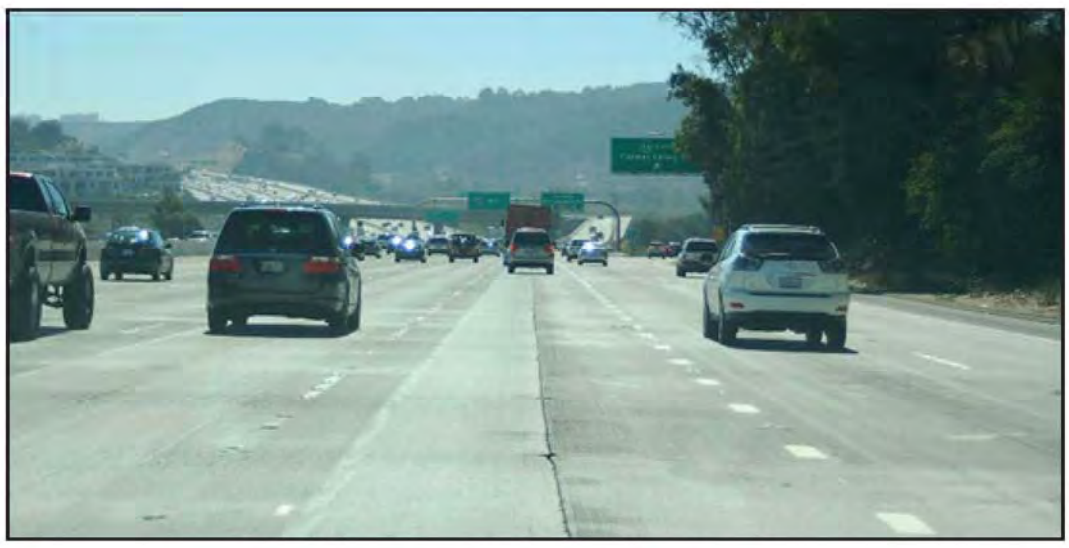
Auxiliary Lane Alternative (Alternative 3)

Hybrid Alternative (Alternative 4)

Hybrid with Flyover Alternative (Alternative 5)

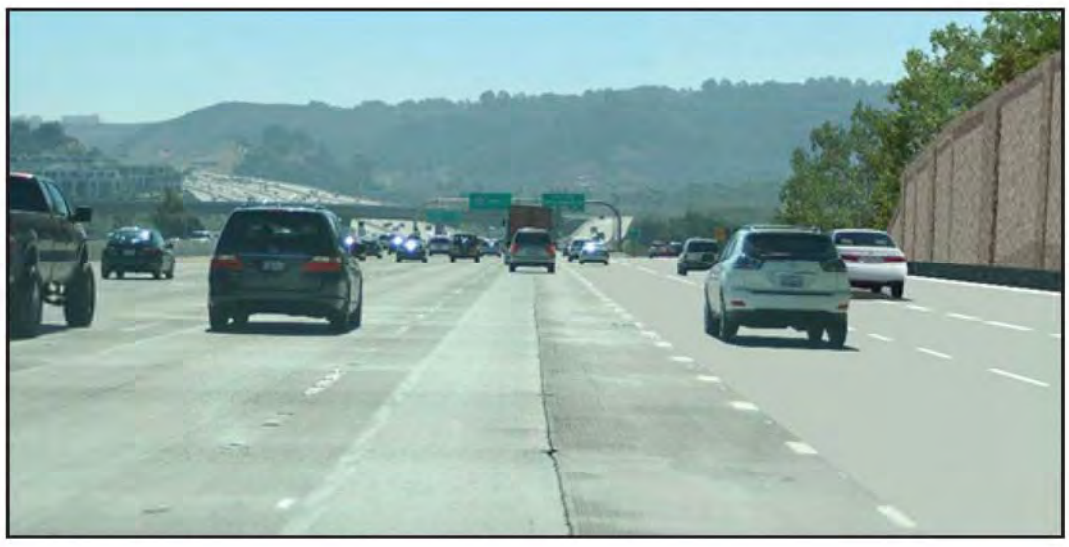
Figure 3.8-2
Existing and Proposed Alternatives
Key View 1 - Upland Torrey Pines State Park

Existing View

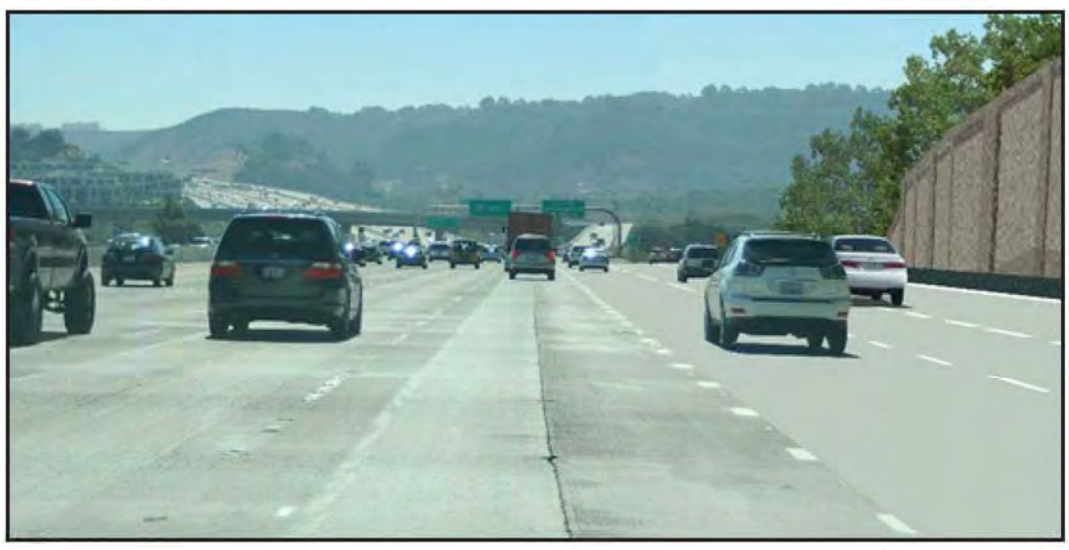


Direct Connector Alternative (Alternative 2)

Auxiliary Lane Alternative (Alternative 3)



Hybrid Alternative (Alternative 4)



Hybrid with Flyover Alternative (Alternative 5)

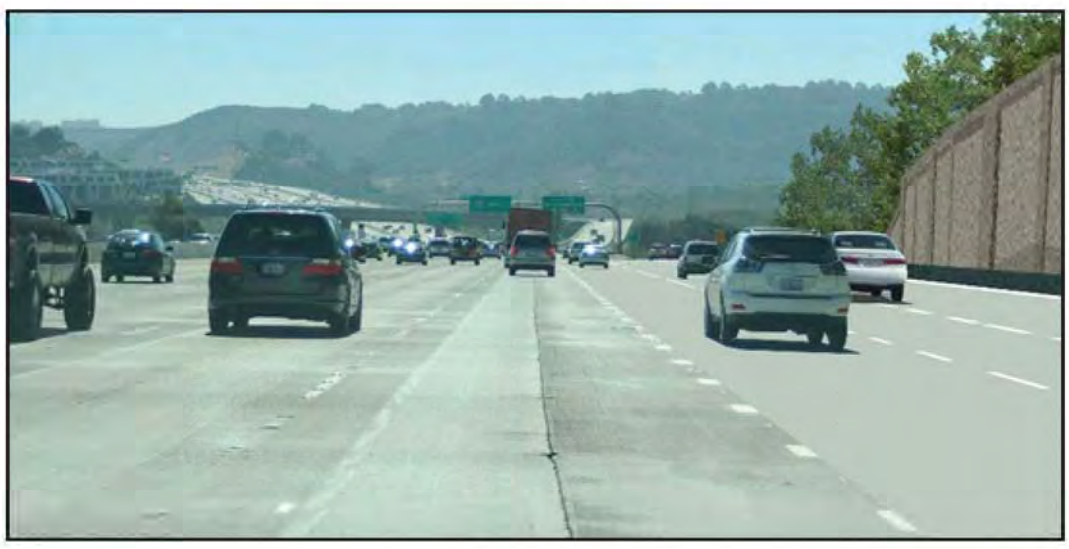


Figure 3.8-3
Existing and Proposed Alternatives
Key View 2 - Southbound I–5, North of Carmel Valley Road

Existing View

Direct Connector Alternative (Alternative 2)

Auxiliary Lane Alternative (Alternative 3)

Proposed changes from this key view are not apparent. Refer to Key View 3c for a clearer representation of proposed changes along northbound I–5 for this alternative.

Hybrid Alternative (Alternative 4)

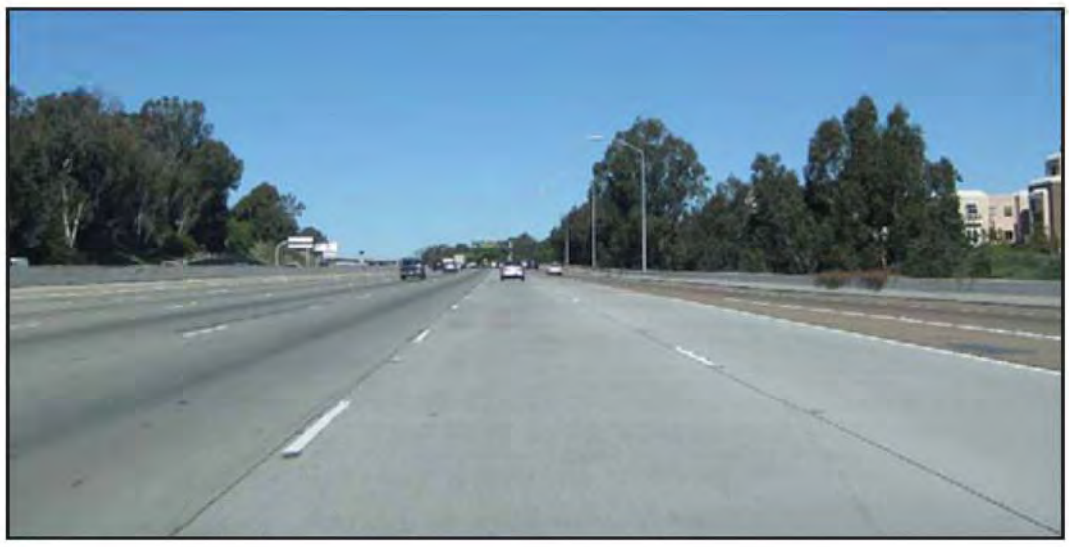
Proposed changes from this key view are not apparent. Refer to Key View 3c for a clearer representation of proposed changes along northbound I–5 for this alternative.

Hybrid with Flyover Alternative (Alternative 5)

Proposed changes from this key view are not apparent. Refer to Key View 3c for a clearer representation of proposed changes along northbound I–5 for this alternative.

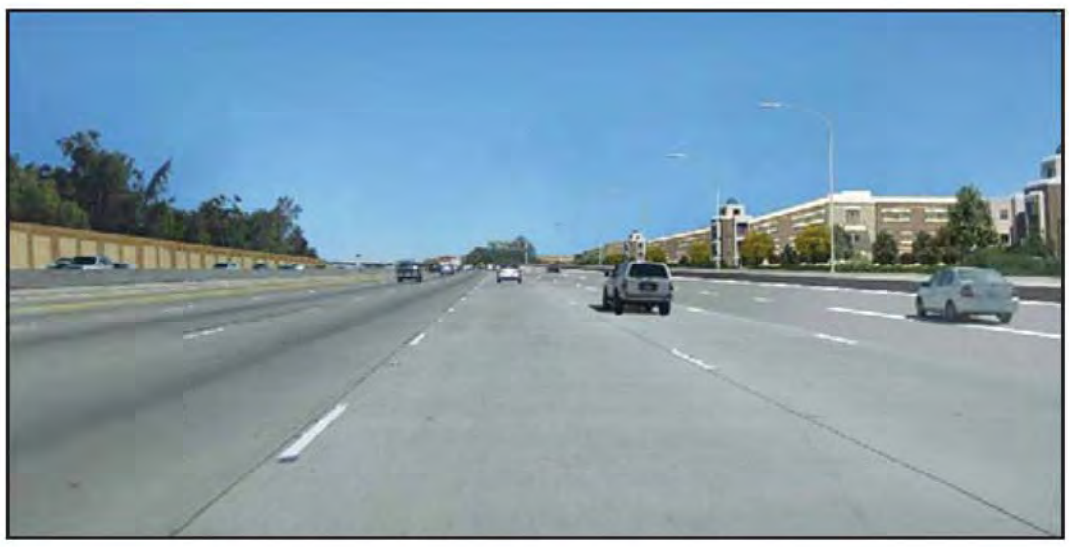
Figure 3.8-4
Existing and Proposed Alternatives
Key View 3a - Northbound I–5, South of Carmel Valley Road

Existing View



Direct Connector Alternative (Alternative 2)

Auxiliary Lane Alternative (Alternative 3)



Hybrid Alternative (Alternative 4)

Hybrid with Flyover Alternative (Alternative 5)

Figure 3.8-5
Existing and Proposed Alternatives
Key View 3b - Northbound I–5, North of Carmel Valley Road

Existing View

Direct Connector Alternative (Alternative 2)

Proposed changes from this key view are not apparent. Refer to Key View 3a for a clearer representation of proposed changes along northbound I–5 for this alternative.

Auxiliary Lane Alternative (Alternative 3)

Hybrid Alternative (Alternative 4)

Hybrid with Flyover Alternative (Alternative 5)

Figure 3.8-6
Existing and Proposed Alternatives
Key View 3c - Northbound I–5, South of Del Mar Heights Road

Existing View

Direct Connector Alternative (Alternative 2)

Proposed changes from this key view are not apparent. Refer to Key View 4b for a clearer representation of proposed changes along westbound SR–56 for this alternative.

Auxiliary Lane Alternative (Alternative 3)

Hybrid Alternative (Alternative 4)

Hybrid with Flyover Alternative (Alternative 5)

Proposed changes from this key view are not apparent. Refer to Key View 4b for a clearer representation of proposed changes along westbound SR–56 for this alternative.

Figure 3.8-7
Existing and Proposed Alternatives
Key View 4a - Westbound SR–56, East of El Camino Real Exit

Existing View

Direct Connector Alternative (Alternative 2)

Auxiliary Lane Alternative (Alternative 3)

Proposed changes from this key view are not apparent. Refer to Key View 4a for a clearer representation of proposed changes along westbound SR–56 for this alternative.

Hybrid Alternative (Alternative 4)

Proposed changes from this key view are not apparent. Refer to Key View 4a for a clearer representation of proposed changes along westbound SR–56 for this alternative.

Hybrid with Flyover Alternative (Alternative 5)

Figure 3.8-8
Existing and Proposed Alternatives
Key View 4b - Westbound SR–56 at El Camino Real Exit

Existing View

Direct Connector Alternative (Alternative 2)

Auxiliary Lane Alternative (Alternative 3)

This key view provides an additional viewpoint specific to the Direct Connector Alternative and is not applicable to this alternative.

Hybrid Alternative (Alternative 4)

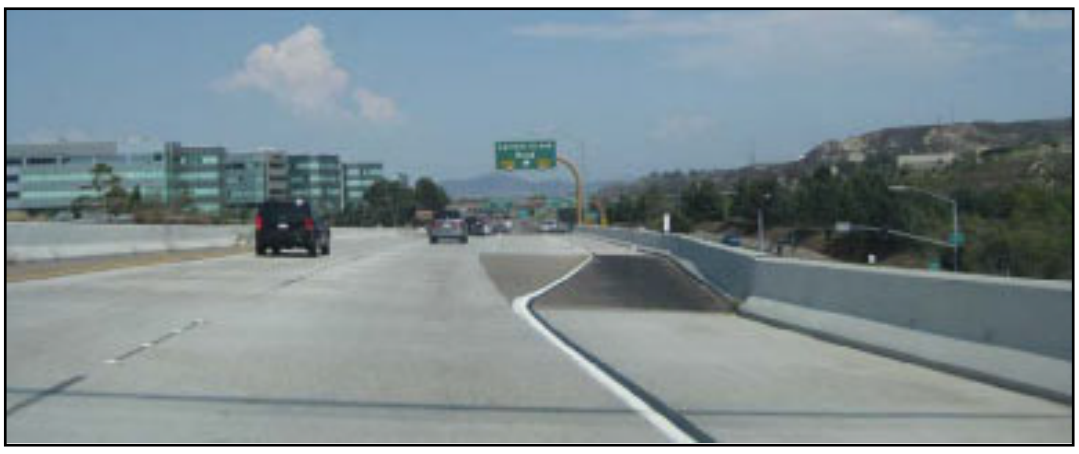
This key view provides an additional viewpoint specific to the Direct Connector Alternative and is not applicable to this alternative.

Hybrid with Flyover Alternative (Alternative 5)

This key view provides an additional viewpoint specific to the Direct Connector Alternative and is not applicable to this alternative.

Figure 3.8-9
Existing and Proposed Alternatives
Key View 5 - Eastbound Carmel Valley Road, West of I–5

Existing View



Direct Connector Alternative (Alternative 2)

This key view provides an additional viewpoint specific to the Hybrid with Flyover Alterative and is not applicable to this alternative.

Auxiliary Connector Alternative (Alternative 3)

This key view provides an additional viewpoint specific to the Hybrid with Flyover Alterative and is not applicable to this alternative.

Hybrid Alternative (Alternative 4)

This key view provides an additional viewpoint specific to the Hybrid with Flyover Alterative and is not applicable to this alternative.

Hybrid with Flyover Alternative (Alternative 5)

Figure 3.8-10
Existing and Proposed Alternatives
Key View 6 - Eastbound SR-56 at Existing Slip Off - Ramp at Carmel Creek Road

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3.8.3 ENVIRONMENTAL CONSEQUENCES

The four proposed project build alternatives present similar visual impacts for the majority of the study area. However, the improvements in the immediate area of the proposed I-5/ SR-56 interchange project area to Del Mar Heights Road vary greatly between the four build alternatives. The intensity of the visual impacts also is different. Consequently, the alternatives were analyzed separately.

The following discussion identifies the major proposed project features that would result in the primary visual impacts for each alternative (also see Chapter 2, Project Alternatives). This section also discusses the visual impact that would result from the construction of each alternative.

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

For purposes of the visual analysis, the No Build Alternative would be equivalent to the existing condition for this analysis and is depicted in Figures 3.8-2 through 3.8-10. Because no construction would result from this alternative, the existing visual conditions would remain unchanged. No direct connectors would cross over the existing connectors. Further growth of existing plants could be expected to result in more visual screening and an increase in the separation between the highway and the adjacent land uses. Consequently, no negative visual impact would occur in the proposed project area.

DIRECT CONNECTOR ALTERNATIVE (ALTERNATIVE 2)

The Direct Connector Alternative would result in the greatest degree of visual impacts within the proposed project area because it would produce the largest number and magnitude of structures, including the direct connectors, retaining walls, and soundwalls. The following changes would occur under the Direct Connector Alternative:

- Construction of:
  - The proposed direct connector from southbound I-5 to eastbound SR-56
  - The proposed direct connector from westbound SR-56 to I-5
  - The new bridge crossing I-5 at Del Mar Heights Road
- Widening of:
  - Approximately 10,500 feet of SR-56 roadway from 1,312 feet east of Carmel Country Road to I-5 (The roadway would be widened from four general purpose lanes to eight lanes.)
  - Approximately 8,860 feet of the I-5 from 3,280 feet north of Del Mar Heights Road to Carmel Valley Road (The freeway would increase in width from 11 general purpose lanes and two HOV lanes to 14 general purpose lanes and four HOV lanes, an average addition of three general purpose lanes and two HOV lanes.)
- Adjustments and reconfiguration of interchange ramps and associated retaining walls at the following intersections:
  - I-5/Del Mar Heights Road
  - I-5/Carmel Valley Road
  - SR-56/El Camino Real
  - SR-56/Carmel Country Road

- SR-56/Carmel Creek Road

- Relocation of the neighborhood perimeter wall and associated internal streets, soundwall, and landscaping for the Portofino residential development on Portofino Circle

- Reduction of the landscape buffer between:
  - The east edge of I-5 and the commercial buildings along El Camino Real
  - The west edge of I-5 and the residential homes along Portofino Drive and Portofino Circle

- Removal of some existing mature trees and other plants installed during previous highway construction projects along SR-56 and I-5

- Addition of retaining walls (Table 3.8-1) and soundwalls (Table 3.8-2) along I-5 and SR-56. See Figures 2-4a through 2-4f for locations of the retaining walls and recommended soundwalls proposed under the Direct Connector Alternative.

Table 3.8-1. Direct Connector Alternative: Retaining Walls

Retaining Wall	Length (feet)	Average Height (feet)	Maximum Height (feet)
Along I-5			
SE-1	459	8	16
SE-2	463	9	17
542[1]	5,331	41	49
559	3,510	13	23
WN-1	476	9	18
WN-2	476	8	16
541	617	10	20
543	2,028	11	18
550	945	14	30
555	1,132	8	16
560	3,005	11	33
Along SR-56			
SE-3	2,116	15	27
15	705	3	8
18	1,345	7	10
22	243	18	22
23	988	6	11
24	804	9	17

[1] Combines with possible soundwall.
Source: Estrada 2011

Table 3.8-2. Direct Connector Alternative: Soundwalls

Soundwall	Station No.		Length (feet)	Maximum Height (feet)	Noise Abatement Decision
	From	To			
Along I-5					
05.S541	540+36	541+64	600	14	Recommended [1]
05.S545	541+80	547+00	1,640	16	Recommended
05.S555	555+20	556+37	404	8	Recommended
05.S561	560+85	562+21	512	8	Recommended [1]
05.S563	563+28	564+36	427	8	Conditional[2]
05.S567	564+61	567+18	981	8	Recommended
05.S568	566+24	567+90	705	12	Conditional[2]
Along SR-56					
56.S35	33+36 33+84	33+56 37+50	1,286	12	Recommended

[1] The receptors are severely impacted. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement. Refer to Section 3.16.4 for further details.
[2] These soundwalls were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided . Refer to Section 3.16.4 for further details.
Source: Estrada 2011

Figures 3.8-2 through 3.8-10 show the existing conditions and anticipated simulations of the six key views for the Direct Connector Alternative. Table 3.8-3 summarizes the individual findings for each key view. The visual quality for the key views ranged from moderately low to moderately high. For the Direct Connector Alternative, the change in visual character and quality of resources ranged from low to high; viewer responses were moderately high, and the resulting visual impacts at the key views ranged from moderate to high.

Table 3.8-3. Direct Connector Alternative: Visual Summary

Key View		Existing Visual Quality	Change in Visual Character and Quality	Viewer Response	Visual Impact
1	Upland Torrey Pines State Park	MH	ML	MH	M
2	Southbound I-5 north of Carmel Valley Road exit	MH	MH	MH	MH
3a	Northbound I-5 south of Carmel Valley Road	M	ML	MH	M
3b	Northbound I-5 north of Carmel Valley Road	M	H	MH	H
3c	Northbound I-5 south of Del Mar Heights Road	M	-	-	-
4a	Westbound SR-56 east of El Camino Real exit	MH	-	-	-
4b	Westbound SR-56 at El Camino Real exit	M	MH	MH	MH
5	Eastbound Carmel Valley Road west of I-5	ML	L	MH	M
6	Eastbound SR-56 at slip off-ramp at Carmel Creek Road	M	-	-	-

Note: N - None; L - Low; ML - Moderately Low; M - Moderate; MH - Moderately High; H – High
Source: Compiled by AECOM in 2011

Overall, the Direct Connector Alternative would result in a negative visual change because of the loss of existing mature vegetation, large visually intrusive retaining walls, extensive soundwalls, loss of median planting on SR-56, and a general increase in the expanse of asphalt and concrete surfacing. A decrease in planted area and the elimination of the planted median would occur on SR-56. In addition to the above, the imposition of two new highly visible connector bridge structures crossing above the existing three-level interchange would result in a visual element that would strongly affect the views from the road and to the road. Because of the great amount of visual change, the Direct Connector Alternative could have a large visual impact **considered to be a high degree of visual impact**.

AUXILIARY LANE ALTERNATIVE (ALTERNATIVE 3)

Unlike the Direct Connector Alternative, the Auxiliary Lane Alternative would result in the lowest degree of visual impact in the proposed project area because it would have no direct connectors and fewer retaining and soundwalls. The following changes would occur under the Auxiliary Lane Alternative:

- Construction of:
  - The new bridge crossing I-5 at Del Mar Heights Road
- Widening of:
  - The on-ramp connecting Carmel Valley Road to northbound I-5
  - Westbound Carmel Valley Road at the ramp to I-5
  - Eastbound connector ramp east of El Camino Real
  - Southbound (west side of) I-5 from Del Mar Heights to Carmel Valley Road
  - Westbound SR-56 off-ramp to Carmel Creek Road
  - The north side of westbound SR-56 from 394 feet east of Carmel Country Road to 820 feet east of El Camino Real
  - Del Mar Heights Road and I-5 bridge approaches
- Adjustments to interchange ramps and associated retaining walls at the following intersections:
  - I-5/Del Mar Heights Road
  - I-5/Carmel Valley Road
  - SR-56/El Camino Real
  - SR-56/Carmel Country Road
  - SR-56/Carmel Creek Road
- Reduction of the landscape buffer between:
  - The east edge of I-5 and the commercial buildings along El Camino Real
  - The west edge of I-5 and the residential homes along Portofino Drive and Portofino Circle
  - The east edge of SR-56 and the commercial buildings to the north
- Removal of some existing mature trees planted during previous highway construction projects along SR-56 and I-5
- Addition of retaining walls (Table 3.8-4) and soundwalls (Table 3.8-5) along I-5 and SR-56. See Figures 2-5a through 2-5f for locations of the retaining walls and soundwalls proposed under the Auxiliary Lane Alternative.

Table 3.8-4. Auxiliary Lane Alternative: Retaining Walls

Retaining Wall	Length (feet)	Average Height (feet)	Maximum Height (feet)
Along I-5			
539	5,568	14	30
540	141	2	5
541	1,355	15	23
556	453	3	7
Along SR-56			
15	627	9	13
19	623	4	5
24	692	8	15

Source: Estrada 2011

Table 3.8-5. Auxiliary Lane Alternative: Soundwalls

Soundwall	Station No.		Length (feet)	Maximum Height (feet)	Noise Abatement Decision
	From	To			
Along I-5					
05.S541	540+36	541+64	600	14	Recommended [1]
05.S561	560+85	562+21	512	8	Recommended [1]
05.S563	563+28	564+36	427	8	Conditional[2]
05.S567	564+61	567+18	981	8	Recommended
05.S568	566+24	567+90	705	8	Conditional[2]
Along SR-56					
56.S35	33+84	35+66	640	12	Conditional[2]

[1] The receptors are severely impacted. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement. Refer to Section 3.16.4 for further details.

[2] These soundwalls were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. Refer to Section 3.16.4 for further details.

Source: Estrada 2011

Refer to Figures 3.8-2 through 3.8-10 for simulations of anticipated key views for the Auxiliary Lane Alternative. Table 3.8-6 summarizes the individual findings for each key view. The existing visual quality for the key views ranged from moderately low to moderately high. For the Auxiliary Lane Alternative, the change in visual character and quality or resources ranged from low to moderately high; viewer response was moderately high, and the resulting visual impacts at the key views ranged from moderately low to moderately high.

Table 3.8-6. Auxiliary Lane Alternative: Visual Summary

Key View		Existing Visual Quality	Change in Visual Character and Quality	Viewer Response	Visual Impact
1	Upland Torrey Pines State Park	MH	L	MH	ML
2	Southbound I-5 north of Carmel Valley Road exit	MH	MH	MH	MH
3a	Northbound I-5 south of Carmel Valley Road	M	-	-	-
3b	Northbound I-5 north of Carmel Valley Road	M	MH	MH	MH
3c	Northbound I-5 south of Del Mar Heights Road	M	L	MH	ML
4a	Westbound SR-56 east of El Camino Real exit	MH	MH	MH	MH
4b	Westbound SR-56 at El Camino Real exit	M	-	-	-
5	Eastbound Carmel Valley Road west of I-5	ML	-	-	-
6	Eastbound SR-56 at slip off-ramp at Carmel Creek Road	M	-	-	-

Note: N - None; L - Low; ML - Moderately Low; M - Moderate; MH - Moderately High; H – High
Source: Compiled by AECOM in 2011

Although the Auxiliary Lane Alternative would result in a negative visual change from the loss of existing mature vegetation and the increase in paved surfaces, it would have a lower degree of visual impact than the other three alternatives. This is because of the relatively lower heights of the retaining walls, more planting area for buffers and screening, and less paved surfaces. The tall connector bridge structures also would be absent under this alternative, which would eliminate the view blockage and visual intrusion associated with the structures constructed over the existing connectors. As such, the visual impact would be much less than the Direct Connector Alternative, and less than the Hybrid and Hybrid with Flyover Alternatives. The Auxiliary Lane Alternative would have a moderate degree of visual impact.HYBRID ALTERNATIVE (ALTERNATIVE 4)

The Hybrid Alternative would combine elements of both of the previous alternatives, resulting in a greater degree of visual impact than under the Auxiliary Lane Alternative, but less than under the Direct Connector Alternative and Hybrid with Flyover Alternative. The following changes would occur under the Hybrid Alternative:

- Construction of:
  - The proposed direct connector from westbound SR-56 to I-5
  - The new bridge crossing I-5 at Del Mar Heights Road
- Widening of:
  - The Del Mar Heights Road and I-5 bridge approaches
  - Approximately 10,500 feet of the SR-56 roadway from 3,280 feet east of Carmel Country Road to I-5
  - Approximately 8,860 feet of the I-5 from 3,280 feet north of Del Mar Heights Road to Carmel Valley Road
  - The westbound exit to El Camino Real (EC-3 line)
  -

- Adjustments and reconfiguration of interchange ramps and associated retaining walls at the following intersections:
  - I-5/Del Mar Heights Road
  - I-5/Carmel Valley Road
  - SR-56/El Camino Real
  - SR-56/Carmel Country Road
  - SR-56/Carmel Creek Road
- Reduction of the landscape buffer between:
  - The east edge of I-5 and the commercial buildings along El Camino Real
  - The west edge of I-5 and the residential homes along Portofino Drive and Portofino Circle
- Removal of some existing mature trees and other plants installed during previous highway construction projects along SR-56 and I-5
- Addition of retaining walls (Table 3.8-7) and soundwalls (Table 3.8-8) along I-5 and SR-56. See Figures 2-6a through 2-6f for locations of the retaining walls and soundwalls proposed under the Hybrid Alternative.

Table 3.8-7. Hybrid Alternative: Retaining Walls

Retaining Wall	Length (feet)	Average Height (feet)	Maximum Height (feet)
Along I-5			
WN-1	476	9	18
WN-2	476	8	16
539	5,568	14	30
541	617	10	20
542[1]	5,413	34	48
543	2,028	11	18
550	945	14	30
555	1,132	8	16
556	453	3	7
560	476	9	18
Along SR-56			
15	3,005	11	33
18	627	9	13
24	1,345	7	10

[1] Combines with possible soundwall.
Source: Estrada 2011

Table 3.8-8. Hybrid Alternative: Soundwalls

Soundwall	Station No.		Length (feet)	Maximum Height (feet)	Noise Abatement Decision
	From	To			
Along I-5					
05.S541	540+36	541+64	600	14	Recommended[1]
05.S561	560+65	562+21	512	8	Recommended[1]
05.S563	563+28	564+36	427	8	Conditional[2]
05.S567	564+61	567+18	981	8	Recommended
05.S568	566+24	567+90	705	8	Conditional[2]
Along SR-56					
56.S35	33+84	37+50	1,214	12	Recommended

[1] The receptors are severely impacted. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement. Refer to Section 3.16.4 for further details.
[2] These soundwalls were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. Refer to Section 3.16.4 for further details.
Source: Estrada 2011

Refer to Figures 3.8-2 through 3.8-10 for simulations of anticipated key views for the Hybrid Alternative. Table 3.8-9 summarizes the individual findings for each key view. The existing visual quality for the key views ranged from moderately low to moderately high. For the Hybrid Alternative, the change in visual character and quality or resources ranged from low to high; viewer response was moderately high, and the resulting visual impacts at the key views ranged from moderately low to high.

Table 3.8-9. Hybrid Alternative: Visual Summary

Key View		Existing Visual Quality	Change in Visual Character and Quality	Viewer Response	Visual Impact
1	Upland Torrey Pines State Park	MH	L	MH	ML
2	Southbound I-5 north of Carmel Valley Road exit	MH	MH	MH	MH
3a	Northbound I-5 south of Carmel Valley Road	M	-	-	-
3b	Northbound I-5 north of Carmel Valley Road	M	H	MH	H
3c	Northbound I-5 south of Del Mar Heights Road	M	ML	MH	M
4a	Westbound SR-56 east of El Camino Real exit	MH	H	MH	H
4b	Westbound SR-56 at El Camino Real exit	M	-	-	-
5	Eastbound Carmel Valley Road west of I-5	ML	-	-	-
6	Eastbound SR-56 at slip off-ramp at Carmel Creek Road	M	-	-	-

Note: N - None; L - Low; ML - Moderately Low; M - Moderate; MH - Moderately High; H – High
Source: Compiled by AECOM in 2011

Overall, the Hybrid Alternative would result in a negative visual change. The westbound SR-56 to I-5 connector structure, approach, and transition match that of the Direct Connector Alternative, resulting in a negative visual change because of the loss of existing mature vegetation, increased exposure of adjacent commercial buildings, loss of median planting on SR-56, and a general increase in the expanse of asphalt and concrete surfacing. On the west and south sides of the intersection, the Hybrid Alternative would match the Auxiliary Lane Alternative, with corresponding visual impacts including retaining walls and a reduction in landscape screening areas between I-5 and adjacent residential areas to the west. Under this alternative, no south I-5 to east SR-56 connector structure or approach would be built. Because this would feature the higher of the two connectors, the direct visual impact of the taller structure would not be present under this alternative. Many of the existing trees and landscape buffers would remain between I-5 and the homes on Portofino Drive and Portofino Circle. As such, the visual effect of the Hybrid Alternative likely would be less than the Direct Connector

Alternative , but greater than the Auxiliary Lane Alternative. The Hybrid Alternative would have a moderately high degree of visual impact.

HYBRID WITH FLYOVER ALTERNATIVE (ALTERNATIVE 5)

The Hybrid with Flyover Alternative would combine the Hybrid Alternative (described above) with a flyover connector from eastbound Carmel Valley Road to SR-56. This would result in a greater degree of visual impact than the Auxiliary Lane Alternative and the Hybrid Alternative, but less than the Direct Connector. The following changes would occur with the Hybrid with Flyover Alternative:

- Construction of:
  - The proposed direct connector from westbound SR-56 to I-5
  - The proposed flyover connecting Carmel Valley Road to eastbound SR-56
  - The new bridge crossing I-5 at Del Mar Heights Road
- Widening of:
  - The Del Mar Heights Road and I-5 bridge approaches
  - Approximately 10,500 feet of the SR-56 roadway from 3,280 feet east of Carmel Country Road to I-5
  - Approximately 8,860 feet of the I-5 from 3,280 feet north of Del Mar Heights Road to Carmel Valley Road
  - The eastbound connector ramp
- Adjustments and reconfiguration of interchange ramps and associated retaining walls at the following intersections:
  - I-5/Del Mar Heights Road
  - I-5/Carmel Valley Road
  - SR-56/El Camino Real
  - SR-56/Carmel Country Road
  - SR-56/Carmel Creek Road
- Reduction of the landscape buffer between:
  - The east edge of I-5 and the commercial buildings along El Camino Real
  - The west edge of I-5 and the residential homes along Portofino Drive and Portofino Circle
- Removal of some existing mature trees and other plants installed during previous highway construction projects along SR-56 and I-5
- Addition of retaining walls (Table 3.8-10) and soundwalls (Table 3.8-11) along I-5 and SR-56. See Figures 2-7a through 2-7f for locations of the retaining walls and soundwalls proposed under the Hybrid Alternative.

Table 3.8-10. Hybrid with Flyover Alternative: Retaining Walls

Retaining Wall	Length (feet)	Average Height (feet)	Maximum Height (feet)
Along I-5			
WN-1	476	9	18
WN-2	476	8	16
539	5,568	14	30
541	617	10	20
543	2,028	11	18
550	945	14	30
555	1,614	7	16
556	453	3	7
560	3,005	11	33
Along SR-56			
11	272	5	8
12	568	8	10
16	1,184	3	4
21	778	7	10
23	988	6	11
24	804	9	17
Along Carmel Valley Road			
CVR1	377	10	12
CVR2	423	10	11
Along Flyover Structure			
Fly1	449	11	23
Fly2	174	4	9
Fly3	594	8	20
Fly4	594	10	22

Source: Estrada 2011

Table 3.8-11. Hybrid with Flyover Alternative: Soundwalls

Soundwall	Station No.		Length (feet)	Maximum Height (feet)	Noise Abatement Decision
	From	To			
Along I-5					
05.S541	540+36	541+64	600	14	Recommended[1]
05.S561	560+85	562+21	512	8	Recommended[1]
05.S563	563+28	564+36	427	8	Conditional[2]
05.S567	564+61	567+18	981	8	Recommended
05.S568	566+24	567+90	705	8	Conditional[2]
Along SR-56					
56.S35	33+36 33+84	33+56 37+50	1,286	12	Recommended

[1] The receptors are severely impacted. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement. Refer to Section 3.16.4 for further details.

[2] These soundwalls were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. Refer to Section 3.16.4 for further details.

Source: Estrada 2011

See Figures 3.8-2 through 3.8-10 for simulations of anticipated key views for the Hybrid with Flyover Alternative. Table 3.8-12 summarizes the individual findings for each key view. The existing visual quality for the key views ranged from moderately low to moderately high. Similar to the Hybrid Alternative, the change in visual character and quality for the Hybrid with Flyover Alternative ranged from low to high; the viewer response was moderately high, and the resulting visual impacts at the key views ranged from moderately low to high.

Table 3.8-12. Hybrid with Flyover Alternative: Visual Summary

Key View		Existing Visual Quality	Change in Visual Character and Quality	Viewer Response	Visual Impact
1	Upland Torrey Pines State Park	MH	L	MH	ML
2	Southbound I-5 north of Carmel Valley Road exit	MH	MH	MH	MH
3a	Northbound I-5 south of Carmel Valley Road	M	-	-	-
3b	Northbound I-5 north of Carmel Valley Road	M	H	MH	H
3c	Northbound I-5 south of Del Mar Heights Road	M	ML	MH	MH
4a	Westbound SR-56 east of El Camino Real exit	MH	-	-	-
4b	Westbound SR-56 at El Camino Real exit	M	H	MH	H
5	Eastbound Carmel Valley Road west of I-5	ML	-	-	-
6	Eastbound SR-56 at slip off-ramp at Carmel Creek Road	M	MH	MH	MH

Note: N - None; L - Low; ML - Moderately Low; M - Moderate; MH - Moderately High; H – High
Source: Compiled by AECOM in 2011

Overall, the Hybrid with Flyover Alternative would result in a negative visual change to the project area. The westbound SR-56 to I-5 connector structure, approach, and transition would match the Direct Connector Alternative. This would result in a negative visual change because of the loss of existing mature vegetation, increased exposure of adjacent commercial buildings, loss of median planting on SR-56, and a general increase in the expanse of asphalt and concrete surfacing. Similar to the Hybrid Alternative, the Hybrid with Flyover Alternative would closely match the Auxiliary Lane Alternative on the west and south sides of the intersection. As such, the visual impacts would correspond to the Auxiliary Lane Alternative, including the retaining walls and a reduction in landscape screening areas between I-5 and adjacent residential areas to the west. Many of the existing trees and landscape buffers would remain between I-5 and the homes on Portofino Drive and Portofino Circle.

However, unique to this alternative, the Carmel Valley to SR-56 connector would replace the south I-5 to east SR-56 connector structure of the Direct Connector Alternative. The proposed flyover connecting Carmel Valley Road with SR-56 east would create an additional visual obstruction, visible from several approaches. This structure would contribute to the greater visual impact of the Hybrid with Flyover Alternative when compared with the Hybrid Alternative. Therefore, the visual effect of the Hybrid Alternative with Flyover would be less than the Direct Connector Alternative, same relative visual effect as the Hybrid Alternative, but greater visual effect than the Auxiliary Lane Alternative. The Hybrid with Flyover Alternative would have a moderately high degree of visual impact.

3.8.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Caltrans and the FHWA mandate that a qualitative/aesthetic approach be taken to mitigate for visual quality loss in the proposed project area. This approach would fulfill FHWA requirements because it would reduce the cumulative loss of visual quality that would occur in the proposed project viewshed, if the proposed project was implemented. It also would constitute mitigation that could more readily generate public acceptance of the proposed project.

Mitigation for the negative visual impacts of the proposed project in the key view assessments and summarized in the previous section would adhere to design requirements, as determined by the Caltrans District 11 landscape architect.

The mitigation design features and principles for the Direct Connector, Auxiliary Lane, Hybrid, and the Hybrid with Flyover Alternatives are described in detail in the Landscape Concept Plan, included in Attachments A, B, C, and D of the VIA prepared in November 2011. The Landscape Concept Plan was developed to provide a guideline for implementing visual mitigation measures during the roadway construction projects and by separate replacement landscape projects for each build alternative. The plans identify opportunities to enhance areas in the proposed project area with planting themes, and by surface architectural treatments for paving, retaining walls, soundwalls, and other construction items. As stated in the Landscape Concept Plan, within 6 months from the end of construction, landscaping measures would commence under a separate landscape construction contract. Landscaping shall have a three year plant establishment period as required by Caltrans policy. Table 3.8-13 compares the key features and landscaping associated with each alternative.

Table 3.8-13. Summary of Mitigation Measures

Mitigation	Direct Connector Alternative	Auxiliary Lane Alternative	Hybrid Alternative	Hybrid with Flyover Alternative
SB I-5 landscaping north of Del Mar Heights Road	X			
SB I-5 landscaping south of Del Mar Heights Road		X	X	X
SB I-5 landscaping including modifications to Portofino Circle	X			
Del Mar Heights Road Bridge	X	X	X	X
NB I-5 landscaping south of Carmel Valley Road	X	X	X	X
NB I-5 landscaping south of Del Mar Heights Road	X	X	X	X
NB I-5 landscaping north of Del Mar Heights Road	X		X	X
NB I-5 detention basins	X	X	X	X
Carmel Valley Road landscaping	X	X	X	
EB SR-56 at El Camino Real on-ramp[1]	X	X	X	X
EB SR-56 landscaping west of Carmel Creek Road	X			X
EB SR-56 landscaping east of Carmel Creek Road	X			X
EB SR-56 landscaping east of Carmel Country Road	X			X
WB SR-56 landscaping west of Carmel Creek Road[1]	X	X	X	X
WB SR-56 landscaping east of Carmel Creek Road	X	X	X	X
WB SR-56 landscaping east of Carmel Country Road	X		X	X
WB SR-56 detention basin	X	X	X	X

[1] Varying degrees of similar landscaping
Source: Compiled by AECOM in 2011

As previously discussed in Table 3.8-13, these mitigation measures would reduce the potential temporary and permanent visual impacts of the proposed project and would improve visual quality related to new and modified proposed project features. However, the overall change in visual quality is still anticipated to decline because of the large reduction in screen plantings on both sides of the I-5 and portions of the north side of SR-56, the retaining walls, and the soundwalls. The following mitigation measures are designed to improve the overall visual quality of the proposed construction of the project design alternatives and promote a positive viewer response from motorists, pedestrians, and bicyclists. The measures propose a wide range of visual enhancements to improve project aesthetics and connect the design to the regional context. These improvements may partially compensate for the addition of new, highly visible features including the flyover, extended roadway width, bridge widening and retaining walls that are required to promote more effective traffic flow and increase capacity. Overall, the mitigation measures would reduce the potential temporary and permanent visual impacts of

the project and improve visual quality related to new and modified project features. The following describes the major design concepts that would be implemented under each alternative.

DIRECT CONNECTOR ALTERNATIVE (ALTERNATIVE 2)

The Direct Connector Alternative would result in the greatest degree of visual impacts due to the elevated connector ramps. The proposed connector bridge structures should match the existing smooth, gently curving concrete bridge structures. The side view of the bridge and flyover structures should be designed to present a thin appearance (see Figure 3.8-11).

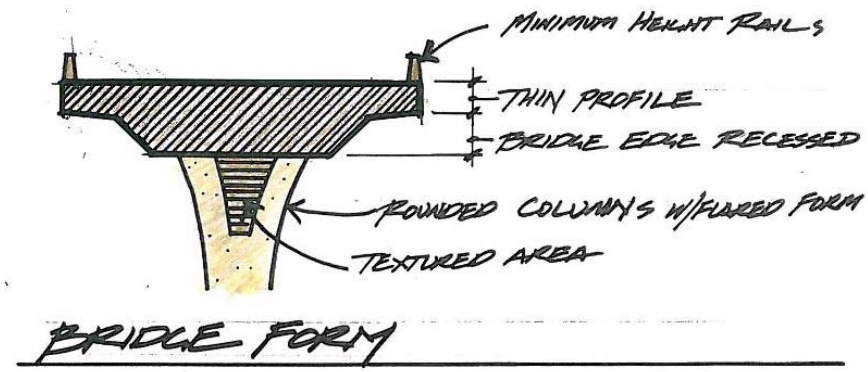


Figure 3.8-11 **Side View of the Connector Bridge Structure**

Landscaping along both the I-5 and SR-56 freeways would include grading, installation of retaining walls and soundwalls, paving, and plantings.

Grading

Where conditions permit, grading would use the techniques of contour grading to promote smooth transitions to existing landforms, eliminate the appearance of engineered slopes, and visually soften the contours. Grading adjacent to retaining walls would transition smoothly into the walls without dips and irregularities that would draw attention to the walls. For slopes less than 66 feet tall, stepped slopes would be avoided to reduce the visual impact of large-scale visually objectionable grading methods.

Retaining Walls

Retaining walls, as shown in Figure 3.8-12, would be similar in color and form to those constructed at the Lomas Santa Fe and I-5 interchange north of the proposed project, but they also would express a unique character to differentiate the Del Mar Heights to Carmel Valley area from other portions of the North Coastal corridor. The naturally eroded sandstone bluff formations visible in the proposed project vicinity would be reflected in the design for retaining wall treatments. Wall coloration would provide a connection with the natural bluffs. Tall retaining walls would be designed in a manner to reduce the apparent scale of the wall. A thick wall cap and vertical partitions or columns would be recommended to provide relief to the surface, reduce the reflectiveness of the flat wall, and provide shadow patterns (see Figure 3.8-13).

Figure 3.8-12 **Retaining Walls**

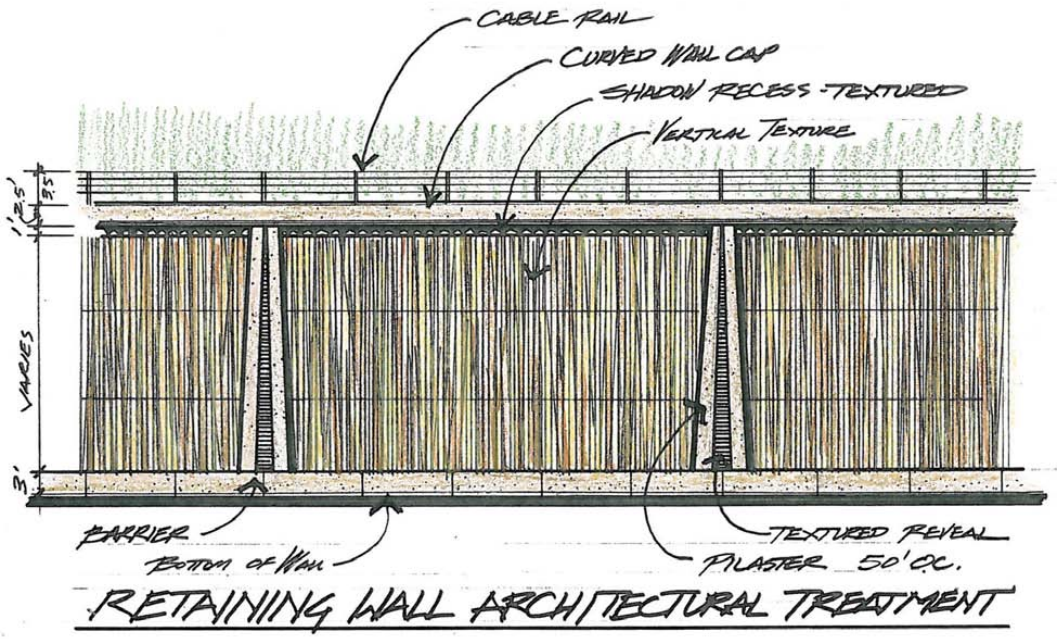


Figure 3.8-13 **Tall Retaining Wall Design**

To relieve the vertical constraint of the walls, the walls would be battered at a 1:12 minimum ratio. This could be a function of the wall being narrower in thickness at the top (see Figure 3.8-14).

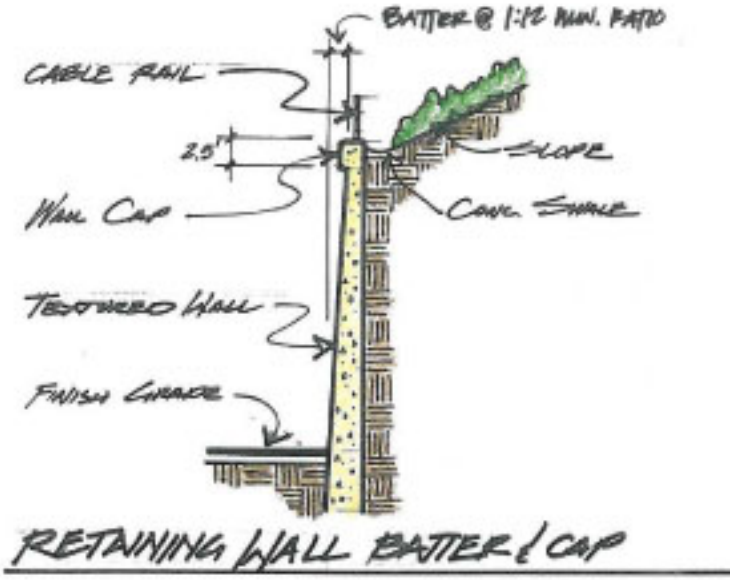


Figure 3.8-14 **Retaining Wall Batter & Cap**

Retaining walls would taper back into the slope, reducing the height of the wall as it returned to slope. This may be repeated as the wall diminished in height, to create a cascading wall transition as it wrapped into the slope. This would allow planting at the base of the wall, set the wall back from the road, and provide curved transitions at the ends to reduce hard geometry associated with high visual impact In addition, the in-cut walls would be placed mid-slope, where feasible.(see Figure 3.8-15).

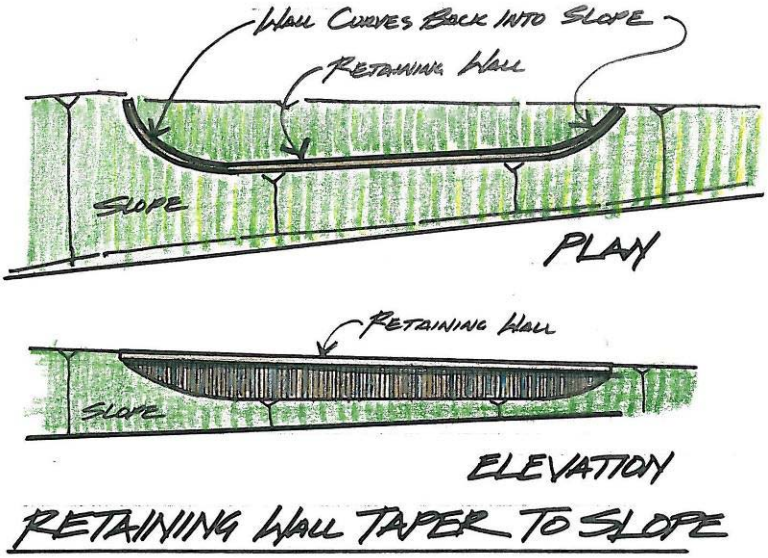


Figure 3.8-15 **Tapered Retaining Wall**

Where it was necessary to construct walls adjacent to the roadway, the tops of retaining walls would be curved in elevation to conform with the grade rather than stepped or angled. The tops of walls also would feature a broad cap of concrete to create a precise finish at the top of the wall and emphasize the smooth line and shape of the wall (see Figure 3.8-16).

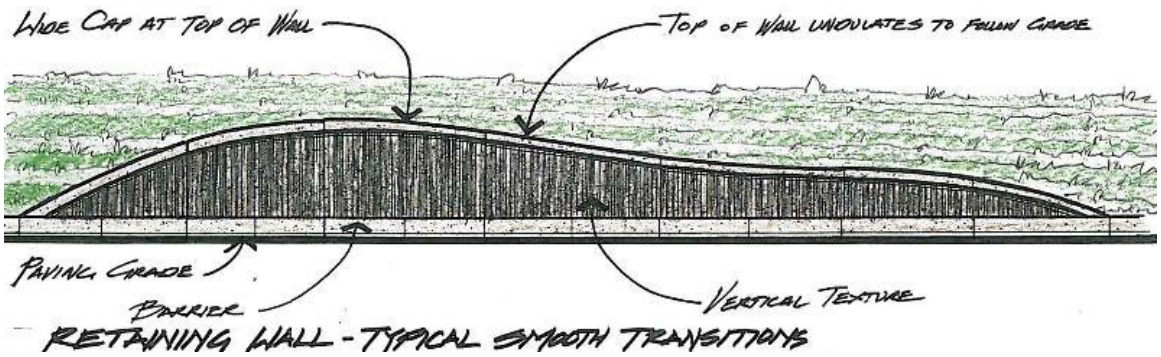


Figure 3.8-16 **Smooth Tops for Retaining Walls**

Retaining walls 3 to 5 feet high, relating mainly to traffic areas, may be constructed of smooth form finish, natural colored concrete, similar to those at I-5 and Lomas Santa Fe interchange. Where adjacent to colored concrete, retaining or soundwalls would be colored to match the adjacent wall.

Direct Connector Alternative Retaining Wall Variations for Southbound I-5

Two variations were analyzed for the proposed retaining wall that would be required along southbound I-5 between Del Mar Heights Road and Carmel Valley Road for the Direct Connector Alternative:

- **Option 1**: The first variation would construct the proposed retaining wall directly adjacent to the shoulder along southbound I-5, as shown in the proposed project feature maps in Chapter 2, Project Alternatives.

- **Option 2**: To soften the visual impact of the wall, the second variation would construct the proposed retaining/soundwall several feet up the existing slope along southbound I-5 for the portion of wall north of Portofino Circle, allowing space for a landscape buffer between the retaining wall and the freeway shoulder (see Figure 3.8-17). In addition, the second variation would provide homeowners with up to 20 feet of additional usable area for their property along Portofino Drive. This increase in backyard space would be accomplished by increasing the height of the proposed retaining wall, placing fill behind the retaining wall, and reconstructing the existing soundwall directly on top of the retaining wall. Visual impacts would be further reduced because setting back the retaining wall from the freeway shoulder would allow space for a landscape buffer with plant screening between the freeway and the proposed retaining wall. However, this would require additional permanent right-of-way (larger partial acquisitions and subsurface easements) because the proposed retaining wall would be located farther to the west. Although both variations would require partial right-of-way and takes as well as subsurface easements, neither variation would reduce the parcel lot sizes of the residential properties to substandard lot sizes (see Figure 3.8-18 for a cross-section for the proposed Option 2 design).

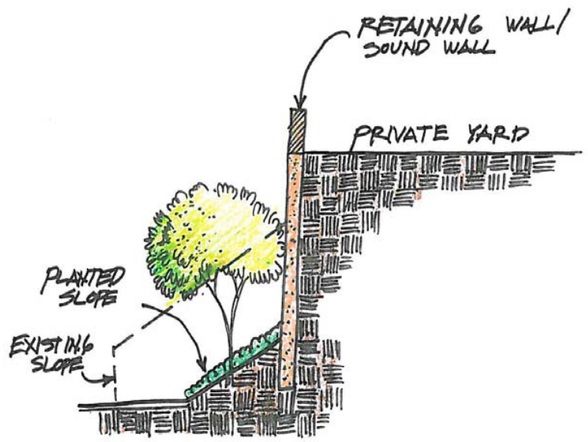


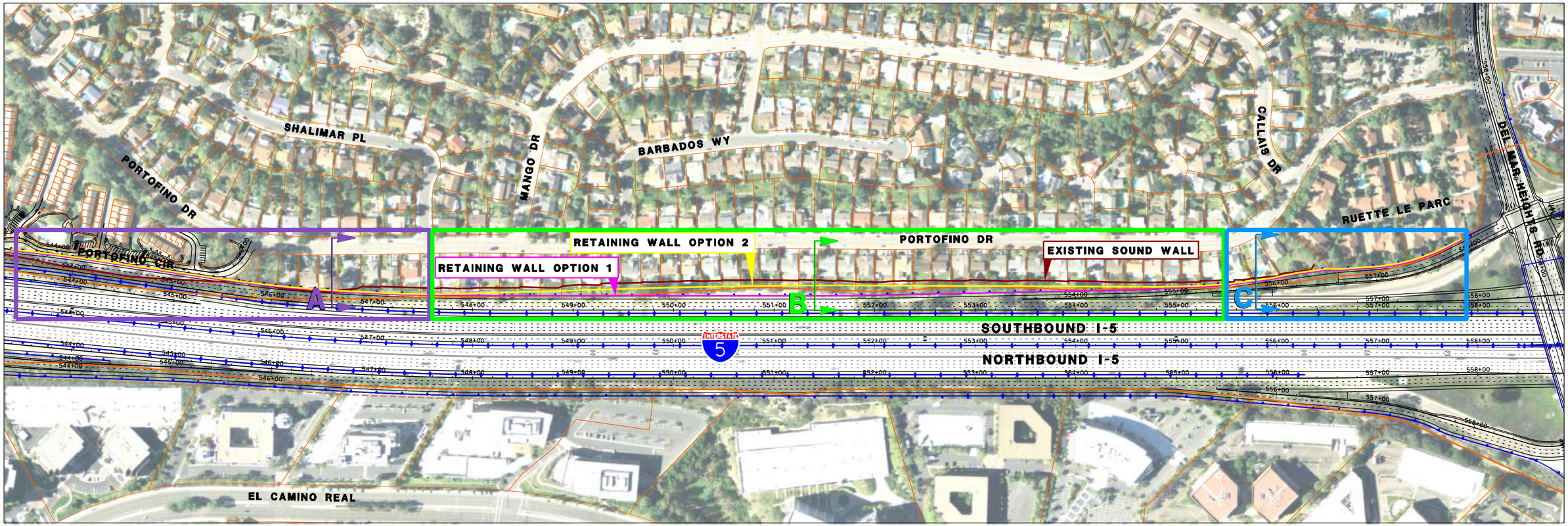
Figure 3.8-17 **Retaining Wall Design along Southbound I-5**

Local Street Realignment for Southbound I-5

Under the Direct Connector Alternative, the Portofino development west of I-5 would need to be modified because of impacts to Portofino Circle. Portofino Circle would be shifted slightly to the west and modified. To replace the parking spaces lost adjacent to the freeway, some diagonal spaces would be added on the west side of the street. In addition, the recreation area would be enhanced, including addition of a new pool deck. Figure 3.8-19 shows the landscape concept plan for the Portofino development along southbound I-5.

Soundwalls

Where soundwalls are to be constructed directly on top of retaining walls, the soundwall would be designed as a visual continuation of the retaining wall, to be indistinguishable from the retaining wall (see Figure 3.8-20).



SECTION A
STA 543+40 TO STA 547+60
SEE FIGURE 3.8-18B
TYPICAL SECTION A

SECTION B
STA 547+60 TO STA 555+50
SEE FIGURE 3.8-18B
TYPICAL SECTION B

SECTION C
STA 555+50 TO STA 557+90
SEE FIGURE 3.8-18B
TYPICAL SECTION C

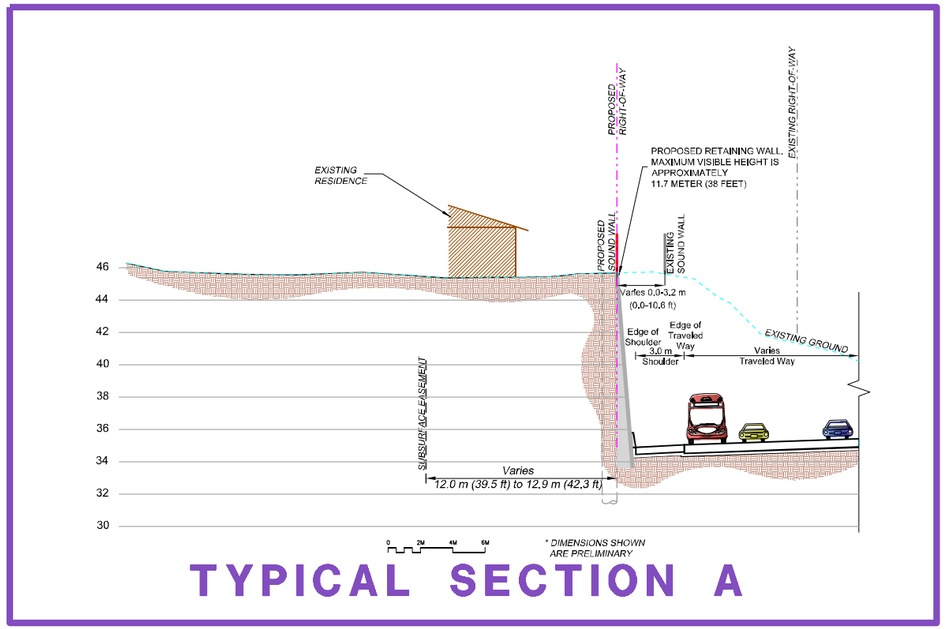
LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED CONCRETE BARRIER
- PROPOSED RETAINING WALL
- PARCEL BOUNDARY LINES
- RETAINING WALL OPTION 1
- RETAINING WALL OPTION 2
- EXISTING SOUND WALL LAYOUT LINE

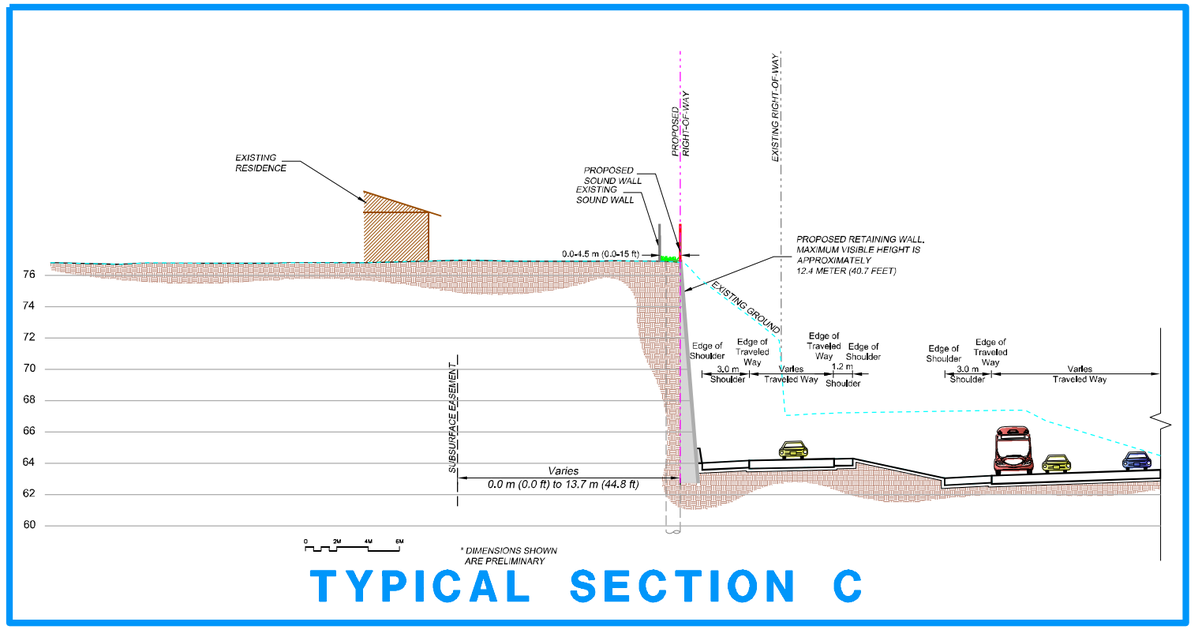
NO SCALE

Source: Dokken Engineering 2012

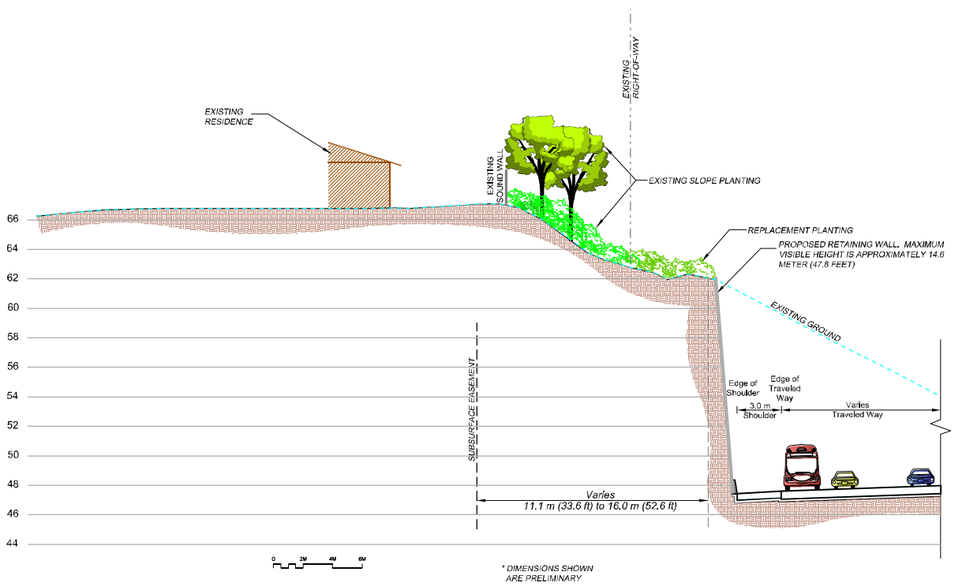
Figure 3.8-18A
Portofino Drive Retaining Wall Options (Direct Connector Alternative)



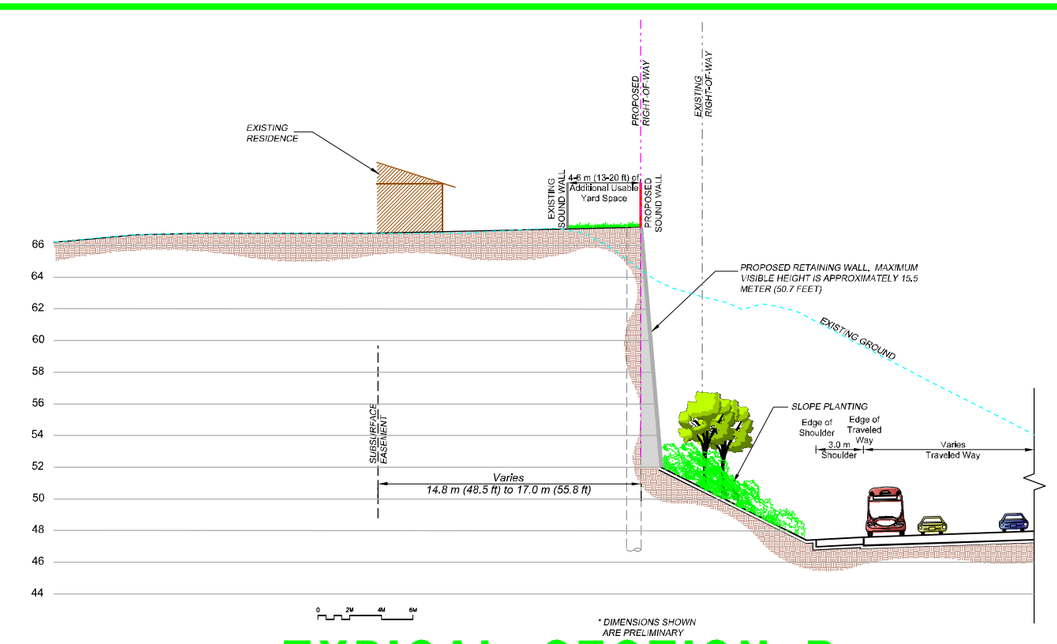
TYPICAL SECTION A



TYPICAL SECTION C



TYPICAL SECTION B
RETAINING WALL OPTION 1

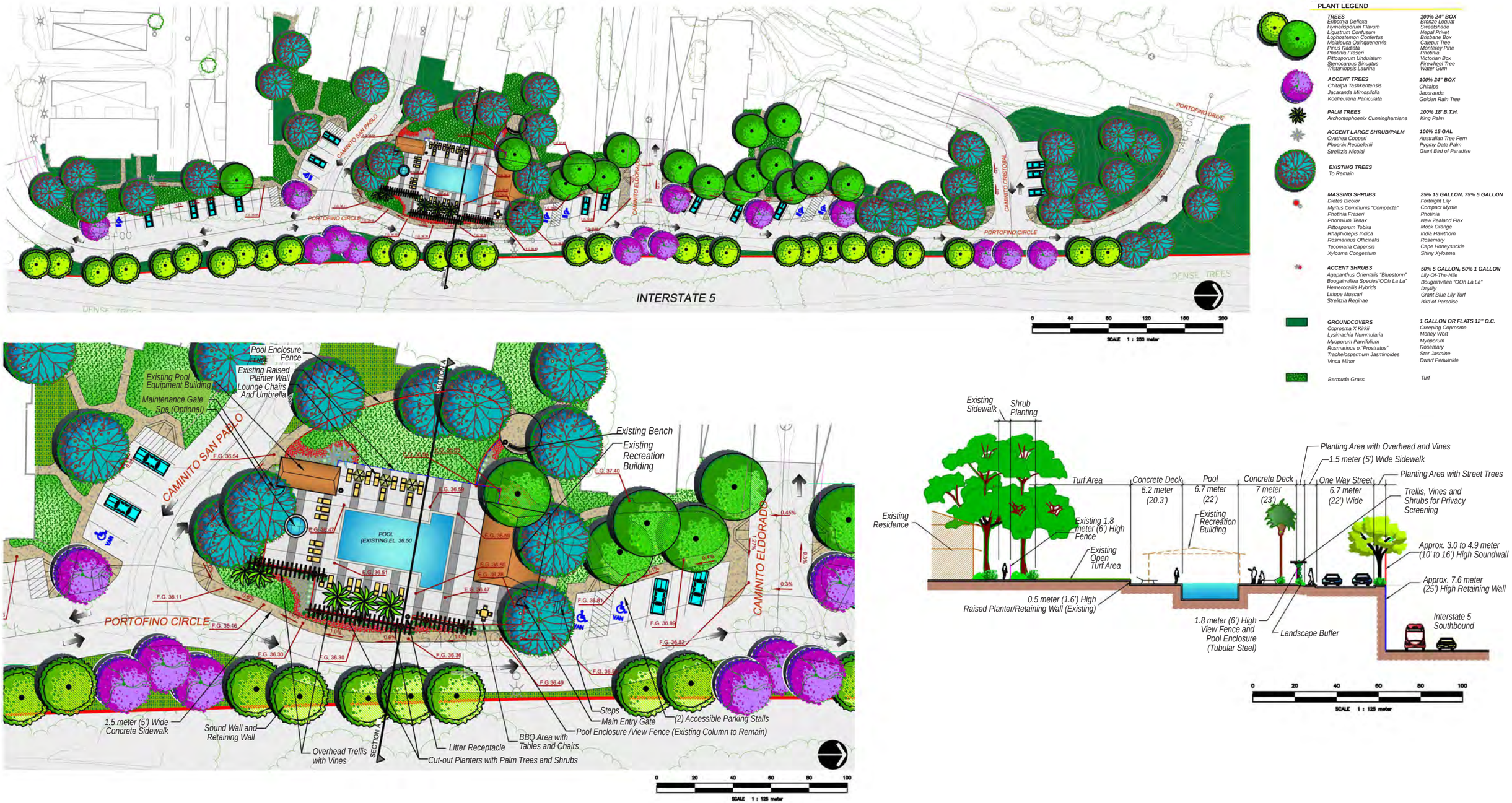


TYPICAL SECTION B
RETAINING WALL OPTION 2

SEE FIGURE 3.8-18A FOR PLAN VIEW LOCATION OF TYPICAL SECTIONS A, B, AND C

Source: Dokken Engineering 2012

Figure 3.8-18B
Portofino Drive Retaining Wall Options (Direct Connector Alternative)



Source: DigitalGlobe 2008; Dokken 2008; SanGIS 2008

Figure 3.8-19
Landscape Concept Plan for Portofino Circle Development

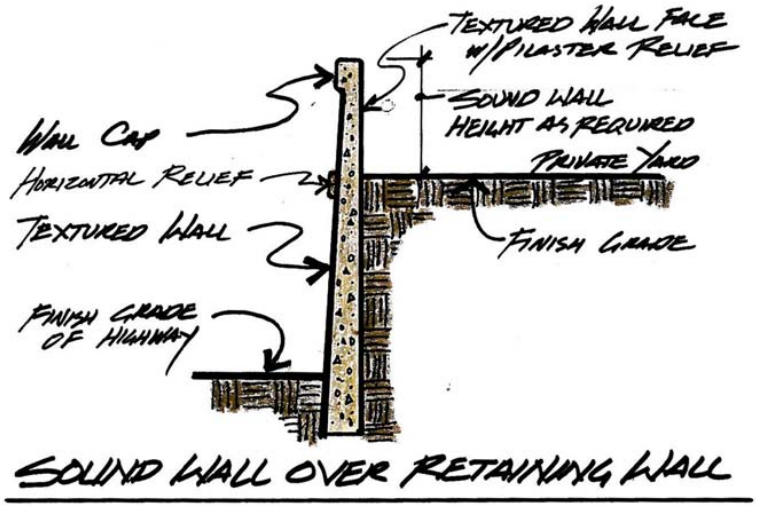


Figure 3.8-20 **Soundwall Construction Directly on Top of Retaining Wall**

Where soundwalls are to be constructed separately from the retaining walls, the soundwalls would conform to the existing soundwalls, adjacent colors, and architecture. Typically, this would be slump block or stucco walls with columns approximately 10 feet on center. Where views from the interior of the yard are to be preserved by using a transparent soundwall, similar to Figure 3.8-21. Each required soundwall would be considered individually, to select the type that would best blend with adjacent walls, including consideration of the proposed and existing retaining walls. When new soundwalls are in proximity to the proposed retaining walls, consideration would be given to making the wall types match for visual compatibility. The selection would provide continuity in design when viewed from the road.

Figure 3.8-21 **Transparent Soundwalls**

Paving

Slope Paving

Rounded creek cobble would be used where possible for slope paving under the bridge structures and in areas of the project that were too shady to plant (see Figure 3.8-22).

Figure 3.8-22 **Slope Paving with Rounded Creek Cobble**

Gore Paving

To reflect the natural canyon bottom and continue the landscape treatment, the gore paving between the freeway and off- and on-ramps would be constructed of 0.79-inch exposed aggregate set in a matrix of warm-toned, earth-colored concrete, to provide a natural-appearing, river bottom gravel surface. The addition of 4 to 6 feet of creek bottom cobble in the gore paving would be preferable, if permitted.

The use of gore paving would be repeated, where possible, in areas of the design that are too narrow or shady for planting (Figure 3.8-23). Such areas would include turning gores, median tapers, and slope paving under the bridge structures.

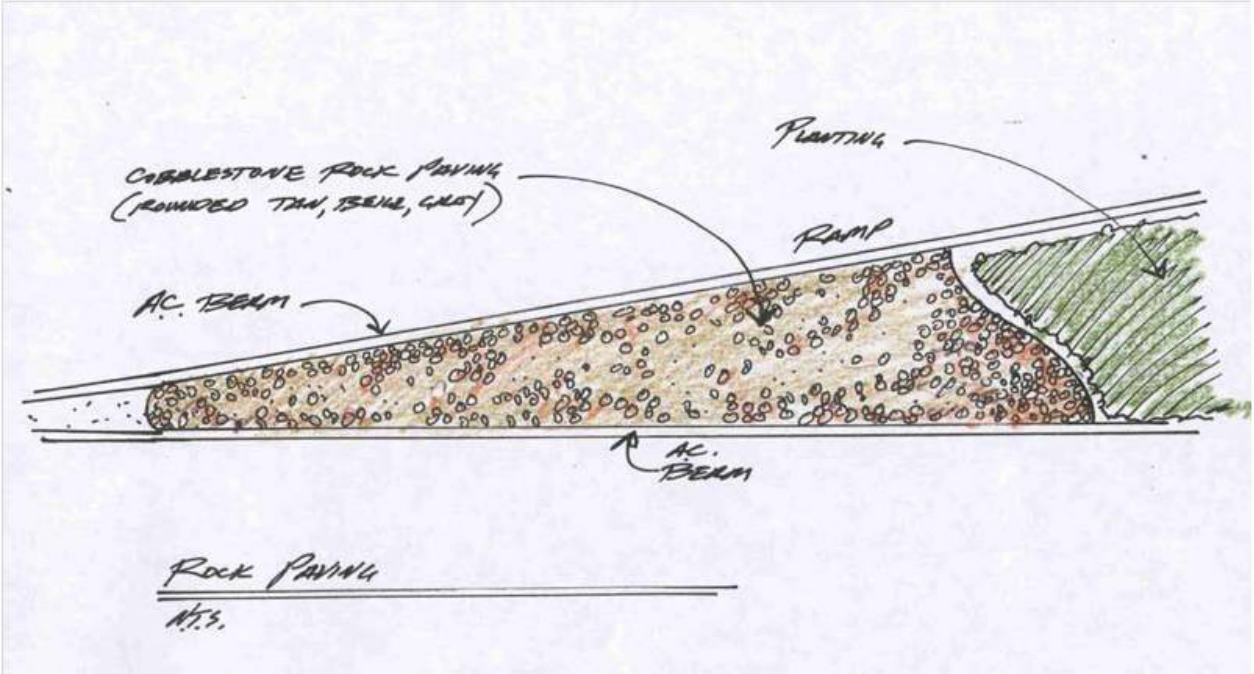


Figure 3.8-23 **Gore Paving for Narrow or Shady Areas**

Planting

Planting themes would be derived from the surrounding native plant community, selecting appropriate plants that fulfill specific functions of screening, accent planting, and erosion control.

Surface cover of the planting spaces would utilize San Diego native plants, such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and San Diego march-elder (*Iva hayesiana*) in a blend of plants, providing species diversity and the ability to naturalize over a 3-year establishment period.

Screen shrubs would be planted to reduce exposure of large walls and slopes, and to provide mid-level screening. Shrubs would include California holly (*Heteromeles arbutifolia*), lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), hollyleaf cherry (*Prunus ilicifolia*), California buckthorn (*Rhamnus californica*), goldenstar (*Bloomeria crocea)*, and barranca brush (*Ceanothus verrucosus)*.

Tree planting would consist of trees native to the region, including Torrey Pines, coast live oak (*Quercus agrifolia*) and, in low areas where more moisture would be available, sycamore (*Plantanus racemosa*).

Tall trees, such as Torrey Pines, would be planted in the vicinity of the flyover to help visually diminish the scale of the structures (Figure 3.8-24). Sycamores or cottonwoods are tall trees that would be appropriate to the Carmel Valley riparian area south of the I-5/56 interchange. The verticality of the trees would provide contrast with the horizontals of the road, promoting visual relief.

Figure 3.8-24 **Interchange Tree Plantings**

Where planting space and maintenance access provisions would allow, the retaining walls would be planted with a clinging vine to provide visual relief of the large expanse of wall face and to visually soften the appearance, replacing the effect of the existing vegetation on the slopes (Figure 3.8-25). Each wall condition would be reviewed on a case-by-case basis for compatibility with native plants.

Figure 3.8-25 **Plantings on Retaining Wall**

The subtle gray-green of coast live oaks and chaparral plants would be used in planting to create a transition to a coastal sage/chaparral-type plant palette on the slopes, to increase contrast with the lush river vegetation.

Native riparian tree species would be planted where possible in the lowland areas, to amplify and extend the visual connection with the Carmel River Valley (Figure 3.8-26).

Figure 3.8-26 **Native Riparian Plantings**

Where permitted by National Pollutant Discharge Elimination System (NPDES) large retention basins would incorporate the planting of riparian trees, such as sycamore, willow (*Salix* spp.), and coast live oak, near the perimeter to reflect the character of ephemeral creek areas.

Where appropriate, dense native, moderately low groundcover planting would be provided along the edges of roadways to contrast with the widened mass of concrete roadway and bring a sense of landscape toward the roadway, as shown in Figure 3.8-27. Plants may include low-growing prostrate coyote brush (*Baccharis pilularis*), California buckwheat (*Eriogonum fasciculatum*), and other low natives.

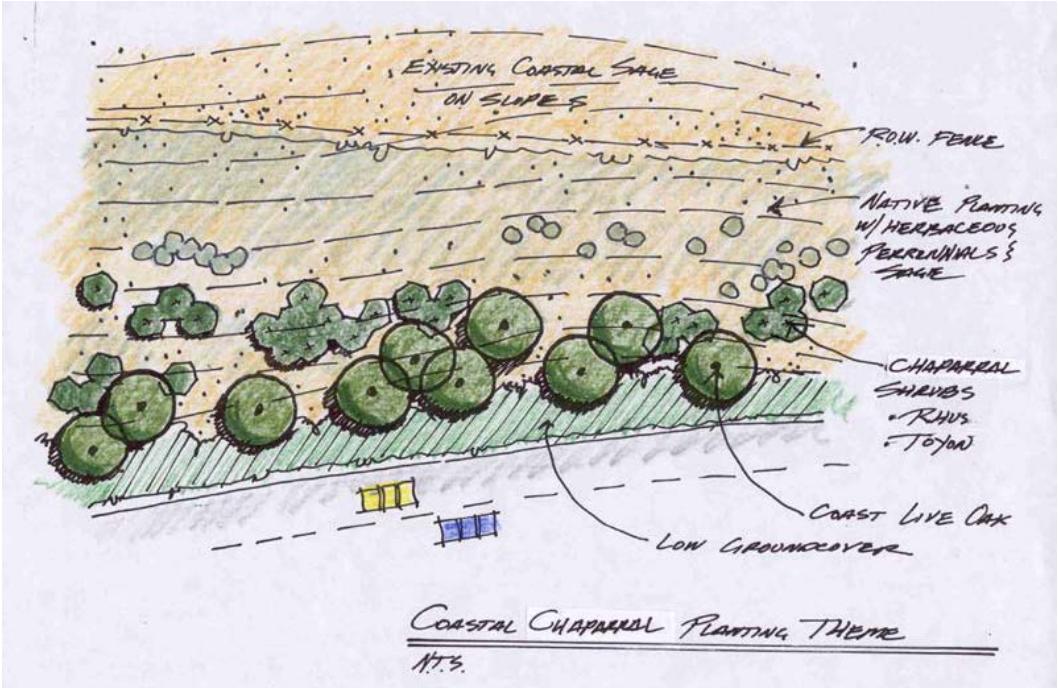


Figure 3.8-27 **Dense Native Groundcover Plantings along Roadways**

All planted areas would be irrigated with automatically controlled irrigation systems to establish and support plant growth. Landscape would be designed with the understanding that no irrigation or plant maintenance would likely be performed, once the project was turned over to Caltrans after a 1-3-year establishment period.

Plantings Specific To SR-56

Planting would reflect the natural character of the Carmel River Valley and would include native plants. Planting in proximity of buildings may be nonnative, if necessary to fulfill aesthetic functions such as screening in narrow areas. Additionally, concrete retaining walls less than 7 feet high may be constructed of a muted shade of light-tan-colored concrete and incorporate a textured band to help visually reduce the appearance of wall height.

Maintenance

The planting mitigation measures rely on growth, maintenance, and time to reach a size and maturity to perform their intended function. The mitigation measures itemized in this document are anticipated to begin to become effective approximately 5 years after implementation. This would be subject to variability in climate, growing conditions, irrigation, maintenance, and other factors. A cooperative agreement between the City of San Diego and Caltrans would established to promote the full potential of the mitigation measures proposed.

Bio-swales

Bio-swales for temporary stormwater runoff storage would be placed, where required, and would include specially formulated soil and drainage layers, planted with a mixture of native noninvasive grasses and similar plants, tolerant of both dry and wet conditions.

Retention and Infiltration Basins

To provide a natural-appearing and sustainable solution for temporary stormwater runoff storage, retention basins would be planted with self-sustaining native riparian vegetation, such as *Baccharis salicifolia, Artemesia douglasiana*, *dracunculus,* and *tridentate* (Figure 3.8-28). The low point of the basin would be constructed as a concrete pad around the overflow outlet, to allow cleaning. An access road may be constructed to the concrete pad, to allow maintenance access. Paved or lined retention basins would be avoided.

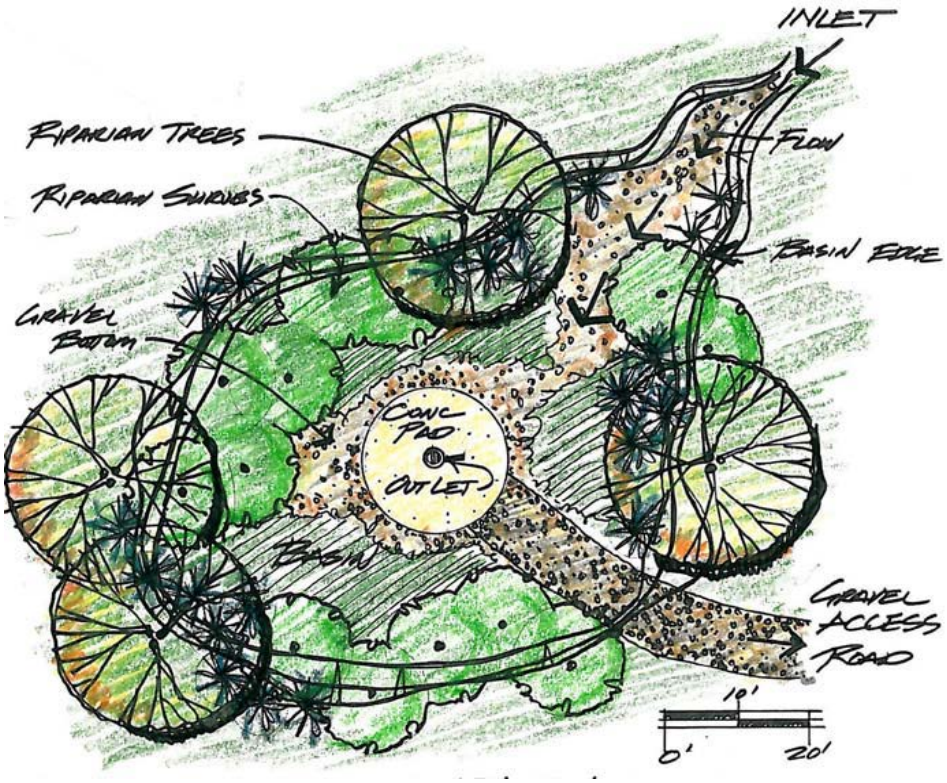


Figure 3.8-28 **Infiltration Basin**

Del Mar Heights Bridge

Mitigation would also be implemented to enhance the Del Mar Heights Road bridge features if the City of San Diego agrees to maintain them in perpetuity (Figures 3.8-29 and 3.8-30).

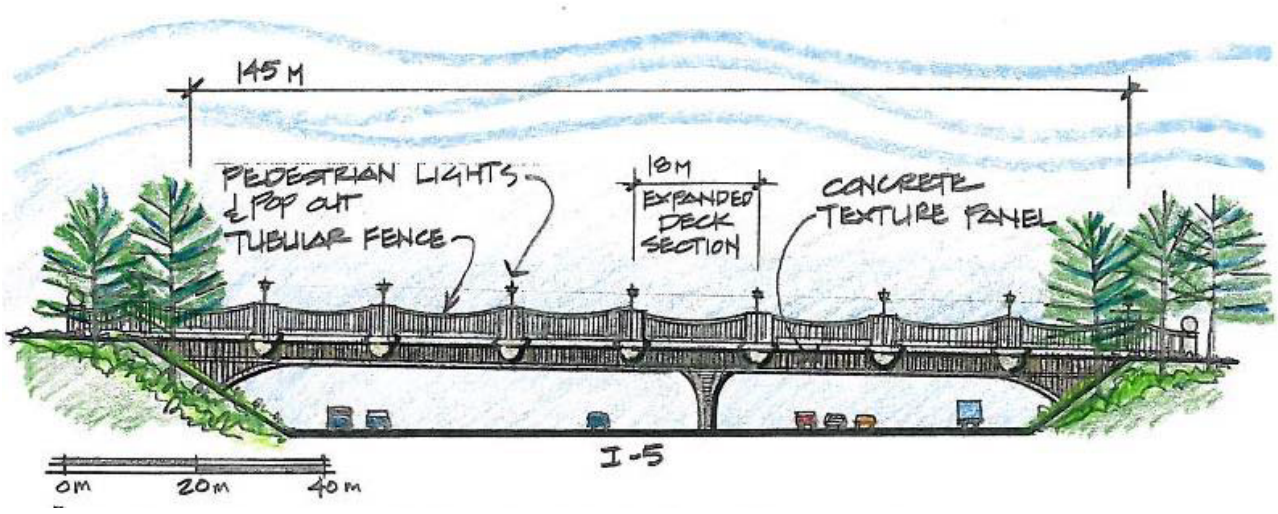


Figure 3.8-29 **Cross-section of Proposed Del Mar Heights Bridge Reconstruction**

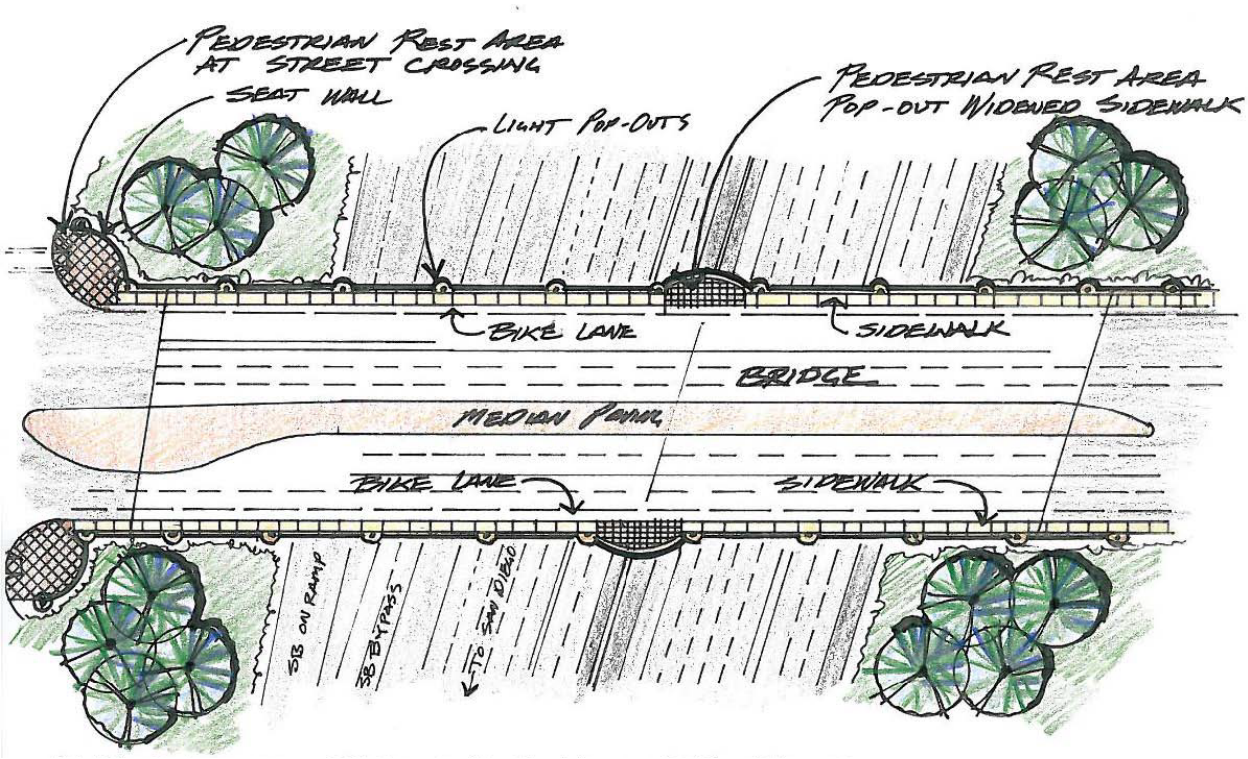


Figure 3.8-30 **Overhead View of Proposed Del Mar Heights Bridge Reconstruction**

Because the bridge would be viewed from both the northbound and southbound upward incline, it would be visible and potentially memorable transition element that provides a sense of the communities it connects. Therefore, the bridge structure would combine the simple form design of the highway level below and intriguing detail from above to connect with the surrounding communities.

Key pedestrian features may include a 12-foot sidewalk, fencing, lighting fixtures, sidewalk paving enhancements (such as grid paving), seating alcoves, protection from traffic, and artistic elements to provide a comfortable pedestrian experience and better separation from traffic. A low concrete barrier between the sidewalk and roadway would promote pedestrian safety and comfort. The bridge would be consistent with the *I-5 North Coast Corridor Transportation and Resource Enhancement Program and Highway Public Works Plan (Caltrans and SANDAG 2010)*.

Signage and Lighting

Signage and lighting along the freeway could obstruct views and create a strongly negative visual impact, resulting in a decrease in visual quality. The following design concepts would be implemented to mitigate visual impacts associated with the proposed project.

Placing signage, fencing, lighting and distracting railings and other vertical elements along the direct connectors would be avoided to prevent distracting elements that would be silhouetted against the sky or in front of distant views.

To the full extent that illumination safety requirements allow, lighting would be designed to remain peripheral to views and sight lines, and would be designed to remain in scale with perimeter planting and slopes.

Densely arrayed lamp clusters on massive, strongly colored poles would not be used, to avoid attracting attention to the lighting fixtures and detracting from views.

Signs would feature standard Caltrans white letters on a green background, and would be mounted on nonreflective galvanized tubular steel supports.

Although the structures, bridges, and walls could be enhanced with extensive aesthetic treatments to improve the public perception of their visual impact, the change in visual character and quality resulting from the proposed project still would be noticeable. This is because of the lack of space for installing and maintaining screen planting, landscape buffers, vine planting on walls, and the proximity of new traffic lanes to the surrounding homes and commercial structures. Caltrans' standard setbacks for tree planting would also limit the space allocated for trees within planting buffers. Without these visual buffers, not only would the visual character of the proposed project area be changed, but the I-5 transportation corridor would no longer be visually separated from the adjacent developed land uses. Because of the great amount of visual change, the Direct Connector Alternative could have a relatively large visual impact. The mitigation design features and principles are described in detail in the Landscape Concept Plans found in the VIA.

AUXILIARY LANE ALTERNATIVE (ALTERNATIVE 3)

Although the specific landscaping layout would vary, the Auxiliary Lane Alternative would implement the same design treatments as those described under the Direct Connector Alternative. With the exception of the Portofino Drive retaining wall variations and Portofino Circle local street realignment, the Auxiliary Lane Alternative would implement similar grading, retaining walls, soundwalls, paving, plantings, signage, and lighting along I-5 and SR-56. The enhancements to the Del Mar Heights Bridge overcrossing would also be the same. The mitigation design features and principles for the Auxiliary Lane Alternative is described in detail in the Landscape Concept Plans found in Attachment B of the VIA.

The following features would be unique to the Auxiliary Lane Alternative:

Soundwalls: Many of the existing soundwalls along the west side of I-5 may remain in place. The soundwalls consist of solid slump block walls, or view walls. The materials, colors, and forms for newly proposed walls would be consistent with existing walls.

Plantings along SR-56: Where space permits, oleander shrubs should be planted in the median to replace those removed for this project. It should be noted that planting of the median is a worker safety issue and requires the District Director's approval.

The additional planting space under this alternative would allow additional screen planting and provide more visual buffering on both sides of I-5, allowing the visual separation of the transportation corridor from adjacent land uses. Also fewer disturbances would occur to plantings along the edge of SR-56, although the screening would be greatly reduced in some areas. As such, the visual impact would be much less than the Direct Connector Alternative, and less than the Hybrid and Hybrid with Flyover Alternatives.

HYBRID AND HYBRID WITH FLYOVER ALTERNATIVES (ALTERNATIVES 4 AND 5)

Although the specific landscaping layout would vary, the Hybrid and Hybrid with Flyover Alternatives would implement the same design treatments as those described under the Direct Connector Alternative. With the exception of the Portofino Drive retaining wall variations and Portofino Circle local street realignment, the Hybrid and Hybrid with Flyover Alternatives would implement similar grading, retaining walls, soundwalls, paving, plantings, signage, and lighting along I-5 and SR-56. The enhancements to the Del Mar Heights Bridge overcrossing would also be the same. The mitigation design features and principles for the Hybrid and the Hybrid with Flyover Alternatives are described in detail in the Landscape Concept Plans found in Attachments C and D of the VIA.

The following features would be unique to the Hybrid and Hybrid with Flyover Alternatives:

Soundwalls: Many of the existing soundwalls along the west side of I-5 may remain in place. The soundwalls consist of solid slump block walls, or view walls. The materials, colors, and forms for newly proposed walls would be consistent with existing walls.

Both the Hybrid and Hybrid with Flyover Alternatives would match the Auxiliary Lane Alternative on the west and south sides of the intersection with corresponding visual impacts including retaining walls and a reduction in landscape screening areas between I-5 and adjacent residential areas to the west. However under the Hybrid Alternative, no south I-5 to east SR-56 connector structure or approach would be built. Because this would feature the higher of the two connectors, the direct visual impact of the taller structure would not be present under this alternative. Many of the existing trees and landscape buffers would remain between I-5 and the homes on Portofino Drive and Portofino Circle. As such, the visual effect of the Hybrid Alternative likely would be less than the Direct Connector Alternative and Hybrid with Flyover Alternative, but greater than the Auxiliary Lane Alternative.

On the west and south sides of the intersection, impacts to the Hybrid with Flyover Alternative would closely match the Auxiliary Lane Alternative including the retaining walls and a reduction in landscape screening areas between I-5 and adjacent residential areas to the west. Many of the existing trees and landscape buffers would remain between I-5 and the homes on Portofino Drive and Portofino Circle. However, unique to the Hybrid with Flyover Alternative, the Carmel Valley to SR-56 connector would replace the south I-5 to east SR-56 connector structure of the Direct Connector Alternative. The proposed flyover connecting Carmel Valley Road with SR-56 east would create an additional visual obstruction, visible from several approaches. This structure would contribute to the relatively greater visual impact of the Hybrid with Flyover Alternative when compared with the Hybrid Alternative. Therefore, the visual effect of the Hybrid Alternative with Flyover would be less than the Direct Connector Alternative and Hybrid Alternative but greater than the Auxiliary Lane Alternative.

3.9 CULTURAL RESOURCES

3.9.1 REGULATORY SETTING

"Cultural resources," as used in this document, refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources are described below.

As amended, the National Historic Preservation Act (NHPA) of 1966, 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 (NRHP). Section 106 of the NHPA 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 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council on Historic Preservation, FHWA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans' projects, both state and local, with FHWA involvement. The PA implements the Advisory Council on Historic Preservation's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Pilot Program (23 CFR 773) (July 1, 2007).

Historical resources are considered under CEQA and California PRC Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet NRHP listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its ROW. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the SHPO before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the NRHP or are registered or eligible for registration as California Historical Landmarks.

3.9.2 AFFECTED ENVIRONMENT

The following technical reports were prepared for the proposed project:

1. Archaeological Survey Report (Bowden-Renna and Apple 2010)
2. Historic Property Survey Report (Meiser 2010)
3. Extended Phase I Report (Laylander 2011)
4. First Supplemental Historic Property Survey Report (Crafts 2011)
5. First Supplemental Archaeological Survey Report (Tsunoda 2012)
6. Revised First Supplemental Historic Property Survey Report (Tsunoda 2012)

These reports are confidential and are not available for public review. The results and conclusions are incorporated into this Draft EIR/EIS.

The archaeological Area of Potential Effects (APE) for the proposed project includes the Caltrans ROW on I-5 and SR-56 throughout the project corridor. This includes the ROW just south of the I-5/SR-56 interchange and the area north of the interchange past Del Mar Heights Road. The archaeological APE includes the ROW along SR-56 from I-5 east to just before the exit for Carmel Valley Road. Also included in the archaeological APE are proposed easements for soundwalls, a detention basin, and local street improvements outside of Caltrans ROW. The built environment (BE) APE includes the first row of properties immediately adjacent to the archaeological APE. Properties are not included within the BE APE when a frontage road separates the properties from the archaeological APE. Other project

features, such as utility relocations and construction staging areas, will be addressed in a separate supplemental historic property survey report once their exact locations are identified.

Cultural resource identification efforts within the project corridor included record searches, archival researches, pedestrian surveys, Native American consultations, forensic canine investigation, and limited archaeological excavation.

The record searches and archival research, which included the California Historical Resources Information System (CHRIS) database and Caltrans Cultural Resource Database (CCRD), conducted of the project corridor identified a total of 18 cultural resources within or immediately adjacent to the archaeological APE. No cultural resource listed on or eligible for the NRHP or CRHR was identified as a result of the record searches and archival research. Of these 18 cultural resources, two of them (CA-SDI-4617/H and CA-SDI-16653) could potentially be impacted by the proposed project; therefore further investigations were warranted. The remaining 16 cultural resources identified as a result of the record searches and archival research have been destroyed or determined ineligible for the NRHP.

CA-SDI-4617/H

CA-SDI-4617/H consisted of a prehistoric artifact scatter (prehistoric component) and a historic cemetery (historic component). This site is situated immediately adjacent to, but outside of, Caltrans ROW. Archival research, including analysis of historic aerial photographs, clearly indicated that the entire site area except for the cemetery was destroyed by the surrounding development. A pedestrian survey identified that the historic component of this site appears to be intact. Although no project activity is proposed in the site area, the historic component of this site will be protected by the establishment of an ESA since it is situated immediately adjacent to Caltrans ROW.

CA-SDI-16653

Prehistoric site CA-SDI-16,653 represents the combination of CA-SDI-195 and -4629 (W-20). This site was the subject of extensive archaeological investigations over the years (Davis 1976, Laylander 1986, Smith and Moriarty 1985). Davis initially conducted an archaeological investigation at CA-SDI-4629 (W-20), which later became Locus I of the same site when Smith and Moriarty expanded the site boundary based on their investigation in the 1980s. During these investigations, human remains were recovered and subsequently reinterred. After Smith and Moriarty's investigation, the majority of the site was destroyed by development. In 2003, the South Coastal Information Center at San Diego State University combined CA-SDI-195 and -4629, and assigned a new trinomial, CA-SDI-16653. In the meantime, a portion of CA-SDI-4629 within Caltrans ROW was tested by Laylander in 1986, and found ineligible for the NRHP (SHPO concurrence in 1986).

Under the current proposed project, one of the recommended soundwalls is situated within Locus I of CA-SDI-16653. This soundwall is proposed to replace an existing property wall. Although Locus I of CA-SDI-16653 was destroyed by development, Caltrans acknowledged Native American concerns regarding possible presence of human remains in the existing fill material. Due to Native American concerns, a forensic canine investigation was conducted of the subject area, in conjunction with an Extended Phase I investigation (Laylander 2011). As a result of these investigations, no human remains were encountered.

Caltrans proposes to replace the existing property wall with a soundwall within the same footprint. The results of a topographical analysis, in conjunction with the Extended Phase I, indicated that no intact cultural deposits are present within the Area of Direct Impact (ADI), and therefore no adverse impact within the ADI is anticipated from the proposed soundwall construction activities. Upon the request from a Native American, construction activities within the ADI will be monitored by a qualified archaeologist and a Native American monitor, although no intact cultural resources are expected. Also upon the

request from a Native American, the area immediately east of the ADI will be protected by the establishment of an Environmentally Sensitive Area (ESA), and completely avoided by the proposed construction activities. These conditions (monitoring and ESA) were incorporated into the Environmental Commitments Record (ECR), as well as the Archaeological Monitoring Area (AMA)/ESA Action Plans, and will be in effect throughout the duration of the proposed project.

Section 106 Determination

Caltrans, as delegated by the FHWA, determined that a finding of No Adverse Effect with Standard Conditions – ESA in accordance with Stipulation X.B.2 of the Section 106 PA is appropriate for the proposed project as currently proposed. The State Historic Preservation Officer (SHPO) was initially notified of this finding in accordance with Stipulation X.B.2.b of the Section 106 PA on October 25, 2011 when the First Supplemental HPSR (Crafts 2011) was submitted. The SHPO did not have any objection to Caltrans' finding. Subsequently, the SHPO was again notified of the finding on February 2, 2012, when the Revised First Supplemental HPSR (Tsunoda 2012) was submitted with the revised project details.

PRC Section 5024 Determination

Caltrans, as state lead agency, determined that a finding of No Effect is appropriate for the proposed project under PRC Sections 5024(f) and §5024.5 because no state-owned historical resource is present within the proposed project corridor.

3.9.3 ENVIRONMENTAL CONSEQUENCES

Build Alternatives

All build alternatives will result in a finding of No Adverse Effect with Standard Conditions – ESA in accordance with Stipulation X.B.2 of the Section 106 PA. With the establishment of an ESA, Caltrans will avoid any direct impacts to the areas surrounded by an ESA.

No Build Alternative

The No Build Alternative would not impact any cultural resources.

3.9.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

As an avoidance measure, Caltrans will establish an ESA around the area east of the ADI for the recommended soundwall within CA-SDI-16653 upon the request from a Native American. Also upon the request from a Native American, construction activities within the ADI at CA-SDI-16653 will be monitored by a qualified archaeologist and a Native American monitor. In addition, Caltrans will establish an ESA around the historic component of CA-SDI-4617/H (cemetery) for its protection.

It is Caltrans policy to avoid cultural resources whenever possible. An additional cultural resource study may be required if the project scope changes to include work not currently identified or areas not surveyed in this report. If previously unidentified cultural materials are un-earthed during construction, it is Caltrans' policy that work be halted in that area until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to PRC Section 5097.98, if the remains are thought to be Native American, the coroner would notify NAHC who would then notify the Most Likely Descendent

(MLD). At this time, the person who discovered the remains would contact the District 11 Environmental Analysis Branch D Chief so that Caltrans can work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC Section 5097.98 are to be followed as applicable.

PHYSICAL ENVIRONMENT

3.10 HYDROLOGY AND FLOODPLAINS

This section describes the regulations and policies affecting local hydrology and the Los Peñasquitos Lagoon and Carmel Valley Creek floodplain, and addresses the potential impacts of the proposed project alternatives on floodplains as designated by the Federal Emergency Management Agency (FEMA).

3.10.1 REGULATORY SETTING

Executive Order (EO) 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. FHWA requirements for compliance are outlined in 23 CFR 650 Subpart A. 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 impacted 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.”

3.10.2 AFFECTED ENVIRONMENT

Caltrans completed a Location Hydraulic Study (LHS) for the proposed project (*Carmel Valley Creek Location Hydraulic Study*, September 2009), and the LHS is incorporated by reference into this analysis. Impacts associated with water quality and localized stormwater are addressed in Section 3.11, Water Quality and Stormwater Runoff.

The proposed project site is located within the Los Peñasquitos Lagoon watershed basin. The elevations within the watershed range from sea level to approximately 2,887 feet above mean sea level. The North American Vertical Datum of 1988 (NAVD88) defines the range of water surface elevations to be between 13 and 95 feet in the proposed project area. Major water bodies within the watershed include Los Peñasquitos Lagoon, Carmel Valley Creek, Rose Creek, Tecolote Creek, Mission Bay, and the Miramar Reservoir.

The 15.7-square-mile Carmel Valley sub-basin flows through the valley in a westward direction from its headwaters on Black Mountain to the Los Peñasquitos Lagoon marsh area. Carmel Valley Creek was historically an ephemeral drainage; however, because of development within the upper watershed, the creek now supports year-round flow. The main channel of the creek basin has medium to dense vegetation, with less mature trees in most locations and scattered patches of reeds and light brush. In a flood event, the reeds would lay flat and the light brush would wash out. The banks feature thicker

timber along the left overbank, and uniform ground with short grass and limited weeds along the right overbank.

The proposed project site is located immediately adjacent to Carmel Valley Creek and near the eastern limits of Los Peñasquitos Lagoon. The 100-year flood boundary originally was taken from the FEMA Flood Boundary and Floodway Map (FBFM) numbers 06073C1328, 06073C1329, and 06073C1336 (effective date June 19, 1997). The 100-year peak discharges used for the LHS were obtained from bridge foundation plans (dated 1999) instead of FEMA Flood Insurance Rate Map (FIRM) studies because of outdated FEMA information. Additionally, the existing floodplain was analyzed using the Hydrologic Engineering Centers River Analysis System (HEC-RAS) and aerial topography.

An HEC-2 model was received from FEMA (dated April 15, 1993). However, the geography of the creek and the surrounding environs has changed since this HEC-2 model was done. These changes result from approval and implementation of SR-56. Attempts were made to salvage the existing model by matching the HEC-2 model to FIRM cross sections, but the model could not be regenerated with reasonable accuracy and a new existing conditions model was created using more recent topography. The new existing conditions model also incorporated both the proposed I-5 North Coast Corridor Project and the proposed Sorrento Valley Road Pedestrian Bridge. Based on these efforts and determinations, the proposed project engineers prepared an updated 100-year floodplain boundary, using the FEMA Corrected Effective Floodplain model. Figure 3.10-1 shows the differences between the FEMA FBFM and the updated 100-year floodplain using FEMA's corrected model. As shown in this figure, a clear distinction exists between the two floodplain boundaries. When developing and refining the design of the four build alternatives, the updated floodplain boundary was used because it more accurately reflects the existing conditions of the floodplain.

The analysis that follows includes a discussion of encroachments to both the updated floodplain boundary and the FEMA-mapped 100-year floodplain.

3.10.3 ENVIRONMENTAL CONSEQUENCES

The proposed I-5/SR-56 interchange project has four build alternatives that may be constructed near Carmel Valley Creek, just upstream from Los Peñasquitos Lagoon. Because the FEMA mapping has not been officially updated, this section includes a discussion of the environmental consequences based on the original FEMA 100-year floodplain as well as the updated floodplain boundary.

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

The No Build Alternative would not include any of the transportation improvements associated with the proposed build alternatives. The No Build Alternative would continue use of existing bridges in the study area, including the Carmel Valley Road Bridge, the Carmel Creek Road Bridge, the El Camino Real Bridge, the north-to-east SR-56 Truck Connector, the I-5 Bridge, the Carmel Valley Creek Sorrento Valley Road Bridge, and the west-to-south SR-56 Truck Connector. All of the existing bridge decks are above the floodplain and only their piers are within the FEMA 100-year floodplain. The effects of the piers have been accounted in the updated 100-year floodplain conditions.

DIRECT CONNECTOR ALTERNATIVE (ALTERNATIVE 2)

The Direct Connector Alternative proposes the construction of direct freeway-to-freeway connector structures in the westbound SR-56 to northbound I-5 and the southbound I-5 to eastbound SR-56 directions. The south-to-east connector structure would add piers near the right bank of the creek between I-5 and El Camino Real. The west-to-north connector structure would not be located within the floodplain and, therefore, would not result in impacts to the floodplain. This alternative also would add lanes and grading along eastbound SR-56, near Carmel Valley Creek.

The Direct Connector Alternative would be constructed nearest the creek. However, based on the original FEMA 100-year floodplain boundary, no rise in the water surface elevation of the existing Carmel Valley Creek floodplain or within the Los Peñasquitos Lagoon is anticipated to occur. All of the proposed improvements would be located within the original SR-56 floodplain encroachments. Figure 3.10-2 shows a delineation of the original FEMA 100-year and updated floodplain boundaries, the existing SR-56 area of encroachment, and a typical cross section for the Direct Connector Alternative. As reflected in this figure, the Direct Connector Alternative would not introduce any new floodplain encroachments. The figure shows specific areas where this alternative's features would encroach on the updated floodplain boundary and the original FEMA 100-year boundary. However, a registered engineer has determined that no new encroachments would occur on either of these floodplains.

AUXILIARY LANE ALTERNATIVE (ALTERNATIVE 3)

The Auxiliary Lane Alternative proposes the addition of an auxiliary lane at southbound I-5 between Del Mar Heights Road and Carmel Valley Road, and the addition of a multi-purpose lane to westbound SR-56 between Carmel Valley Road and I-5. This alternative would include improvements near the creek but would not add any piers to the creek banks. Similar to the Direct Connector Alternative, the Auxiliary Lane Alternative would not result any new floodplain encroachments (as shown in Figure 3.10-3).

HYBRID ALTERNATIVE (ALTERNATIVE 4)

The Hybrid Alternative is a combination of the Direct Connector Alternative and the Auxiliary Lane Alternative. This alternative proposes the construction of a westbound SR-56 to northbound I-5 direct connector and the south-to-east local street improvements featured in the Auxiliary Lane Alternative. Because the west-to-north direct connector structure would not be located within the floodplain, the potential impacts to Carmel Valley Creek from this alternative would be similar to the Auxiliary Lane Alternative and would not add any piers to the creek. Consistent with the alternatives described above, and as shown in Figure 3.10-4, the Hybrid Alternative would avoid new encroachments on the FEMA 100-year and the updated floodplain boundaries.

HYBRID WITH FLYOVER ALTERNATIVE (ALTERNATIVE 5)

The Hybrid with Flyover Alternative proposes the construction of a westbound SR-56 to northbound I-5 direct connector and the addition of a flyover structure that would connect eastbound Carmel Valley Road to eastbound SR-56. Neither structure would be located within Carmel Valley Creek or would add any piers to the creek banks. This alternative proposes local street improvements and grading along eastbound SR-56. Similar to the three other build alternatives, the Hybrid with Flyover Alternative would avoid new floodplain encroachments (Figure 3.10-5) on the original FEMA 100-year and the updated floodplain boundaries.

SIGNIFICANT ENCROACHMENT

FLOODPLAIN BOUNDARY AND WATER SURFACE ELEVATION

The proposed I-5/SR-56 interchange project build alternatives would not add any piers or fills to the floodplain or alter the topography within the 100-year floodplain in any way. None of the build alternatives would result in a new significant encroachment into the floodplain. The functionality of the interchange and freeways would be improved without causing water surface elevations to rise, and without causing any increased risk to life or property within the floodplain.

RISKS OF THE ACTIONS

The HEC-RAS model for this project was done based on well-developed designs of each proposed build alternative. All four build alternatives show considerable distance between the floodplain and the actual proposed project construction. No new structures, piers, additional lanes, or grading would encroach on the existing 100-year floodplain boundaries. Therefore, the proposed project would not result in any significant risks associated with its implementation.

IMPACTS ON NATURAL AND BENEFICIAL FLOODPLAIN VALUES

Because no significant encroachments associated with the build alternatives would occur and the effects of the proposed project would be localized at eastbound SR-56, far above the 100-year floodplain and within the far right creek bank, natural and beneficial floodplain values would not be impacted.

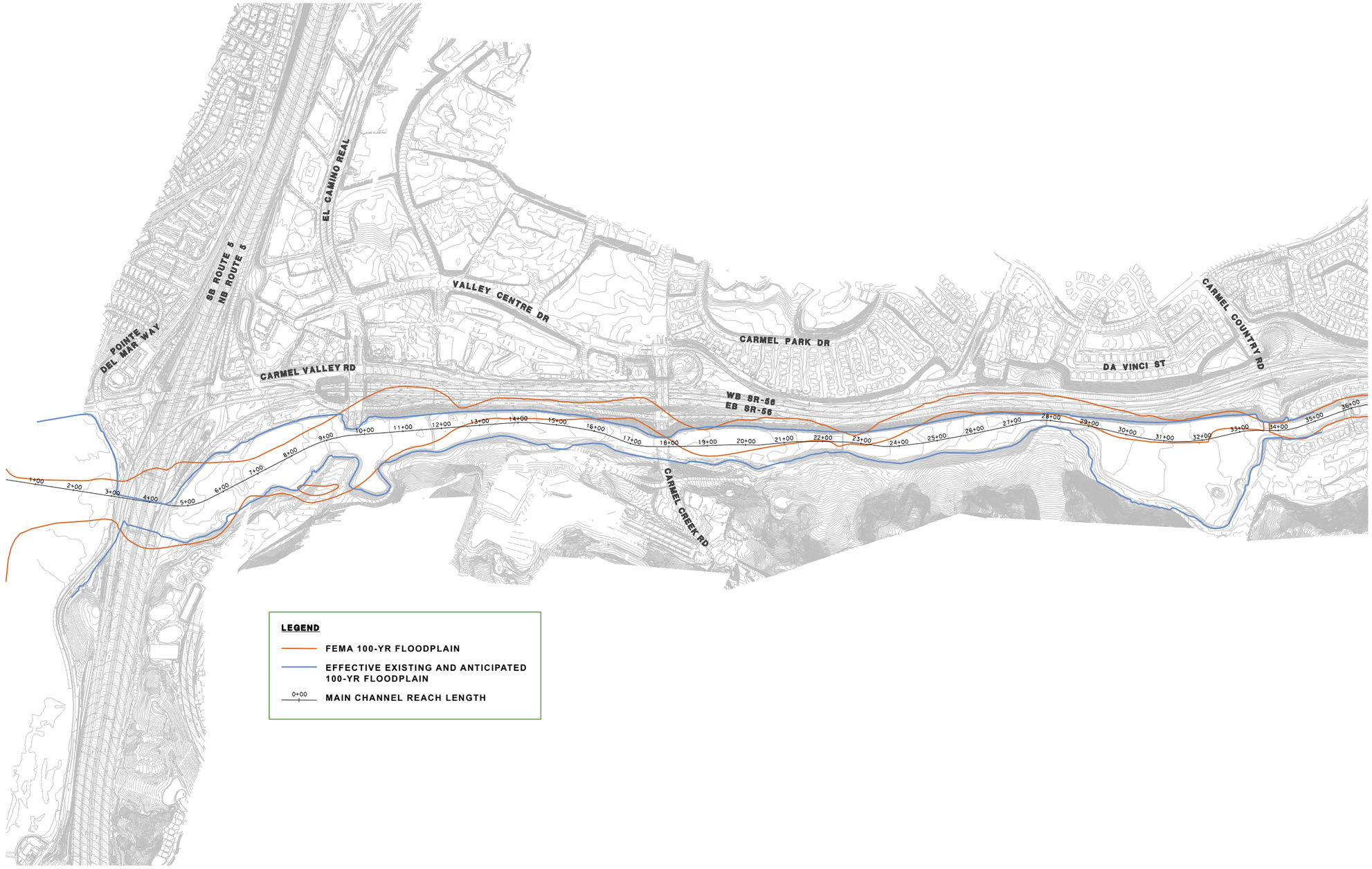
SUPPORT OF INCOMPATIBLE FLOODPLAIN DEVELOPMENT

None of the proposed build alternatives would support incompatible development. No new access and no direct access to the floodplains would be provided by the build alternatives.

As discussed above, roadway improvements associated with the four proposed build alternatives would all fall within existing SR-56 floodplain encroachments. The proposed project would avoid any new encroachment on the updated floodplain boundary or effects on the water surface elevation. Flooding risks associated with proposed project implementation also would be avoided. The proposed project would not result in impacts on natural and beneficial floodplain values, and no support for incompatible floodplain development would be realized from proposed project implementation.

3.10.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

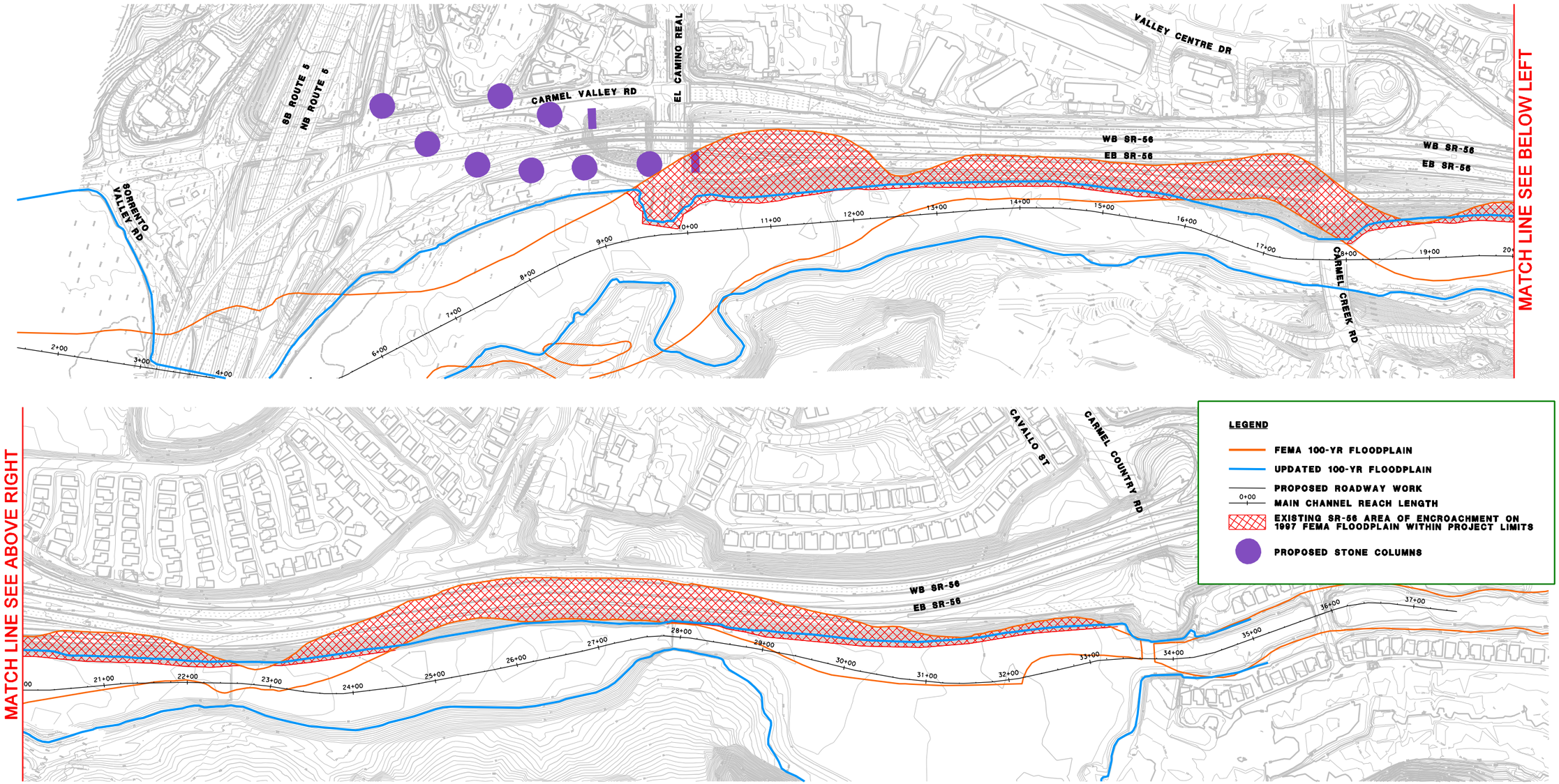
The four build alternatives are designed to avoid new encroachments on both the current FEMA 100-year floodplain and the updated floodplain boundaries. No mitigation measures are necessary.



Source: Dokken 2009

No Scale

Figure 3.10-1
Floodplain Boundary

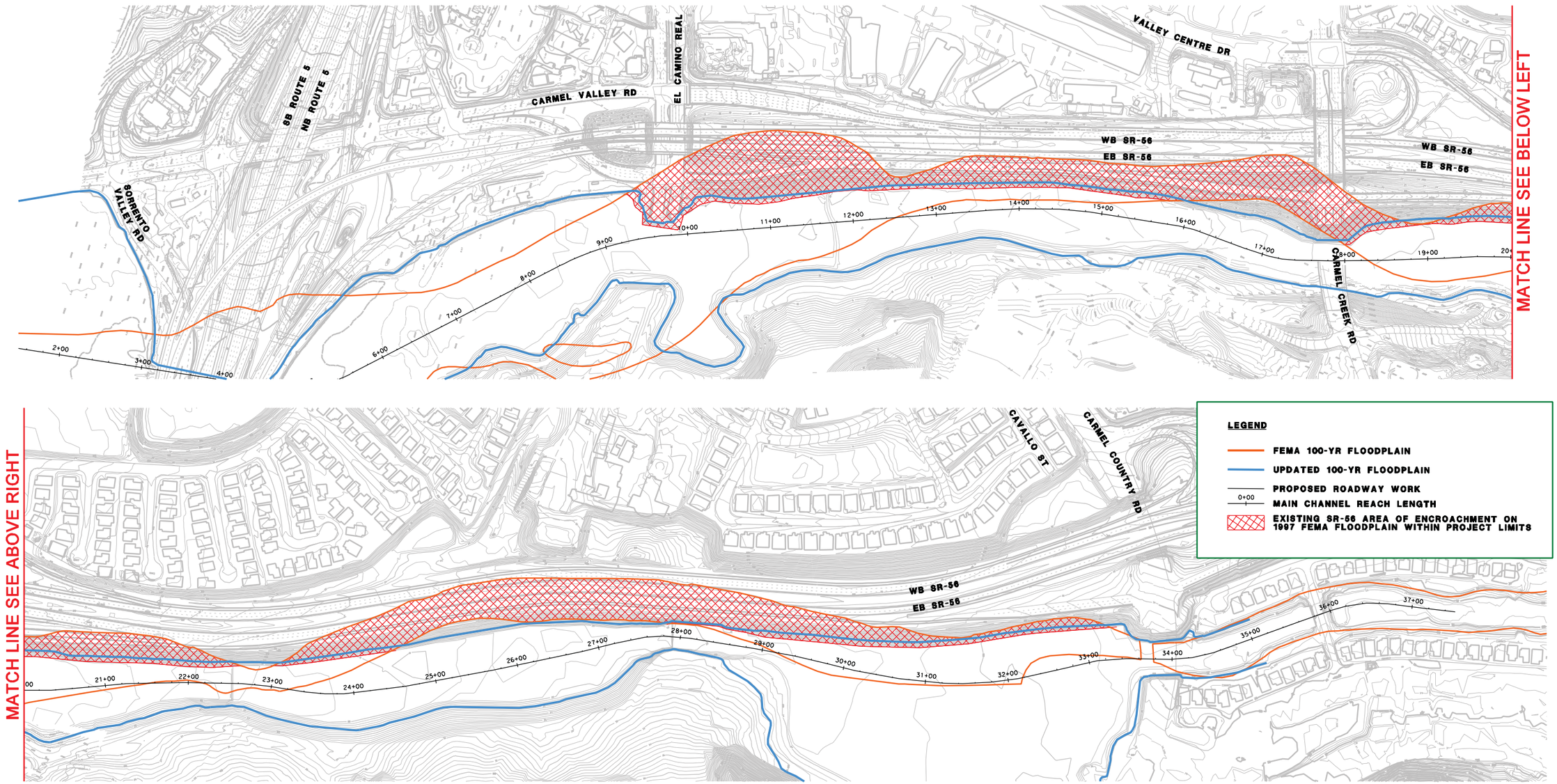


Source: Dokken 2011

Scale: 1:5000

Figure 3.10-2

Area of Encroachment on 1997 FEMA Floodplain
Direct Connector Alternative

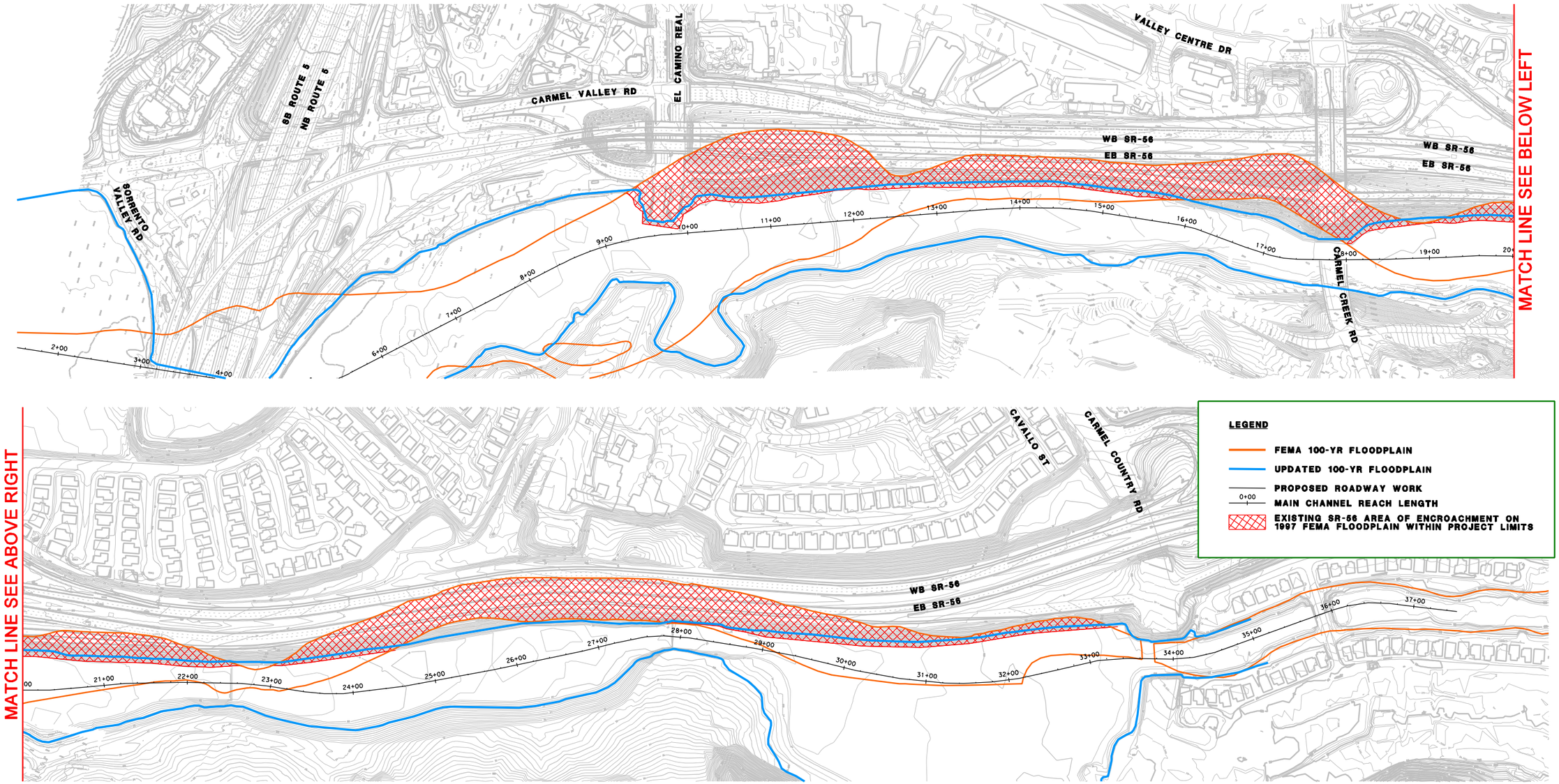


Source: Dokken 2011

Scale: 1:5000

Figure 3.10-3

Area of Encroachment on 1997 FEMA Floodplain
Auxiliary Lane Alternative

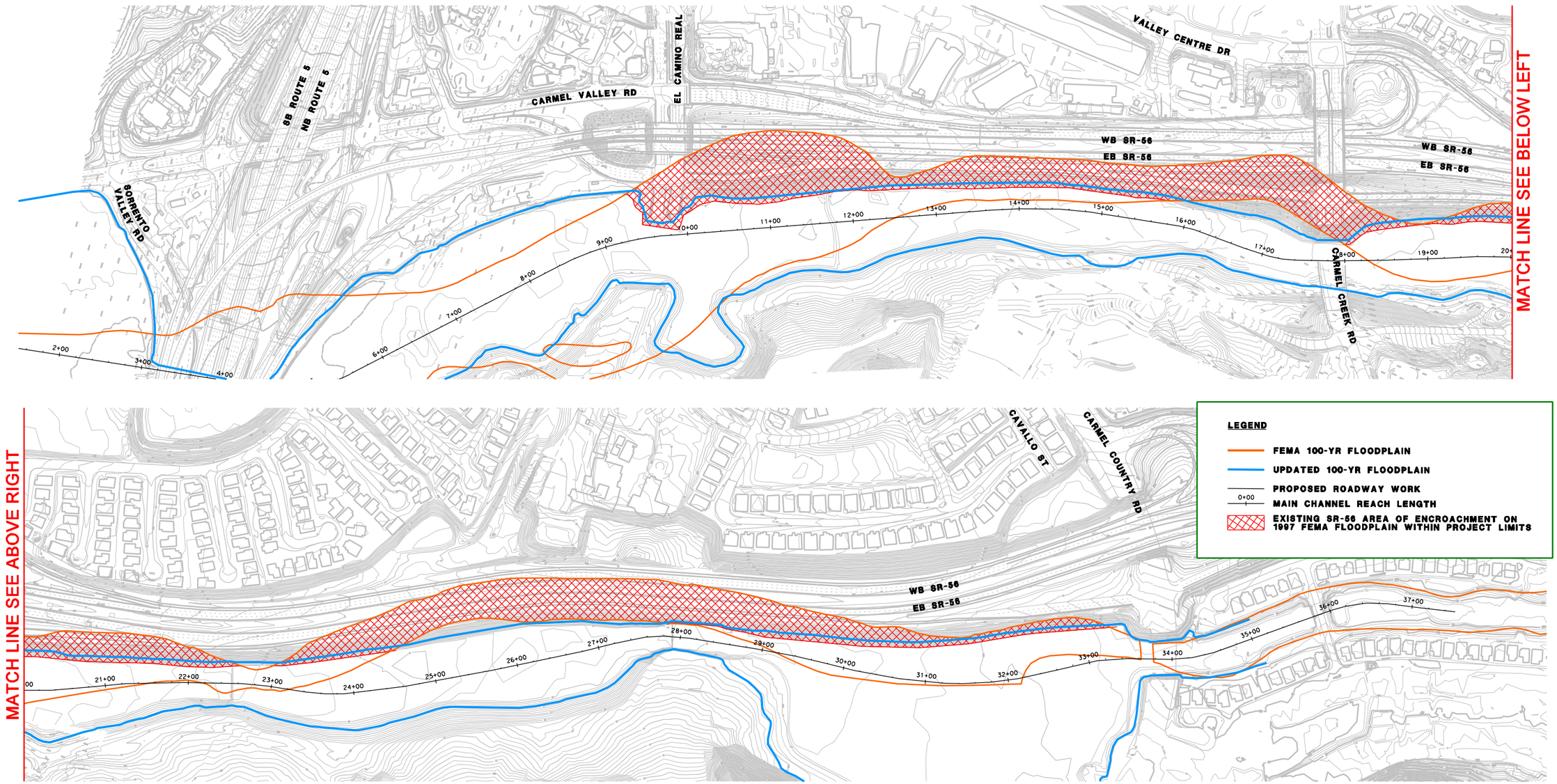


Source: Dokken 2011

Scale: 1:5000

Figure 3.10-4

Area of Encroachment on 1997 FEMA Floodplain Hybrid Alternative



Source: Dokken 2011

Scale: 1:5000

Figure 3.10-5

Area of Encroachment on 1997 FEMA Floodplain Hybrid With Flyover Alternative

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3.11 WATER QUALITY AND STORMWATER RUNOFF

This section describes the regulations and policies affecting local water quality and stormwater runoff and drainage, identifies impacts that may result from the proposed project, and recommends mitigation measures to reduce potential impacts where appropriate. Caltrans completed a Water Quality Report in October 2010, and created the support material for the following narrative sections.

3.11.1 REGULATORY SETTING

FEDERAL REQUIREMENTS: CLEAN WATER ACT

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

> *Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.*
>
> *Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the United States, to obtain certification from the state that the discharge will comply with other provisions of the act. [Most frequently required in tandem with a Section 404 permit request. See below.]*
>
> *Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the United States. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of stormwater 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 (USACE).*

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

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

Two types of Standard permits are issued—Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide permit may be permitted by one of USACE’s Standard permits. For Standard permits, the USACE decision to approve is based on compliance with the U.S. Environmental Protection Agency’s (USEPA) Section 404(b)(1) Guidelines (USEPA CFR 40 Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by USEPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least

environmentally damaging practicable alternative (LEDPA), to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences. Per Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4.

STATE REQUIREMENTS: PORTER-COLOGNE WATER QUALITY CONTROL ACT

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just Waters of the U.S., like groundwater and surface waters not considered Waters of the U.S. Additionally, it prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant". Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

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

STATE WATER RESOURCES CONTROL BOARD AND REGIONAL WATER QUALITY CONTROL BOARDS

The SWRCB administers water rights, water pollution control, and water quality functions throughout the state. RWQCBs 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 System Program

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater dischargers, including Municipal Separate Storm Sewer Systems or MS4s. USEPA 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 stormwater, that are designed or used for collecting or conveying stormwater. The SWRCB has identified Caltrans as an owner/operator of an MS4 by the SWRCB. This permit covers all Caltrans' right-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for 5 years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit, under revision at the time of this update, contains three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);

2. Caltrans must implement a year-round program in all parts of the State to effectively control stormwater and non-stormwater discharges; and

3. Caltrans stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs) and other measures.

To comply with the permit, Caltrans developed the Statewide Stormwater Management Plan (SWMP) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing stormwater management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed I-5/SR-56 interchange project would be programmed to follow the guidelines and procedures outlined in the latest SWMP to address stormwater runoff.

Part of and appended to the SWMP is the Stormwater Data Report (SWDR) and its associated checklists. The SWDR documents the relevant stormwater design decisions made regarding project compliance with the MS4 NPDES permit. The preliminary information in the SWDR prepared during the Project Initiation Document (PID) phase will be reviewed, updated, confirmed, and if required, revised in the SWDR prepared for the later phases of the project. The information contained in the SWDR may be used to make more informed decisions regarding the selection of BMPs and/or recommended avoidance, minimization, or mitigation measures to address water quality impacts.

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ, adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates stormwater discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are part of a common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the 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 RWQCB. Operators of regulated construction sites are required to develop stormwater pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater 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 Stormwater Pollution Prevention Plan (SWPPP). In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water body 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 CWA Section 404 permits issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements (WDRs) under the State Water Code that define activities, such as the inclusion of specific Features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

3.11.2 AFFECTED ENVIRONMENT

The San Diego RWQCB encompasses most of San Diego County, and parts of Riverside and Orange County. The region is divided into 11 major hydrologic units, 54 hydrologic areas, and 147 hydrologic subareas. Hydrologic units are the entire watershed of one or more streams, hydrologic areas are major tributaries and/or major groundwater basins within the hydrologic unit, and hydrologic subareas are major subdivisions of hydrologic areas including both water bearing and non-water bearing formations.

The State Water Resources Control Board adopted Order No. 99-06–DWQ, NPDES No. CAS000003 NPDES Permit Statewide Storm Water Permit and Waste Discharge Requirements (WDRs) for the State of California, Department Of Transportation (Caltrans) properties, facilities and activities herein referred to as Permit. The permit requires the Department to implement a Storm Water Management Plan, SWMP; which purpose is to protect and achieve water quality standards at all times. The minimum requirement is to ensure that pollutants in discharges from storm drain systems owned or operated by Caltrans are reduced to the maximum extent practicable (MEP) and that pollutants in discharges from construction activities covered by the Construction General Permit are reduced by employing Best Available Technology/Best Conventional Technology (BAT/BCT) performance standards. The MEP analysis is the process of evaluating the selected BMPs based on legal and institutional constraints, technical feasibility, relative effectiveness, and cost/benefit ratio.

The proposed project is located within the Los Peñasquitos Hydrologic Unit (906), which encompasses the Los Peñasquitos Creek watershed (906.10–906.20), several coastal tributaries (906.30), and the Mission Bay watershed (906.40–906.50). The proposed project is located within the Miramar Reservoir hydrological subarea 906.10 (see Figure 3.11-1). The watershed is highly urbanized and includes approximately 100 square miles of portions of San Diego, Poway, and Del Mar. The receiving water bodies for the proposed project include Carmel Valley Creek and Los Peñasquitos Lagoon. Surface water within the proposed project study area flows year-round in the creek and lagoon. The proposed project would not cross Carmel Valley Creek or Los Peñasquitos Lagoon, nor would it encroach on their respective floodplains.

One of Caltrans' water quality objectives is to protect beneficial uses of all water bodies in the vicinity and downstream of the proposed project. According to the San Diego Basin Plan, existing and potential beneficial uses for the receiving water bodies include the following:

- ***Agricultural Supply.*** This includes uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing. Existing for Carmel Valley Creek.

- ***Industrial Service Supply.*** This includes uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re- pressurization. Existing for Carmel Valley Creek.

- ***Contact Water Recreation.*** This includes uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs. Potential for Carmel Valley Creek and Existing for Los Peñasquitos Lagoon.

- ***Noncontact Water Recreation.*** This includes uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities. Existing for Carmel Valley Creek and Los Peñasquitos Lagoon.

- ***Warm Freshwater Habitat.*** This includes uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates. Existing for Carmel Valley Creek.

- ***Estuarine Habitat.*** This includes uses of water for estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., marine mammals, waterfowl, and shorebirds). Existing for Los Peñasquitos Lagoon.

- ***Marine Habitat.*** This includes uses of water for marine ecosystems including, but not limited to, preservation and enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g. marine mammals, shorebirds). Existing for Los Peñasquitos Lagoon.

- ***Wildlife Habitat.*** This includes uses of water for terrestrial ecosystems including, but not limited to, preservation or enhancement of terrestrial habitat, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food resources. Section 3.20, Plant Species, Section 3.21, Animal Species, and Section 3.22, Threatened and Endangered Species, discuss any wildlife habitat that may be impacted and what mitigation measures, if any, are needed. Existing for Carmel Valley Creek and Los Peñasquitos Lagoon.

- ***Preservation of Biological Habitats or Special Significance.*** This includes uses of water that support designated areas or habitats such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance (ASBS), where the preservation or enhancement of natural resources requires special protection. Existing for Los Peñasquitos Lagoon.

- ***Rare, Threatened, or Endangered Species.*** This includes uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant and animal species established under state and federal law as rare, threatened, or endangered. Existing for Los Peñasquitos Lagoon.

- ***Migration of Aquatic Organisms.*** This includes uses of water that support habitats necessary for migration, acclimatization between fresh and salt water, or other temporary activities by aquatic organisms, such as anadromous fish. Existing for Los Peñasquitos Lagoon.

- ***Spawning, Reproduction, and/or Early Development.*** This includes uses of water that support high-quality habitats suitable for reproduction and early development of fish. This is applicable only for the protection of anadromous fish. Existing for Los Peñasquitos Lagoon.

- ***Shellfish Harvesting.*** This includes uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, mussels) for human consumption, commercial, or sport purposes. Existing for Los Peñasquitos Lagoon.

The Los Peñasquitos Creek, Soledad Canyon, and the Los Peñasquitos Lagoon are on the San Diego RWQCB's 2006 CWA Section 303(d) List of Water Quality Limited Segments, which describes the water quality impairments, potential pollutant sources, and TMDL priority, as shown in Table 3.11-1. Listed 303(d) water bodies do not meet existing water quality standards. The Los Peñasquitos Creek is on the 303(d) list for Phosphate and Total Dissolved Solids (TDS), the Los Peñasquitos Lagoon is listed for sedimentation/siltation, and Soledad Canyon for Sediment Toxicity. For water bodies on the list, the law requires that priority rankings be established for the development of action plans, or TMDLs, to improve the water quality. No effluent limits exist for these water bodies; however, the San Diego RWQCB has been working with the Los Peñasquitos Lagoon dischargers (the cities of San Diego, Poway, and Del Mar, the County of San Diego, and Caltrans) to assign TMDLs for sediment discharges to the lagoon.

Table 3.11-1. TMDLs and 303(d) Listed Water Bodies in Hydrologic Subarea 906.10

Name	Pollutant/Stressor	Potential Source	Proposed TMDL Completion	Estimated Size Affected
Los Peñasquitos Lagoon	Sediment/Siltation	Nonpoint/point Source	2019	469 acres
Los Peñasquitos Creek	Phosphate	Source Unknown	2019	11.6 miles
Los Peñasquitos Creek	Total Dissolved Solids	Source Unknown	2019	11.6 miles
Soledad Canyon	Sediment Toxicity	Source Unknown	2019	1.7 miles

Source: Caltrans 2010b

Existing BMPs within the proposed project footprint consist of vegetation, riprap, two detention basins, infiltration basin, bio-swales, and two continuous deflective separation units. One detention basin is located east of I-5, southwest of the intersection of El Camino Real and High Bluff Drive. The other detention basin is located west of southbound I-5 between the I-5 and SR-56 connectors and Carmel Valley Road, and was constructed by Caltrans as part of the pilot program. An infiltration basin and biofiltration swale are located east of northbound I-5 and north of Del Mar Heights Road. The basins receive runoff from the Caltrans right-of-way and surrounding developments. The existing storm drains located within the proposed project area are both on-site and off-site systems. These systems convey stormwater flow from the surrounding hillsides into brow ditches and from the roadway into a series of inlets and pipes. At the northern portion of the I-5 segment of the project, runoff converges into brow ditches that discharge into Los Peñasquitos Lagoon. Runoff from the southern portion of I-5 converges into a triple 10-foot by 5-foot reinforced concrete box (RCB) culvert that drains in Carmel Valley Creek.

Along SR-56, two continuous deflective separation units exist south of eastbound SR-56 at Carmel Creek Road and at Carmel Country Road. Runoff from the slopes to the north of SR-56 along with freeway runoff is collected by inlets into an underground storm drain system, which drains into Carmel Valley Creek to the south of the roadway. These two continuous deflective separation units potentially would be impacted under the Direct Connector or Hybrid with Flyover Alternatives.

3.11.3 ENVIRONMENTAL CONSEQUENCES

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

No new additional impacts to water quality would occur associated with the No build alternative. At the northern portion of the I-5 segment of the project, runoff converges into brow ditches, which discharge into Los Peñasquitos Lagoon. Runoff from the southern portion of I-5 converges into a triple 10-foot by 5-foot RCB culvert, which drains into Carmel Valley Creek. At SR-56, runoff from the slopes to the north of the freeway along with freeway runoff is collected by inlets into an underground storm drain system that drains into Carmel Valley Creek to the south of the roadway. Under the No build alternative, roadway runoff would continue to flow as discussed above.

BUILD ALTERNATIVES (ALTERNATIVES 2 THROUGH 5)

The proposed project has the potential to impact water quality during both the construction and operation phases of the freeway. Potential sources of pollutants from construction activities could be generated from construction materials and activities. Examples of pollutants generated from construction materials include vehicle fluids, chemical compounds from construction materials, and general trash and debris. Examples of construction activities that have the potential to contribute pollutants include clearing, grading operations, soil import operations, sandblasting, landscaping, and excavation.

Sediment is a major and the most common construction pollutant. Erosion during construction can contribute large amounts of sediment to stormwater runoff, which can reach surface waters. The high disturbed slope areas result in higher erosion potential, which consequently can result in higher polluted runoff leaving the construction site. Temporary impacts were measured, based on the DSA associated with the clearing activities of the proposed project. The approximate temporary DSA for each of the build alternatives are 91.2 acres for the Direct Connector Alternative, 30.6 acres for the Auxiliary Lane Alternative, 64.0 acres for the Hybrid Alternative, and 78.8 acres with the Hybrid with Flyover Alternative. The temporary impacts of the Direct Connector Alternative are anticipated to be higher than the other build alternatives, and the Auxiliary Lane Alternative would have the lowest. Although the Hybrid and Hybrid with Flyover Alternatives have lower DSA than the Direct Connector Alternative, their impacts would still be comparable to the Direct Connector Alternative.

The potential pollutant sources that would need to be treated within the proposed project right-of-way primarily would come from highway runoff. These potential pollutants mostly would include Total Suspended Solids (TSS), specifically sediment resulting from erosion, but also would include particulate and dissolved metals from the wearing of brake pads and the combustion products of fossil fuels as well as grease and oil from automobiles. The proposed project is not anticipated to raise phosphate and TDS levels for pathogen transportation to Los Peñasquitos Lagoon.

Table 3.11-2 compares the existing and proposed pavement areas between the build alternatives. The Direct Connector Alternative proposes the highest percentage of additional impervious surface (27.1 percent), compared to the Auxiliary Lane Alternative that has the lowest (10.8 percent). The Hybrid and Hybrid with Flyover Alternatives have high percentages of additional impervious surface (21 and 23.3 percent, respectively) that are comparable to the Direct Connector Alternative. The more impervious area that a project has, the higher stormwater runoff velocities and less infiltration potential that exist. This consequently could result in stormwater runoff with higher pollutant concentrations leaving the proposed project site. All build alternatives would be thoroughly evaluated. The impacts would be minimized through the appropriate drainage design and the use of treatment BMPs.

Table 3.11-2. Comparison of Existing and Proposed Pavement Areas for the Build Alternatives

Alternatives	Existing Impervious Area (acres)	Proposed Additional Impervious Area (acres)	Total Impervious Areas (acres)	Percentage of Additional Impervious Areas
Direct Connector	102.5	38.1	140.6	27.1%
Auxiliary Lane	102.5	12.4	114.9	10.8%
Hybrid	102.5	27.2	129.7	21.0%
Hybrid with Flyover	102.5	31.1	133.6	23.3%

Source: Caltrans 2010b

3.11.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The statewide SWMP describes how Caltrans would comply with the provisions of the NPDES Permit (Order 99-06-DWQ). The SWMP describes the program Caltrans would implement to reduce the discharge of pollutants to the stormwater drainage system that serve the highway and highway-related properties, facilities, and activities. The SWMP divides the programs into BMPs that would be implemented to address water quality impacts during the planning, design, construction, operation, and maintenance stages of the proposed project. The following BMPs would minimize impacts to water quality:

DESIGN POLLUTION PREVENTION BMPS

Design Pollution Prevention BMPs are permanent measures that reduce pollution discharges after construction is complete. Design Pollution Prevention BMPs have the following objectives to minimize potential impacts to water quality: prevent downstream erosion, stabilize disturbed soil areas, and maximize vegetated surfaces consistent with existing Caltrans policies. During the proposed project development process, expected stormwater runoff into the project site would be calculated and, where possible, appropriate control measures (such as dikes and drainage inlets to stop concentrated flow and sediment) would be implemented to convey concentrated flows around or through the site in a manner that would not cause additional erosion.

The following measures would be implemented to ensure that runoff from the I-5 and SR-56 interchange would not adversely degrade downstream hydrologic conditions and stability:

- Consideration of downstream channel stability related to potentially increased flow would include to:
  - Make modifications to channel (both natural and man-made) lining materials, including vegetation, geotextile mats, rock and riprap
  - Add energy dissipation devices at culvert outlets
  - Smooth the transition between culvert outlets/headwalls/wing walls and channels to reduce turbulence and scour
  - Incorporate retention or detention facilities to reduce peak discharges
- Preservation of existing vegetation would include to:
  - Identify and delineate on contract documents all vegetation to be retained
  - Delineate areas to be preserved in the field before the commencement of soil disturbing activities

- Minimize disturbed areas by locating temporary roadway to avoid impacting existing vegetation and follow existing contours to reduce cutting and filling
- Consider impacts to adjacent vegetation that need to be preserved when removing vegetation

► Concentrated flow conveyance systems would include to:

- Design all BMPs under this category in accordance with the *Highway Design Manual* (see Chapter 813, Chapter 830 [Topics 836 and 834.4], Chapter 860, Chapter 820 [Topics 826 and 827], and Chapter 870)
- Consider outlet protection devices where localized scour is anticipated
- Evaluate the risk because of erosion, overtopping, flow backup or washouts when selecting design flows
- Consider run-on from off-site sources
- Line conveyances when velocities exceed permissible limits
- Use metal pipe downdrains on slopes 1:4 or flatter (For slopes flatter than 1:4, paved spillways would be used, and corrugated metal flumes with tapered entrance would be used on slopes 1:2 or flatter for low-flow rates.)

► Slope and surface protection systems would include to:

- Evaluate the project site based on soil type, climate, and topography for the selection of the appropriate vegetation and planting strategy. The vegetation cover would be selected to reduce concentrated flow depth and velocities and increase contact time between the runoff and the vegetation, which would improve infiltration and pollutant removal efficiency.
- Strip and stockpile topsoil (duff) and existing vegetation when feasible and use on the completed slopes before seeding application
- Use slope rounding, roughening, or stepping where feasible to reduce concentrated flows and enhance the effectiveness of temporary and permanent hydroseeding
- Implement hard surfaces in areas where it is difficult to maintain vegetation or when vegetation would not provide adequate erosion control because of slope or soil conditions, such as culvert outlets and gore areas
- Pave below bridge decks at abutments where it is difficult for vegetation to be established

CONSTRUCTION SITE BMPS

Water quality standards and waste discharge requirements during construction would be addressed in the proposed project design and construction phase and would comply with the most current NPDES Construction General Permit requirements set forth by the SWRCB. The statewide SWMP describes how Caltrans would comply with these provisions and establish BMPs for construction of the proposed facilities, including source, erosion, sediment, and non-stormwater controls to be installed and maintained throughout construction. Construction BMPs are temporary and are removed as permanent design and treatment BMPs are established. As part of the evaluations, pollution prevention, treatment, and construction BMPs were evaluated and would be incorporated into proposed project plans to minimize the potential for nonpermitted discharges. Additionally, the proposed project would comply with the new Construction General Permit (2009-0009-DWQ) provisions for all discharges. As required per the General Construction Permit, construction BMPs would be implemented by the proposed project's SWPPP to ensure effective reduction or elimination of sediment and other pollutants in stormwater and non-stormwater discharges.

Preservation (to the maximum extent possible) of existing vegetation would provide erosion and sediment control benefits. Temporary BMPs (i.e., soil stabilization, sediment control, wind erosion control, tracking control, non-stormwater management, and waste management and materials pollution control) would be implemented to contain both stormwater and non-stormwater discharges during construction.

Typical measures used during construction would include applications of fiber rolls for and sediment control, temporary construction entrances to prevent sediment from tracking on paved surfaces, temporary drainage inlet protection, desilting basins, temporary concrete washouts for concrete spoils, street sweeping and vacuuming, temporary silt fence, temporary check dams, and temporary hydraulic mulch for slope stabilization.

Other concerns would include potential pollutants from material storage and handling procedures. These would be addressed by incorporating appropriate control measures including, but not limited to, solid waste management, concrete waste management, proper practices for material delivery and storage, material use, hazardous waste management, water conservation practices, stockpile management, street sweeping, spill prevention control, and designated staging areas for material and equipment. Specifically, all equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any related activities would occur in designated areas and within the fenced project impact limits. These designated areas would be located in previously compacted and disturbed areas to the maximum extent practicable, in such a manner as to prevent any runoff from entering wetlands or waters, and would be shown on the construction plans. Fueling of equipment would take place within existing paved areas greater than 100 feet from wetlands or waters. Contractor equipment would be checked for leaks before operation and repaired as necessary.

MAINTENANCE BMPS

Caltrans' maintenance division performs various maintenance activities on different facilities to ensure safe and usable conditions for the public. Most of the maintenance activities for the proposed project would involve small crews with minimal soil disturbance.

Potential pollutants of concern that could result from Caltrans maintenance activities may include petroleum products, sediments, trash and debris, metals, acidic/basic materials, nutrients, solvents, waste paint, herbicides, pesticides, and others. Many of these pollutants would be prevented from being discharged into and via the stormwater drainage systems by selecting and implementing BMPs appropriate for the activity being conducted.

The SWMP provides guidance that addresses the implementation of stormwater BMPs during highway maintenance activities and activities conducted at maintenance facilities. General maintenance BMPs to be implemented would include scheduling and planning; spill prevention and control; sanitary and septic waste management; material use; safe alternative product use; vehicle and equipment cleaning, fueling, and maintenance; illicit connection detection, reporting, and removal; illegal spill discharge control; and maintenance facility housekeeping practices, using technology-based controls to attain maximum extent practicable pollutant control.

TREATMENT BMPS

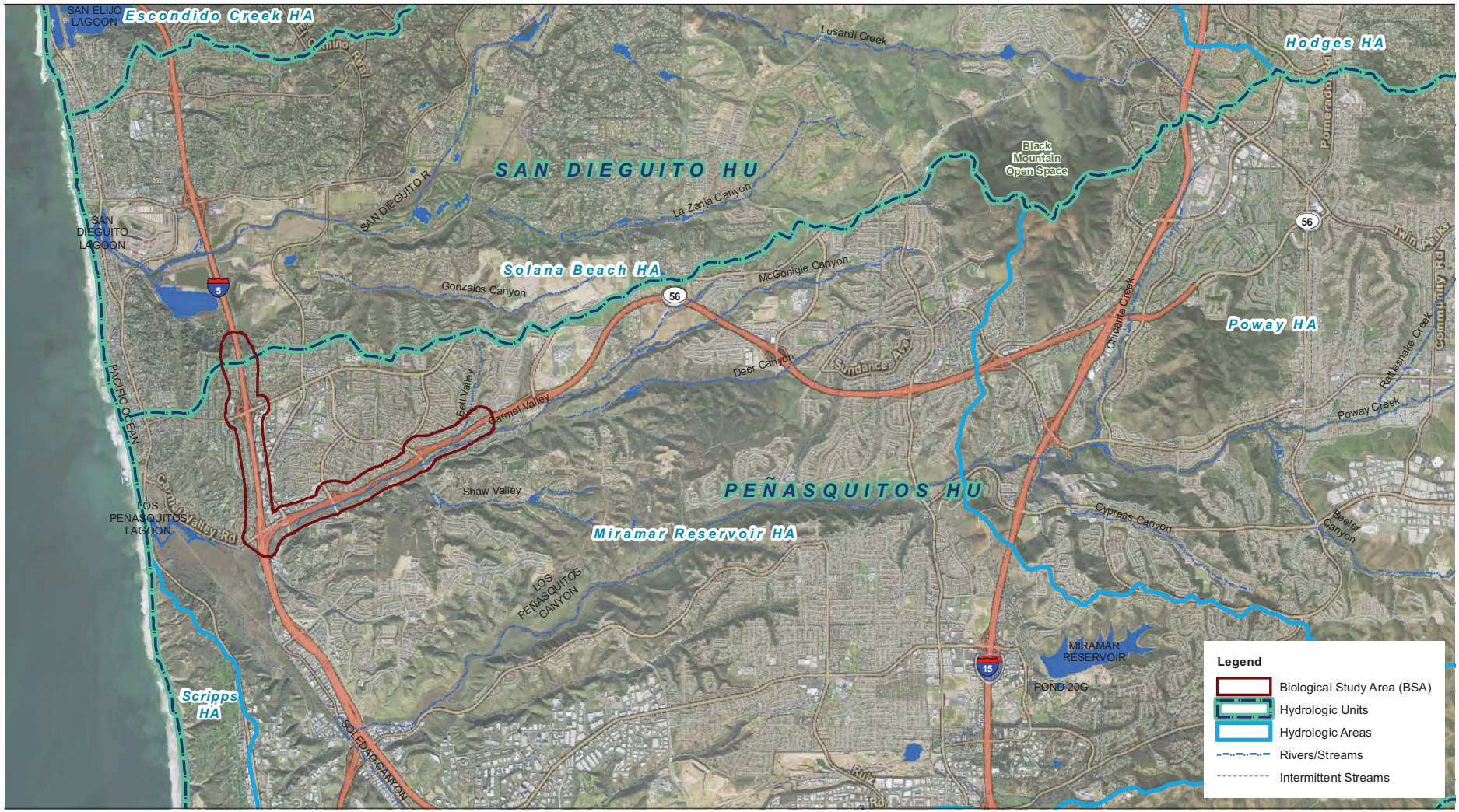
Treatment BMPs are permanent measures designed to improve and maintain stormwater quality after construction is completed. Runoff from the proposed project would be directed to the existing storm drain system and would include the appropriate upgrades as described next.

As required by the SWMP, biofiltration (strips/swales), infiltration devices, detention devices, traction sand traps, dry weather flow devices, gross solid removal devices, media filters, multi-chamber

treatment trains, and wet basins would be considered for the proposed project. These approved treatment BMPs are considered technically and fiscally feasible, and Caltrans has found them to be constructible, maintainable, and effective at removing pollutants to the maximum extent practicable. Of these BMPs, biofiltration, infiltration devices, and detention devices are the BMPs to be sited within the proposed project limits. Biofiltration strips and swales are vegetated sections of land or channels that help filter stormwater pollutants (mainly debris, solid particles, and some dissolved constituents) through grass, sedimentation, and adsorption into the soil. Infiltration basins are treatment devices designed to remove pollutants from surface discharges by capturing the water, temporarily storing it, then infiltrating it directly into the soil. Detention devices allow sediment and particulates in runoff to settle out before discharging into receiving water.

As the proposed project progressed through design, the locations of the treatment BMPs would be further evaluated to determine whether they could be incorporated or rejected because of right-of-way or environmental constraints. The project features maps in Chapter 2 (Figures 2-4a to 2-7f) show the preliminary location for a detention basin near the northeast quadrant of the I-5/SR-56 interchange and at the northeast quadrant of SR-56/Carmel Creek Road. Even if the sites were found not to be practicable locations, vegetation would be maximized throughout the area. Based on the environmental recommendations, a Caltrans erosion control specialist, in coordination with a Caltrans biologist and landscape architect, would determine the appropriate planting/seeding mix that would meet the water quality objective as well as the landscaping scheme of the area. Permanent erosion and sedimentation control features may include, but would not be limited to, planting, hydroseeding, permanent fiber rolls, and improvements of drainage facilities to handle excess runoff.

Additionally, existing treatment BMPs are within the proposed project limits that were previously constructed; however, any BMPs that would be impacted by the construction of the proposed project would be replaced with equivalent Caltrans-approved treatment BMPs, as discussed in the Water Quality Report. The volume of runoff estimated to be treated by the preferred BMPs would vary for each build alternative; the higher the volume of runoff being treated by BMPs, the lower the amount of pollutant concentrations leaving the project site. The Direct Connector Alternative is estimated to treat the highest volume of water, and the Auxiliary Lane Alternative would treat the lowest volume (56 percent and 39 percent, respectively). The Hybrid with Flyover Alternative is estimated to treat 50 percent, and the Hybrid Alternative is estimated to treat 48 percent of runoff water from the proposed project site.



Source: DigitalGlobe 2008; EDAW 2008; SanGIS 2009

1 0.5 0 1 Miles

Figure 3.11-1
Los Peñasquitos Creek Hydrological Subarea 906.10

3.12 GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY

3.12.1 REGULATORY SETTING

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

This section discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Caltrans Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to use the anticipated Maximum Credible Earthquake (MCE) from young faults in and near California. The MCE is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

Furthermore, this section discusses the impacts the proposed project would have to the geology and soils of the proposed project site. This section is based on the July 2009 Preliminary Geotechnical Report, prepared for the proposed project, and is incorporated by reference.

3.12.2 AFFECTED ENVIRONMENT

The northern portion of the proposed project study area (I-5 and Del Mar Heights Road) is located on an upland area between the San Dieguito Valley to the north and Carmel Valley and Soledad Valley to the south. The southern portion of the proposed project (I-5 and the SR-56 interchange to the SR-56 and Carmel County Road interchange) stretches along the lowlands of Carmel Valley.

TOPOGRAPHY

The prominent physical features in the proposed project study area are mesas eroded by streams to form canyons and arroyos. The more prominent canyons typically extend east/west and have streams draining into the Pacific Ocean. The smaller arroyos generally extend to the north and south, cutting through the mesas with small creeks that feed into larger streams. The mesas' elevations along the I-5 corridor typically range up to approximately 300 feet, and the stream and lagoon elevations are closer to sea level.

A small stream runs along the east side of El Camino Real, moving downhill to the south toward Carmel Valley. Two additional creeks run southward toward Carmel Valley Creek, one east and one west of Carmel County Road. A third creek parallels the west side of Carmel Country Road, south of Carmel Valley, flowing into Carmel Valley Creek.

The general topography of the proposed project area slopes downhill from Del Mar Heights Road toward Carmel Valley Creek, running west–southwesterly toward the Soledad Valley Lagoon and Pacific Ocean. The southern portion of the proposed project area is located on gently to moderately sloping ground within the Carmel Valley Creek floodplain, with steeper slopes on the upland areas north of Carmel Valley Creek along the SR-56 corridor. The native slopes generally range between 1:5 (vertical to horizontal) and approximately 1:2.5.

SLOPE STABILITY

Slope stability is a function of various factors, including slope geometry, soil and/or rock strength, geologic structure, degree of saturation and pore water pressure, and external loading. Most of the cut slopes within the proposed project limits are inclined at 1:2 or flatter and appear stable. Slope

inclinations of 1:2 are generally considered stable in this region, unless adverse conditions such as weak or adverse bedding planes, clay lenses, or existing landslides occur. Steeper slopes may be permitted where favorable geologic conditions exist. However, slopes with inclinations greater than 1:2 are typically difficult to landscape and maintain.

GEOLOGY

The proposed project study area is located within the Peninsular Ranges Geomorphic Province of California. The Peninsular Ranges Geomorphic Province is characterized by mountains, valleys, and associated faults and fault zones. The Peninsular Ranges Geomorphic Province encompasses an area that extends 125 miles, from the Transverse Ranges and the Los Angeles Basin, south to the Mexican border, and beyond another 795 miles to the tip of Baja, California. This geomorphic province varies in width from 30 to 100 miles and is underlain primarily by Cretaceous-age granitic rock.

Within the proposed project area, the upland areas, including the Del Mar Heights Road interchange with I-5, is primarily underlain by Eocene-age Torrey Sandstone, a white to light brown, medium- to coarse-grained sandstone. The Delmar Formation, which is stratigraphically older than the Torrey Sandstone, is located northeast of the I-5/SR-56 interchange, and is described as pale gray to white, marine, sandstone, clayey siltstone, and claystone. Landslides and surficial slope failures are commonly associated with this formation. The stratigraphically younger Bay Point Formation and Stream-Terrace Deposits (Late Pleistocene-age) overlie the Delmar Formation and Torrey Sandstone. The Bay Point Formation, consisting of poorly consolidated medium-grained, pale brown fossiliferous sandstone, lies just north of the I-5/SR-56 interchange and along the southern slope of Carmel Valley, west of Carmel Country Road in Carmel Canyon. Stream-Terrace Deposits have been found in the vicinity of Carmel Creek Road eastward to Carmel Country Road. The Stream-Terrace Deposits are generally described as poorly consolidated, conglomeratic sand deposits and coarse-grained sand.

The majority of the upland areas within the study area are covered by pavement, building construction, or landscaping. The surface of the Torrey Sandstone, exposed on the slope west of I-5 and south of Del Mar Heights Road, appears moderately weathered. The slope appears stable with no obvious slumps or slides between the Del Mar Heights overcrossing and the SR-56 interchange. Based on geologic mapping, the Bay Point Formation and Torrey Sandstone extend northwest-southeast and dip gently toward the northeast in the vicinity of the study area.

A portion of the I-5/SR-56 interchange is founded on recent artificial fill, which is underlain by Holocene-age alluvium and estuary deposits. The undifferentiated artificial fills are described as slightly compact to compact and typically range between 12 to 18 feet in thickness. These fills perform well at slope inclinations of 1:2; however, some large areas of settlement, or gradual sinking, have been detected, which may be the result of settlement of the underlying alluvial materials. The alluvial materials are poorly consolidated stream deposits of silt, sand, and cobble-size particles, while the estuary deposits are very loose to loose, silty sands and highly plastic clays. These alluvial soils may be susceptible to settlement and bearing capacity failure if overburdened.

The Delmar Formation and Torrey Sandstone formational soils within the proposed project area, found within the upland areas, generally consist of medium dense to dense (and occasionally loose) sands, silty sands, and silts. These soils typically provide adequate bearing capacity for structures and are suitable for re-use as engineered fill. The alluvial/fluvial deposits in the low lying areas may be subject to settlement and bearing capacity failures when additional loads are applied.

The degree of shrink and swell would depend on the amount of clay in the soil and the type of clay. The majority of the soils in the upland areas within the Torrey Sandstone and Bay Point Formation consist of non-plastic sands and silty sands that have a low shrink-swell potential. The low lying areas within

Carmel Valley and the Soledad Valley Estuary contain clay deposits with a moderate to high shrink-swell potential.

Compressible soils are not expected in the upland granular soils associated with the Torrey Sandstone and Bay Point Formation. However, the lowland areas within Carmel Valley and the Soledad Valley Estuary contain areas of soft/loose soils within the study area, which may be susceptible to settlement from loading because of structures and/or embankments.

Soils with a porous structure and low cohesion have the potential to collapse on saturation and/or loading. No indication of the presence of collapsible soil in the project area was found. As such, the potential for collapsible soil in the proposed project area would be low.

Subsidence is a general lowering of the ground surface. The primary causes of subsidence are groundwater withdrawal, settlement, and oxidation of peat deposits, and withdrawal of oil and gas. No record of damaging subsidence within the project area was found. Based on the relatively shallow depth to sedimentary rock in the upland areas and lack of recognized significant subsidence in the alluvial soils, potential for significant subsidence within the proposed project area would be low.

GROUNDWATER

Various groundwater basins underlie east/west-spanning alluvium-filled valleys located along the western coast of San Diego County. Groundwater would be expected at shallow levels in the estuary and alluvial materials during the wetter months of December to April. Because of irrigation in the upland areas, groundwater in the form of springs and seeps may surface on the sides of slopes and at slope bottoms within the more permeable sandstone formations.

GEOLOGIC HAZARDS

The majority of the study area is situated in Landslide Susceptibility Areas considered Generally Susceptible, while the lowland portion of the study area is considered Marginally Susceptible. Generally Susceptible slopes are at or near their stability limits because of a combination of weak materials and steep slopes and do not currently contain landslide deposits. They have the potential to fail when adversely modified. Marginally Susceptible areas include gentle to moderate slopes where slope angles are generally less than 15 degrees. This area typically includes low-lying bottoms of broad valleys/basins and large elevated surfaces of Pleistocene terrace deposits. Landslides and other slope failures are rare within the proposed project area, although slope hazards are possible on some steeper slopes within the area or along its borders. Additionally, a limited area is considered Most Susceptible, and is situated just northeast of the I-5/SR-56 interchange, on the south-facing slope above Carmel Valley. Most Susceptible areas are generally located outside the boundaries of mapped landslides but are observed to have unstable slopes underlain by weak materials.

The potential for landslides in native slopes within or adjacent to the study area appears to be low. Existing highway cut slopes display no signs of instability. However, the potential for unstable slopes created by site grading and over-steepening of the existing slopes may occur and would require further analysis.

Erosion

In general, the potential for soil erosion within the study area ranges from slight in the Carmel Valley Creek channel to low in the floodplain and Soledad Valley Estuary to the south. The potential for soil erosion on the upland areas ranges from moderate to severe. Visual observations did not detect significant erosion features within the study area. However, localized areas susceptible to water erosion would become evident during the rainy season. Additionally, erosion of the oversteepened cut slopes

existing south of the proposed project limits would have the potential to occur. Typically, the higher the cut slope, the more susceptible the slope is to erosion.

Seismicity

Seismicity relates to the earthquake activity within a particular area. Compared with other portions of California, the Peninsular Ranges region has had moderate seismic activity, based on historical records spanning almost 200 years.

A total of 208 earthquakes with magnitudes between 4.0 and 6.8 were identified within a radius of 63 miles of the proposed project study area. The maximum magnitude earthquake within the radius occurred in 1918, with an approximate magnitude of 6.8 and an epicenter located approximately 58 miles northeast of the study area. The closest recorded earthquake, with an estimated magnitude of 6.5, occurred in 1800 approximately 5 miles northwest of the proposed project site.

Holocene and Late Quaternary age faults within a 63-mile radius of the study area were identified to determine the ground shaking potential. In general, faults with Holocene ruptures are considered “active.” Late Quaternary or Quaternary age faults often are referred to as “potentially active.”

The Coastal Plain Region is traversed by several major active faults. The Newport-Englewood (offshore), Agua Blanca-Coronado Bank, and San Clemente faults are active faults located to the northwest and west-southwest. The local Rose Canyon fault zone, located west of the site, also has been recognized as active by the State of California. Major tectonic activity associated with these and other faults within this regional tectonic framework is right-lateral strike-slip movement. These faults, as well as other faults in the region, have the potential to generate strong ground motions at the proposed project site.

The Newport-Inglewood/Rose Canyon Fault Zone would have the greatest potential impact on the study area. The Rose Canyon and Newport-Inglewood (offshore) faults are Holocene right-lateral faults that, when combined, create a fault zone roughly 56 miles in length, with a slip rate between 0.03 and 0.08 inches per year. The fault zone is approximately 3 miles to the northwest of the proposed project alignment. This fault zone can produce an MCE event of magnitude 7.0, lasting 15 to 20 seconds.

No known or mapped Holocene or Late Quaternary faults project toward or directly through the study area. The area is not located near an Alquist-Priolo Earthquake Fault Zone. Surface rupture because of faulting within the study area would not occur unless some unknown faults were to rupture.

Liquefaction, Seismic Settlement, and Lateral Spreading

A portion of the study area is underlain by alluvial deposits within the Carmel Valley floodplain and one of the former upland tributaries near El Camino Real. These alluvial deposits have been generally described as silts, sands, gravels, and cobbles. Liquefaction would most likely affect areas where structures would be located within and adjacent to the floodplains of Carmel Valley and associated tributaries because of the anticipated presence of unconsolidated sands, silty sands, and non-plastic silts and, at certain times of the year, elevated groundwater levels.

A moderate to high potential exists for liquefaction within the tidal flat area at the western end of Carmel Valley and within the Soledad Valley Estuary. The estuarine and fluvial deposits have a moderate to high susceptibility to liquefy during seismic events.

As previously discussed, a relatively moderate to high potential exists for significant ground motions in the study area. Because of the anticipated medium-dense to dense nature of the underlying soils and relatively shallow depth of bedrock in the upland areas, the potential for seismic settlement would be

low in the upland portions of the study area. However, the loose granular soils and soft non-plastic silts and sandy silts within the Carmel Valley floodplain and Soledad Valley Estuary would be susceptible to seismic settlement during a significant seismic event.

The potential for liquefaction-induced lateral spreading of embankment fills over soft/loose alluvial/lagoonal soils in the low lying areas within Carmel Valley and the Soledad Valley Estuary is moderate to high during a significant seismic event. Previous embankment fills for I-5 and SR-56 within the tidal flat areas have been graded to maximum slope inclinations of 1:2 and include strut fills to provide additional lateral support. These embankments had additional surcharge loads during embankment construction to help accelerate settlement, minimizing post construction settlement, and to increase the density of the underlying native soils before roadway construction.

Tsunami and Seiche

The I-5/SR-56 interchange is more than 1 mile from the coastline, and the roadways are either supported by bridge structures or raised embankments approximately 20 to 30 feet above sea level. Therefore, tsunamis would not be a hazard to the proposed project. Although highly unlikely to experience a magnitude earthquake similar to the Japanese event of 2011, a large tsunami could impact the facility. No design modifications are proposed to accommodate such an unlikely event. For more information go to:
http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/SanDiego/Documents/Tsunami_Inundation_DelMar_Quad_SanDiego.pdf

With the absence of sizeable confined bodies of water within the study area, seiches would not be a hazard for the proposed project area.

3.12.3 ENVIRONMENTAL CONSEQUENCES

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

The No Build Alternative would not modify or reconstruct any bridge structures within the proposed project corridor. However, the I-5 NCC Project would move forward as planned and widen the existing eight-lane freeway to a 10-lane facility. It also would construct four HOV lanes in the median. Regular maintenance of the structures, roadway, and drainage facilities also would continue.

BUILD ALTERNATIVES (ALTERNATIVES 2 THROUGH 5)

Each of the build alternatives consists of a combination of activities that include the widening of roads and/or freeways, construction of new connectors and supporting structures, reconstruction of overpasses, and realignments of roads. As such, all of the activities would disturb the existing geological conditions of the study area. The following discusses the potential geological impacts encountered for the build alternatives.

During a significant seismic event, the proposed project area could experience secondary seismic effects including liquefaction, seismic settlement, and lateral spreading. Previous studies have determined that seismically induced slope failures likely would not pose a significant hazard to the study area. However, slope stability analysis would need to be performed for planned cut/fill slopes for the proposed project. Additionally, site-specific analysis would need to be performed, to determine the specific characteristics of the subsurface conditions at each structure/embankment location.

Slope stability is a function of various factors, including slope geometry, soil and/or rock strength, geologic structure, degree of saturation and pore water pressure, and external loading. Most of the cut slopes within the proposed project limits are inclined at 1:2 or flatter and appear to be stable. Slope

inclinations of 1:2 generally are considered stable in this region, unless adverse conditions are encountered, such as weak or adverse bedding planes, clay lenses, or existing landslides. Steeper slopes may be permitted where favorable geologic conditions are encountered (such as competent sedimentary formations or massive rock). However, slopes with inclinations greater than 1:2 typically are difficult to landscape and maintain. For final design, the overall stability of the various slopes within the proposed project limits would be analyzed using site-specific soil and rock data.

Groundwater would be expected at shallow levels in the estuary and alluvial materials during the wetter months of December to April at the proposed project site. Because of irrigation in the upland areas, groundwater in the form of springs would seep out of the sides of slopes and at slope bottoms within the more permeable sandstone formations. The presence of groundwater would be determined using site-specific subsurface investigations, and the effects of groundwater would be incorporated into temporary slope design on a case-by-case basis. Measures such as berms, swales, and diversion ditches would be incorporated to prevent surface water from irrigation and stormwater runoff from entering the excavations. The trench bottoms may become soft and would require pumping if excess water seeped into an open excavation.

A significant portion of the widening for I-5 and SR-56 within the proposed project limits would require the placement of embankment fill. The majority of the material needed to construct the fills would be derived from planned cut slopes within the proposed project limits. The majority of these cuts would provide granular soil, which is well suited for roadway construction. Lesser cuts that include silty and clayey soils could be blended with granular soils to provide acceptable materials for roadway construction.

The stability of an embankment is dependent on its slope angle, soil strength, saturation and pore water pressure, and external loading. For the roadway extension portions of the proposed project, fill slopes consisting of approved soil generally would be constructed at a gradient of 2:1 (horizontal to vertical) or flatter. However, adverse foundation soils (e.g., weak lagoonal or alluvial soils) may lead to embankment instability.

Embankment construction on formational soils in the upland areas likely would not produce significant settlement. However, the new embankment construction materials placed on the loose/soft alluvial soils of the low lying areas would cause settlement. A significant portion of this settlement would occur in the upper 50 feet of the existing site soils, and any existing utilities that were to remain would need to be checked to determine if they could withstand this settlement without being damaged.

Numerous retaining walls are expected to be constructed for both the I-5 and SR-56 portions of the proposed improvements. Once a preferred alternative has been determined, foundation studies analyzing the proper wall location would occur. The retaining wall design would be designed in accordance with Caltrans standards to meet stability and adequate drainage requirements.

As discussed above, any of the build alternatives would disrupt the geology of the proposed project area. All grading and roadway work would be performed in accordance with the Caltrans Standard Plans and Specifications. Final recommendations and special provisions would be based on the findings of subsurface exploration, testing, and analysis, presented in Caltrans geotechnical design and foundation reports. These reports would be based on accurate project features and alignments as they were established, and BMPs would be implemented during construction to reduce the potential geology and soils impacts.

3.12.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

All construction activities would adhere to the requirements of the City of San Diego, City of Del Mar, and the Caltrans HDM. The following are general avoidance and minimization measures that would be implemented to reduce potential adverse impacts relating to geological conditions of the proposed project area.

The relocation of existing utilities would be required for the proposed project. The utility excavations would follow the State of California construction safety orders from the California Division of Occupational Safety and Health (Cal/OSHA). Caltrans and its construction contractor would make themselves familiar with applicable local, state, and federal safety regulations, including existing Cal/OSHA excavation and trench safety standards.

For site preparation and grading operations, vegetation would be removed and surficial organic soils stripped before the installation of new pavements and other permanent structural improvements. Loose soil would be removed from the embankment footprint before fill placement. Clearing and grubbing operations and depressions left by any such removal would be backfilled, in accordance with the Caltrans Standard Specifications.

The proposed project area is underlain with Quaternary and Tertiary sedimentary rocks and Quaternary alluvium/colluviums and lagoonal deposits. Occasional hard rock excavation would be necessary in the sedimentary rock units. Future subsurface investigations for the proposed project would carefully log the cemented layers (and strata that present difficult drilling) in the sedimentary rock units, to help quantify potential hard rock excavation.

If unsuitable materials (such as organic, soft, and/or yielding soil) were encountered during the grading operations, these areas would be stabilized before fill placement or paving. Stabilization methods may include complete excavation and replacement, and/or installation of a fabric or geo-grid for additional stabilization. The depth and extent of required soil removal and remedial repair would be reviewed and approved in the field by an on-site geotechnical engineer.

The granular site soils derived from sedimentary formations are acceptable for use as fill material. Fine-grained cohesive soils that were encountered would not be acceptable for re-use as fill material and would be disposed off-site or used in non-structural applications.

An analysis of the slope stability of proposed embankments constructed over lagoonal/alluvial materials would be performed during future investigations, following the acquisition of site-specific subsurface data. Future slope stability models would consider both short-term (unconsolidated, undrained) and long-term (consolidated, drained) loading conditions.

Embankments would be protected from erosion caused by surface water or groundwater. Surface water would be directed to storm drain systems and not discharged over slope faces. Subsurface drainage devises would be installed where groundwater was present.

The presence of groundwater would be determined using site-specific subsurface investigations, and the effects of groundwater would be incorporated into temporary slope design on a case-by-case basis. Berms, swales, and diversion ditches would be incorporated to prevent surface water from irrigation and stormwater runoff from entering the excavations. The trench bottoms may become soft and pumping may be required if excess water is introduced into an open excavation.

A representative of the Geotechnical Engineer of Record would be present during project construction to observe all cuts, foundation subgrade, and embankment subgrade, to ensure that the standards would be appropriately enforced. A program of periodic surveying for ground movement would be included in project construction, where the potential for ground movement and failure may exist.

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3.13 PALEONTOLOGY

The following analysis describes existing paleontological resource conditions within the study area, identifies associated regulatory requirements, and evaluates potential impacts and mitigation measures related to implementation of the project.

3.13.1 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 (e.g., Antiquities Act of 1906 [16 USC 431-433], Federal-Aid Highway Act of 1960 [23 USC 305], and the Omnibus Public Land Management Act of 2009 [16 USC 470aaa]). Under California law, paleontological resources are protected by CEQA.

3.13.2 AFFECTED ENVIRONMENT

A Paleontological Resource Assessment report was prepared in June 2009 by the San Diego Natural History Museum (SDNHM). This report was conducted for the larger I-5 North Coast Corridor Project, and included a paleontological identification report, paleontological evaluation report, and a preliminary paleontological mitigation plan.

Research and published geologic maps indicate that the proposed project area is marked by elevated coastal terraces (mesas) punctuated by intervening river valleys. The oldest rock unit is the Delmar Formation which is overlain by the Torrey Sandstone, and is presumably underlain by Cretaceous sedimentary rocks and pre-Cenozoic crystalline basement rocks. The Delmar Formation and the Torrey Sandstone are middle Eocene in age. Exposures of these formations occur along the northern portion of I-5. Younger Pleistocene-age deposits of the Bay Point Formation are located along the southern portion of I-5 and at the I-5/SR-56 interchange. Younger alluvial deposits in the Coastal Plain of San Diego County occur in east-west river valleys. These post-Pleistocene, younger alluvial deposits are located along SR-56.

The Delmar Formation has yielded scientifically significant collections of estuarine invertebrates (e.g., clams, oysters, and snails) and estuarine vertebrates (e.g., sharks, rays, and bony fishes) well preserved aquatic reptiles (e.g. crocodile) and terrestrial mammals (e.g., tillodont and early rhinoceros) and is assigned a high paleontological resource sensitivity.

The Torrey Sandstone has produced important remains of fossil plants and marine invertebrates. Invertebrate fossils known from the Torrey Sandstone primarily consist of nearshore marine taxa (e.g., clams, oysters, snails, and barnacles). Vertebrate fossil remains are rare and include teeth of crocodiles, sharks, and rays. The Torrey Sandstone has been assigned a moderate paleontological resource sensitivity, because although vertebrate fossils are present, they are generally poorly preserved.

The marine deposits of the Bay Point Formation have produced large and diverse assemblages of marine invertebrate fossils such as mollusks, crustaceans, and echinoderms as well as sparse remains of marine vertebrates such as sharks, rays, and bony fish. The non-marine alluvial deposits of the Bay Point Formation have produced locally concentrated fossil remains of terrestrial mammals such as ground sloth, dire wolf, tapir, horse, deer, camel, mastodon, and mammoth. The Bay Point Formation has been assigned a high paleontological resource sensitivity.

Fossils are generally unknown from the younger alluvial deposits in the Coastal Plain of San Diego County. No fossils are reported from the younger alluvial deposits that occur along the project area.

Based on its post-Pleistocene age, younger alluvium is assigned a low paleontological resource sensitivity.

The records search reported 23 previously recorded paleontological fossil collecting localities within 0.5 mile of the study area. Fourteen of these localities were collected from strata of the Pleistocene-age Bay Point Formation and included fossil estuarine/lagoonal invertebrates (mollusks and crustaceans). No fossils have been reported from the younger alluvial deposits that occur within the study area.

3.13.3 ENVIRONMENTAL CONSEQUENCES

Direct impacts to paleontological resources occur when earthwork activities, such as mass grading operations, cut into the geological deposits (formations) within which fossils are buried. These direct impacts are in the form of physical destruction of fossil remains. Since fossils are the remains of prehistoric animal and plant life they are considered to be nonrenewable.

Impacts to paleontological resources are rated from high sensitivity to zero sensitivity depending upon the resource sensitivity of impacted formations. The specific criteria applied for each sensitivity category are summarized below:

HIGH SENSITIVITY

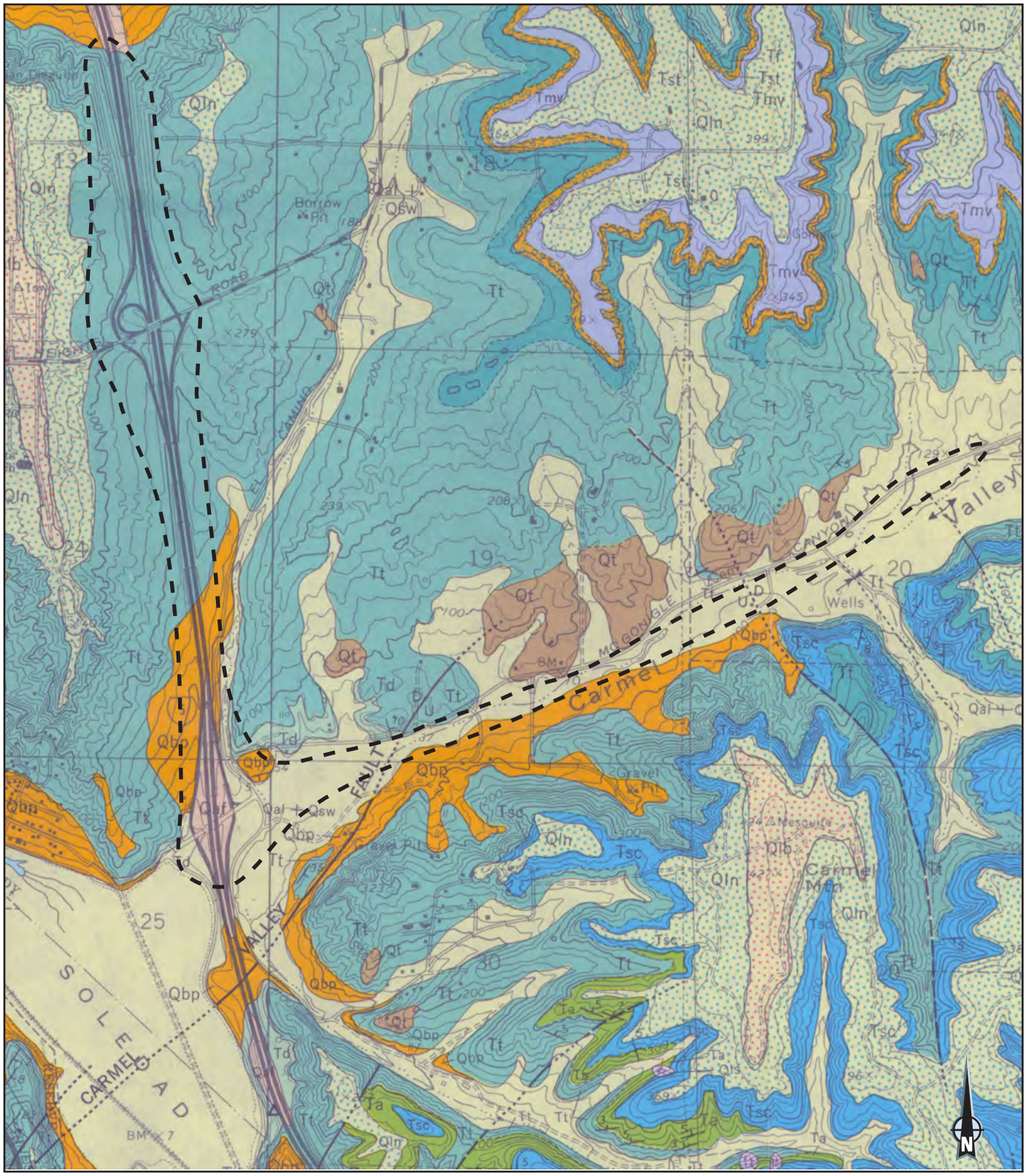
High sensitivity is assigned to geologic formations known to contain paleontological localities with rare, well-preserved, critical fossil materials for stratigraphic or paleoenvironmental interpretation, and fossils providing important information about the paleobiology and evolutionary history (phylogeny) of animal and plant groups. Formations that contain or are considered to have the potential to contain vertebrate fossil remains are generally assigned a high paleontological resource sensitivity because of the rarity of vertebrate fossils. Formations containing plants or invertebrates may also be assigned this ranking if the fossils produced are rare and/or unique. See Figure 3.13-1 for the mapping of Geologic Formations within project vicinity. Geologic formations that have been assigned a high paleontological resource sensitivity that crop out within the project area include the Eocene-age Del Mar Formation, and the Pleistocene-age Bay Point Formation.

MODERATE SENSITIVITY

Moderate sensitivity is assigned to geologic formations known to contain paleontological localities with poorly preserved, common elsewhere, or stratigraphically unimportant fossil material. The moderate sensitivity category is also applied to geologic formations that are judged to have a strong, but unproven potential for producing important fossil remains. The geologic formation that has been assigned a moderate paleontological resource sensitivity within the study area is the Eocene-age Torrey Sandstone.

LOW SENSITIVITY

Low sensitivity is assigned to geologic formations that, based on their relatively youthful age and/or high-energy depositional history, are judged unlikely to produce important fossil remains. Typically, low sensitivity formations produce poorly-preserved invertebrate fossil remains in low abundance. Due to the young age and coarse-grained nature of younger alluvium, these surficial sedimentary deposits are generally considered to have little potential to yield scientifically significant fossils. However, on occasion deeper excavations into sedimentary deposits mapped as younger alluvium penetrate into alluvial deposits of Pleistocene age and do yield fossils. For this reason sedimentary deposits mapped as younger alluvium are generally assign a low paleontological resource sensitivity. Sedimentary deposits of younger alluvium are the only unit that occurs within the study area that is considered to have a low paleontological resource sensitivity.



Scale 1:24000

Portion of the Del Mar, CA 7.5' USGS topographic guadrangle showing project study area and paleontological resource sensitivity (orange = high, blue = moderate, tan = low, and pink = zero). Based on geologic mapping of Kennedy 1975.

Figure 3.13-3-1
Paleontological Resource Mapping

ZERO SENSITIVITY

Zero sensitivity is assigned to geologic formations that are entirely igneous in origin (i.e., plutonic and/or volcanic except for volcanic ash), and therefore have no potential for producing fossil remains. Artificial fill materials are also assigned a paleontological resource sensitivity of zero. Limited exposures of artificial fill, laid down during the prior construction of improvements within the I-5 and SR-56 right-of-way, represent the only geologic unit that occurs within the study area that has been assigned a paleontological resource sensitivity of zero.

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

Under this alternative, no improvements or modifications would be implemented in the study area. Accordingly, no impacts to paleontological resources would be associated with this alternative.

DIRECT CONNECTOR ALTERNATIVE (ALTERNATIVE 2)

Construction of the Direct Connector Alternative would have the greatest potential to impact paleontological resources, as it would impact resources assigned both high and moderate resource sensitivity. This would include deposits with high resource sensitivity within the Bay Point Formation and Delmar Formation and moderate resource sensitivity within the Torrey Sandstone.

AUXILIARY LANE ALTERNATIVE (ALTERNATIVE 3)

Construction of the Auxiliary Lane Alternative would impact a smaller portion of those resources assigned both high and moderate resource sensitivity. This would include deposits with high resource sensitivity within the Bay Point Formation and Delmar Formation and moderate resource sensitivity within the Torrey Sandstone.

HYBRID ALTERNATIVE (ALTERNATIVE 4)

The Hybrid Alternative would include features of both the Direct Connector and Auxiliary Lane Alternatives, and would impact a smaller portion of high sensitivity deposits than the Auxiliary Lane Alternative. This would include deposits within the Bay Point Formation and Delmar Formation.

HYBRID WITH FLYOVER ALTERNATIVE (ALTERNATIVE 5)

The Hybrid with Flyover Alternative would have similar impacts to the Hybrid Alternative and potentially would impact deposits within the Bay Point Formation and Delmar Formation, which both have high resource sensitivity.

3.13.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Caltrans has a set of guidelines to reduce impacts to paleontological resources. These recommendations include avoidance of the areas of potential paleontological sensitivity minimization of the area of paleontological sensitivity impacted, and implementation of mitigation measures during construction. To avoid impacting potential paleontological resources within the proposed project area or to minimize the area impacted, it would be necessary to greatly reduce the volume of proposed mass grading activities under all the build alternatives. This would not be a viable solution, therefore mitigation measures will be implemented. A Paleontological Mitigation Plan (PMP) consistent with Caltrans' Standard Environmental Reference will be formulated to mitigate the proposed impacts.

Once specific design layouts for the proposed project elements and alternatives are available, details of the areas where mitigation is specifically required would be called out in a final PMP. Elements of the PMP would include:

1. A qualified paleontologist (as defined in the Caltrans' Standard Environmental Reference) would be at the pre-construction meeting to consult with the grading and excavation contractors concerning excavation schedules, paleontological field techniques, and safety issues. A qualified paleontologist is defined as an individual with a MS or Ph.D. in paleontology or geology who is familiar with paleontological procedures and techniques, who is knowledgeable in the geology and paleontology of San Diego County, and who has worked as a paleontological mitigation project supervisor in the county for at least one year.

2. A paleontological monitor would be on-site on a full-time basis during the original cutting of previously undisturbed deposits of high or moderate paleontological resource potential, and on-site on a part-time basis during the original cutting of previously undisturbed deposits of low paleontological resource potential (sedimentary deposits of younger alluvium), to inspect exposures for contained fossils. A paleontological monitor is defined as an individual who has experience in the collection and salvage of fossil materials. The paleontological monitor would work under the direction of a qualified paleontologist. As grading progresses, the qualified paleontologist and paleontological monitor will confer with the Resident Engineer regarding the level of effort needed and reduce the scope of the monitoring program to an appropriate level if it is determined that the potential for impacts to paleontological resources is lower than anticipated.

3. When fossils are discovered, the paleontologist (or paleontological monitor) would recover them. In most cases this fossil salvage can be completed in a short period of time. However, some fossil specimens (such as a complete large mammal skeleton) may require an extended salvage period. In these instances the paleontologist (or paleontological monitor) would consult with the Resident Engineer to temporarily, divert, or halt grading to allow recovery of fossil remains in a timely manner. Because of the potential for the recovery of small fossil remains, such as isolated mammal teeth, it may be necessary to set up a screenwashing operation on the site.

4. During the monitoring and recovery phases of the PMP the qualified paleontologist and/or the paleontological monitor would also routinely collect stratigraphic data (e.g., lithology, vertical thickness, lateral extent of strata, nature of upper and lower contacts, and taphonomic character of exposed strata). Collection of such data is critical for providing a stratigraphic context for any recovered fossils.

5. Fossil remains collected during monitoring and salvage would be cleaned (removal of extraneous enclosing sedimentary rock material), prepared, sorted (separating fossils of the different species), and cataloged (scientific identification of species, assignment of inventory tracking numbers, and recording of these numbers in a computerized collection database) as part of the mitigation program.

6. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, would be deposited in a scientific institution with permanent paleontological collections such as the San Diego Natural History Museum.

7. A final summary report would be completed that outlines the results of the mitigation program. This report would include discussions of the methods used, stratigraphic section(s) exposed and documented, fossils collected, and significance of recovered fossils.

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3.14 HAZARDOUS WASTE AND MATERIALS

This section discusses hazards and hazardous materials issues relevant to the proposed project site, including whether known or potential hazardous substances and/or wastes that would present a risk to the public or the environment exist within the proposed project limits.

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

- Community Environmental Response Facilitation Act (CERFA) 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 (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, EO 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 primarily under the authority of the Federal RCRA, 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.

3.14.2 AFFECTED ENVIRONMENT

The information provided in this section references the *Hazardous Waste Initial Site Assessment (ISA) Review for 5/56 Interchange Project* (Caltrans 2009b) that evaluated potential hazardous waste concerns at the proposed project site.

The ISA was prepared in accordance with the following Caltrans and FHWA guidelines and reviews:

- Available maps and environmental reports for the proposed project area
- Findings from site reconnaissance
- Regulatory agency databases/files
- Historical aerial photographs and topographic maps

The review done in preparation of the 2009 ISA included a field survey, database search, and review of Geotracker records. Geotracker is a database that is maintained by the State Water Resources Control Board and includes geographic information and data on underground fuel tanks, fuel pipelines, and public drinking water supplies, as well as information about leaking underground fuel tanks (LUFT). This database also includes information and data on non-LUFT cleanup programs, including Spills-Leaks-Investigations-Cleanups sites, Department of Defense sites, and Land Disposal programs. The Geotracker database is comprehensive and covers the types of facilities and sites required for listing under Government Code Section 69565.5.

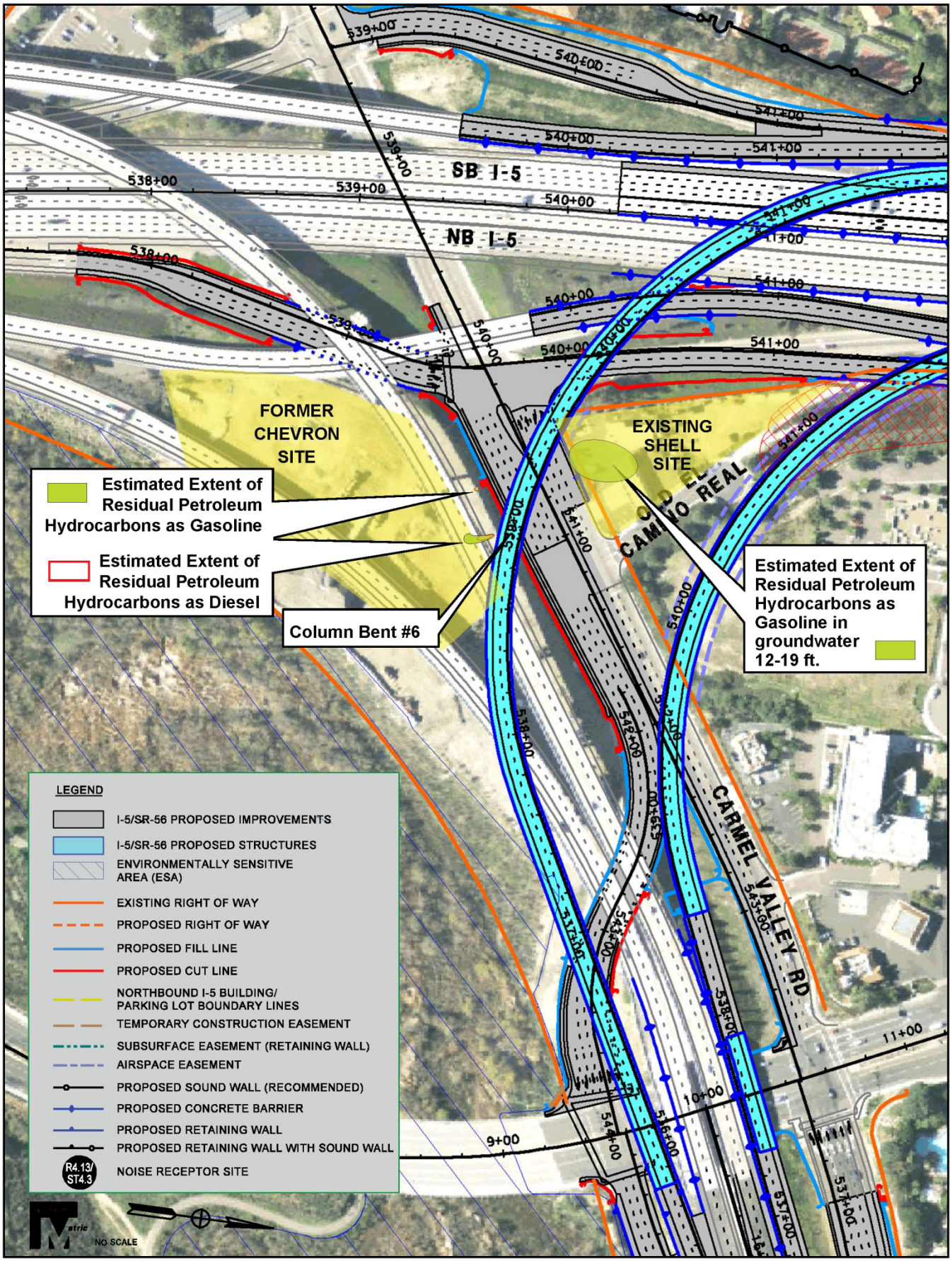
A visual reconnaissance of the proposed project site and vicinity also was conducted to identify areas of potential environmental concern. Publicly available historical records, including relevant aerial photographs and topographic maps were reviewed. Based on the site reconnaissance and records review, the following issues of potential environmental concern were identified:

- potential petroleum hydrocarbon and fuel oxygenate contamination in the soil and/or groundwater,
- potential lead and heavy metals contamination associated with the pavement striping on various roadways, and
- potential treated wood contamination from wood posts of guardrails and existing signage.

The 2009 ISA report discusses properties of potential environmental concern located on or in the vicinity of the proposed project site. Two properties located within or immediately adjacent to the site were identified (see Figure 3.14-1).

Shell Gas Station, 3060 Carmel Valley Road, San Diego

The issues of contamination on this site were closed with a “No Further Action” letter, written to the Shell Oil Company by the Department of Environmental Health on March 12, 2010. Petroleum hydrocarbons and fuel oxygenates were the contaminants of concern, but the plume is well defined and is being attenuated. The level of contamination for gasoline and diesel in the soil are non-detectable but the ground water has some gas and fuel oxygenates that range from non-detectable levels to 730 µg/L for TPH gas, and non-detect to 11 µg/L MTBE, and non-detect to 2,500 µg/L for TBA. None of the proposed alternatives propose to disturb the contamination in the ground water at this site. Ground water is approximately 12 feet below ground surface. The proposed impacts to this parcel are a retaining wall in the front of the parcel along Carmel Valley Road for all the alternatives. The mapping in Figure 3.14-1 shows the current estimation of ground water contamination from the former underground fuel tanks from this site. Site excavation is not proposed down to groundwater for any of the alternatives, it is not anticipated to encounter any contamination for any of the alternatives. Since none of the alternatives will disturb any of the contamination on this parcel, no regulatory involvement will be necessary and no remediation will be required. For the Hybrid with Flyover Alternative, Caltrans proposes to acquire this parcel. The Right of Way Acquisition Department would need to acquire indemnification of existing contamination if the Hybrid Flyover Alternative is chosen.



Estimated Extent of Residual Petroleum Haydrocarbons as Gasoline in Groundwater Figure 3.14-1

Former Chevron Station, 3063 Carmel Valley Road, San Diego

This parcel was a gas station prior to acquisition by Caltrans to build the existing I-5/SR-56 interchange (see Figure 3.14-2). There is currently an open LUST case with the RWQCB concerning contamination of petroleum hydrocarbons and fuel oxygenates. The plume is delineated and is being attenuated. Chevron is currently the responsible party for the cleanup of the former Chevron station and is currently in the process of waiting for approval from the Department of Environmental Health (DEH) on a work plan to conduct further groundwater site assessment on the property.

Approximately 193 yd^3 of gasoline impacted soil and 33 yd^3 of diesel impacted soil are in the immediate area of bent 6 for the Direct Connector alternative. The level of contamination in the soil ranges from non-detect to 5,600 mg/kg for gasoline impacted soil and non-detectable levels to 4,400 mg/kg for diesel impacted soil. The petroleum contamination starts at approximately 12-15 feet below ground surface and goes to a depth of approximately 29 feet. Petroleum impacted material (soil) requires disposal if it cannot be reused on the project site.

The level of contamination in the groundwater around bent 6 ranges from non-detect to 410 µg/l for gasoline impacted groundwater and non-detectable levels to 56 µg/l for diesel impacted groundwater. The fuel oxygenates have been detected in low levels in the groundwater ranging from non-detect to 5.6 µg/l. Contaminated material is not expected to be encountered during bent construction since the piles will be driven and not drilled. The proposed stone columns will also be driven and not drilled around the bent foundations. None of the alternatives propose to do any excavation in this area; therefore regulatory involvement is not anticipated. The mapping in Figure 3.14-1 shows current estimation of ground water contamination from the former underground fuel tanks from the site. Since excavation is not proposed down to the ground water, which is at approximately 12' below ground surface, for any of the alternatives, it is not anticipated to encounter any contamination for any of the alternatives.

3.14.3 TITLE 8, CALIFORNIA CODE OF REGULATIONS ENVIRONMENTAL CONSEQUENCES

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

The No Build Alternative would not involve encountering the potential environmental issues discussed above, as no ground-disturbing activities would occur.

BUILD ALTERNATIVES (ALTERNATIVES 2 THROUGH 5)

The Direct Connector, Hybrid, and Hybrid with Flyover alternatives are likely to encounter the following potential environmental issues:

- Groundwater has been documented as being impacted by petroleum hydrocarbons and fuel oxygenates in this area. It is not anticipated that construction activities will affect any of the known contamination in the area, but if groundwater is encountered during subsurface activities, a Ground Water Management Plan would be prepared.

- If contamination is encountered excavation, stockpiling, dewatering and disposal of Petroleum contaminated material, material, and management of petroleum impacted groundwater must be in conformance with the rules and regulations of the following agencies:
  Regional Water Quality Control Board
  San Diego County Air Pollution Control District (SDAPCD)

California Division of Occupational Safety and Health Administration (CAL-OSHA)
San Diego County Department of Health (DEH)

- Laws and regulations that govern work related to petroleum contaminated materials include:
  Water Code, Division 7 (Porter-Cologne Water Quality Control Act),
  Title 8, California Code of Regulations.

- Aerially deposited lead would not be a concern. Recent projects in the area have removed the contaminated soil in the proposed project portion of the corridor. No special handling of the soil would be necessary.

- The existing lead paint stripe is documented to have been applied after 1997. Lead is present in the newer yellow stripe and the white paint, but is below hazardous levels.

- Treated wood waste (TWW) from metal beam guard rail and sign posts would need to be reused by the proposed project or taken to an approved Class II landfill. Handling and storage of TWW would need be done using the Alternative Management Standards for TWW (DTSC 2008).

The Direct Connector Alternative would impact the Shell gas station (located at 3060 Carmel Valley Road, San Diego) with an aerial easement and a retaining wall. It also impacts the former Chevron site, currently owned by Caltrans, with the direct connector bridge.

The Auxiliary Lane Alternative has the lowest impact potential related to these sites. Because there would be fewer ground-disturbing activities with the Auxiliary Lane Alternative, only the paint stripe removal and TWW concerns would pertain to this alternative.

The Hybrid Alternative would impact the Shell gas station (located at 3060 Carmel Valley Road, San Diego) with a retaining wall. The contaminants of concern is petroleum hydrocarbons and fuel oxygenates. These sites are considered low risk because the plumes are well delineated and shrinking. There is a low likelihood of any other proposed excavation near these two sites encountering contaminated soil and/or groundwater.

The Hybrid with Flyover Alternative would impact the Shell Station by acquiring it as a full take. Right of Way would need to seek indemnification for Caltrans for responsibility related to the existing contamination even though the case is considered closed with a “No Further Action” letter having been acquired by the property owner. The contaminants of concern are petroleum hydrocarbons and fuel oxygenates. This site is considered low risk because the plumes of contamination beneath the sites will not be impacted or excavated by any proposed construction. It is not anticipated to disturb the contamination. There is a low likelihood of any other proposed excavation near this site encountering contaminated soil and/or groundwater.

3.14.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following minimization measures would be performed on the Direct Connector, Hybrid, and Hybrid with Flyover alternatives to reduce the potential impacts from potential environmental issues to the fullest extent practicable.

If groundwater is encountered during subsurface activities in any of the build alternatives, a Ground Water Management Plan would be prepared to address the notification, monitoring, sampling, testing, handling, storage, and disposal of potentially contaminated groundwater. If hazardous contaminant concentrations are not found in the groundwater, the groundwater may be discharged to a storm drain after NPDES permitting. A contingency likely would be retained for the removal and disposal of impacted groundwater.

If yellow or white thermoplastic paint striping is removed, it would be removed in accordance with Standard Specification (SSP) 15.2.02c(2) because the existing paint stripe is documented to have been applied after 1997. A Lead Compliance Plan would be prepared and implemented for conducting all paint removal activities.

The TWW from sign removal and metal beam guard rail would not be relinquished to the contractor. It would be reused at the proposed project site, or would be disposed at a Class II landfill facility or a composite-lined solid waste landfill facility, permitted to accept such wastes. Management of TWW would follow 22 CCR, Division 4.5, Chapter 34 and the Treated Wood Waste SSP 14-11.09 would be used.

As for any project involving excavation, the potential would exist for unknown hazardous contamination to be revealed during project construction. For any previously unknown hazardous waste/material encountered during construction, the procedures outlined in Caltrans Hazards Procedures for Construction (provided in Appendix F) would be followed.

Source: DigitalGlobe 2008; Dokken 2008; SanGIS 2008, SWRCB 2011

1,750 875 0 1,75 Feet

Scale: 1 = 21,000; 1 inch = 1,750 feet

Figure 3.14-2

Properties with Low Potential for Hazardous Materials

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3.15 AIR QUALITY

3.15.1 REGULATORY SETTING

The Federal Clean Air Act (CAA) as amended in 1990 is the federal law that governs air quality. The California Clean Air Act of 1988 is its companion state law. These laws, and related regulations by USEPA and California Air Resources Board (CARB), 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 (NAAQS). NAAQS, and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns. The criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM, broken down for regulatory purposes into particles of 10 micrometers or smaller – PM_{10} and particles of 2.5 micrometers and smaller - $PM_{2.5}$), lead (Pb), and sulfur dioxide (SO_2). In addition, state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at a level that protects public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics). Some criteria pollutants are also air toxics or may include certain air toxics within their general definition.

Federal and state air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA and CEQA. In addition to this type of environmental analysis, a parallel “Conformity” requirement under the CAA also applies.

CAA Section 176(c) prohibits USDOT and other federal agencies from funding, authorizing, or approving plans, programs, or projects that are not first found to conform to State Implementation Plan (SIP) for achieving the goals of CAA requirements related to the NAAQS. “Transportation Conformity” Act takes place on two levels: the regional, or planning and programming, level, and the project level. The proposed project must conform at both levels to be approved. Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. USEPA regulations at 40 CFR 93 govern the conformity process.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the standards set for CO, NO_2, O_3, PM_{10} and $PM_{2.5}$, and in some areas SO_2. California has nonattainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO_2, and also has a nonattainment area for lead. However, lead is not currently required by the CAA to be covered in transportation conformity analysis. Regional conformity is based on Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all of the transportation projects planned for a region over a period of at least 20 years for the RTP, and 4 years for the FTIP. RTP and FTIP conformity is based on use of travel demand and, air quality models to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that requirements of the CAA and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO) and FHWA, and FTA, make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the CAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and open to traffic schedule of a proposed transportation project are the same as described in the RTP and FTIP, 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 CO and/or particulate matter. A region is “nonattainment” if one or more of the monitoring stations in the region measures violation of the relevant standard, and USEPA officially

designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by the USEPA, and are then called "maintenance" areas. "Hot spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity includes some specific procedural and documentation standards for projects that require a hot spot analysis. In general, projects must not cause the "hot spot"-related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

3.15.2 AFFECTED ENVIRONMENT

This section is based on the November 2009 Air Quality Analysis for the I-5/SR-56 project, a separate technical study prepared by Caltrans for this project. The technical study conclusions are incorporated by reference.

METEOROLOGY AND CLIMATE

The proposed project area is located in the San Diego Air Basin (SDAB), which is coincident with San Diego County. The climate of San Diego County is characterized by warm, dry summers and mild, wet winters. One of the main determinants of the climate is a semi-permanent, high-pressure area (the Pacific High) in the eastern Pacific Ocean. In the summer, this pressure center is located well to the north, causing storm tracks to be directed north of California. This high-pressure cell maintains clear skies for much of the year. When the Pacific High moves southward during the winter, this pattern changes, and low-pressure storms periodically cross the region, causing widespread precipitation.

In San Diego County, the months of heaviest precipitation are November through April, averaging about 9 to 14 inches annually. The mean temperature is 62 degree Fahrenheit (°F) and the mean maximum and mean minimum temperatures are 76.0°F and 48.1°F, respectively (WRCC 2009).

The Pacific High also influences the wind patterns of California. The predominant wind directions are westerly and west-southwesterly during all four seasons, and the average annual wind speed is 5.6 mph.

A common atmospheric condition known as a temperature inversion affects air quality in San Diego County. During an inversion, air temperatures get warmer rather than cooler with increasing height. Subsidence inversions occur during the warmer months (May through October) as descending air associated with the Pacific High comes into contact with cooler marine air. The boundary between the layers of air represents a temperature inversion that traps pollutants below this boundary. Inversion layers are important elements of local air quality because they inhibit the dispersion of pollutants, thus resulting in a temporary degradation of air quality.

Regional Air Quality Attainment Status

The SDAB meets the federal standards for NO_2, SO_2, and Pb, and is classified as an attainment area for these pollutants. The SDAB is classified as in nonattainment for O_3 (8-hour) federal standards and has state attainment status for all criteria pollutants except O_3, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$). Table 3.15-1 provides additional details relative to the status of O_3 and CO SIPs.

On April 15, 2004, USEPA issued the initial designations for the 8-hour ozone standard, and the SDAB is classified as "basic" nonattainment. This designation took effect on June 15, 2004. Basic is the least severe of the six degrees of ozone nonattainment. The San Diego Air Pollution Control District

(SDAPCD) submitted an air quality plan to USEPA in 2007; the plan demonstrated how the 8-hour ozone standard would be attained by 2009. A decision from USEPA is pending. The SDAB also falls under a federal "maintenance plan" for CO following a 1998 redesignation as a CO attainment area. The SDAB currently meets the federal standards for $PM_{2.5}$, PM_{10}, NO_2, SO_2, and lead, and is classified as an attainment area for these pollutants. Table 3.15-2 provides additional details relative to the status of O_3 and CO State Implementation Plans.

PROJECT-LEVEL AIR QUALITY STATUS

Table 3.15-1 lists the applicable federal and California standards for each air pollutant. Criteria air pollutant concentrations are measured at 10 monitoring stations, operated by SDAPCD. Data from the Beardsley Street monitoring station, located approximately 20 miles south of the proposed project site, is used to characterize ambient air quality in the proposed project area. The station monitors CO, NO_2, O_3, PM_{10}, and $PM_{2.5}$. Table 3.15-3 summarizes the air quality data for 2006 through 2008. It indicates that, in all 3 years, the proposed project area exceeded the state 8-hour standard for O_3. Additionally, the proposed project area exceeded the state 24-hour PM_{10} standard and the federal 24-hour $PM_{2.5}$ standard for all 3 years.

Some locations are considered more sensitive to adverse effects from air pollution than others. These locations are commonly termed sensitive receptors and they include hospitals, schools, day care centers, nursing homes, and parks/playgrounds. Sensitive receptors in proximity to localized CO sources, toxic air contaminants, or odors are of particular concern. Sensitive receptors closest to the proposed project site are presented in Table 3.15-4 and Figure 3.15-1.

3.15.3 ENVIRONMENTAL CONSEQUENCES

REGIONAL CONFORMITY

The proposed project is listed in the SANDAG's 2050 financially constrained Regional Transportation Plan which was found to conform by SANDAG on October 28, 2011, and FHWA and FTA made a regional conformity determination on December 2, 2011. The project is also included in SANDAG's financially constrained 2010 Regional Transportation Improvement Program pages Amendment No. 7, pages 2 and 14. The SANDAG 2010 RTIP was adopted by SANDAG on September 24, 2010. The SANDAG 2010 RTIP was determined to conform by FHWA and FTA on December 12, 2010. The design concept and scope of the proposed project is consistent with the project description in the 2050 RTP, and the 2010 RTIP, and the "open to traffic" assumptions of the SANDAG regional emissions analysis.

The 2050 RTP includes a Sustainable Communities Strategy (SCS) element required by Senate Bill 375. This new element of the RTP provides strategies such as development patterns, transportation infrastructure investments, and transportation policies to help reach greenhouse gas (GHG) reduction targets. The proposed I-5/SR-56 interchange project is identified in SANDAG's 2050 RTP as providing west-to-north and south-to-east freeway connectors.

Table 3.15-1. State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State[9] Standard	Federal[9] Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Ozone (O_3)[2]	1 hour 8 hours 8 hours (conformity process[5])	0.09 ppm 0.070 ppm	---[4] 0.075 ppm[6] 0.08 ppm (fourth highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic volatile organic compounds (VOC) also may contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NO_X) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes.	Federal: Non-attainment State: Non-attainment Serious
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 ppm 9.0 ppm[1] 6 ppm	35 ppm 9 ppm ---	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone.	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.	Federal: Attainment-Maintenance State: Attainment
Respirable Particulate Matter (PM_{10})[2]	24 hours Annual	50 µg/m^3 20 µg/m^3	150 µg/m^3 ---[2]	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources (wind-blown dust, ocean spray).	Federal: Attainment State: Non-attainment
Fine Particulate Matter ($PM_{2.5}$)[2]	24 hours Annual 24 hours (conformity process[5])	--- 12 µg/m^3 ---	35 µg/m^3 15.0 µg/m^3 65 µg/m^3 (4th highest in 3 years)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including NO_X, sulfur oxides (SO_X), ammonia, and ROG.	Federal: Attainment State: Non-attainment

Pollutant	Averaging Time	State[9] Standard	Federal[9] Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Nitrogen Dioxide (NO_2)	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm[7] (98th percentile over 3 years) 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain. Part of the "NO_X" group of ozone precursors.	Motor vehicles and other mobile sources; refineries; industrial operations.	Federal: Attainment State: Attainment
Sulfur Dioxide (SO_2)	1 hour 3 hours 24 hours Annual	0.25 ppm --- 0.04 ppm ---	0.075 ppm[8] (98th percentile over 3 years) 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; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Federal: Attainment State: Attainment
Lead (Pb)[3]	Monthly Quarterly Rolling 3-month average	1.5 µg/m^3 --- ---	--- 1.5 µg/m^3 0.15 µg/m^3	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from gasoline may exist in soils along major roads.	Federal: Attainment State: Attainment
Sulfate	24 hours	25 µg/m^3	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	State Only: Attainment (entire state)
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.	State Only: Unclassified
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	---	Reduces visibility. Produces haze. NOTE: not related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas.	See particulate matter above.	State Only: Unclassified

Pollutant	Averaging Time	State[9] Standard	Federal[9] Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Vinyl Chloride[3]	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes	State Only: Unclassified (entire state)

Notes: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; ppb=parts per billion (thousand million)

1 Rounding to an integer value is not allowed for the state 8-hour CO standard. Violation occurs at or above 9.05 ppm. Violation of the federal standard occurs at 9.5 ppm because of integer rounding.

2 Annual PM_{10} NAAQS revoked October 2006; was 50 $\mu g/m^3$. 24-hr. $PM_{2.5}$ NAAQS tightened October 2006; was 65 $\mu g/m^3$. In September 2009, USEPA began reconsidering the $PM_{2.5}$ NAAQS; the 2006 action was partially vacated by a court decision.

3 CARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both CARB and USEPA have identified lead and various organic compounds that are precursors to ozone and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effect because of toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong. Lead NAAQS are not required to be considered in transportation conformity analysis.

4 Before June 2005, the 1-hour NAAQS was 0.12 ppm. The 1-hour NAAQS is still used only in 8-hour ozone early action compact areas, of which there are none in California. However, emission budgets for 1-hour ozone may still be in use in some areas where 8-hour ozone emission budgets have not been developed.

5 The 65 $\mu g/m^3$ $PM_{2.5}$ (24-hr) NAAQS was not revoked when the 35 $\mu g/m^3$ NAAQS was promulgated in 2006. Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for the newer NAAQS are found adequate or SIP amendments for the newer NAAQS are completed.

6 As of September 9, 2009, USEPA is reconsidering the 2008 8-hour ozone NAAQS (0.075 ppm); USEPA is expected to tighten the primary NAAQS to somewhere in the range of 60-70 ppb and to add a secondary NAAQS. USEPA plans to finalize reconsideration and promulgate a revised standard by August 2010.

7 Final 1-hour NO_2 NAAQS published in the Federal Register on 2/9/2010, effective 3/9/2010. Initial nonattainment area designations should occur in 2012 with conformity requirements effective in 2013. Project-level hot spot analysis requirements, while not yet required for conformity purposes, are expected.

8 USEPA finalized a 1-hour SO_2 standard of 75 ppb in June 2010.

9 State standards are “not to exceed” unless stated otherwise. Federal standards are “not to exceed more than once a year” or as noted above.

Source: CARB 2010a

Table 3.15-2. State Implementation Plan Status in San Diego

Pollutants	Status
Ozone (O_3)	In July 1997, USEPA established a new federal 8-hour standard for ozone of 0.085 parts per million (ppm). USEPA designated 15 areas in California that violate the federal 8-hour ozone standard on April 15, 2004. Each nonattainment area’s classification and attainment deadline are based on the severity of its ozone problem. San Diego’s nonattainment area deadline is 2009. The San Diego ozone SIP was approved by the California Air Resources Board (CARB) on May 24, 2007, and is awaiting federal approval. Because of a federal court decision relative to Subpart 1 ozone nonattainment areas, approval of the SIP was delayed. However, on May 13, 2008, USEPA found the motor vehicle emission budgets (included in the SIP) adequate for use in transportation conformity analyses. USEPA adequacy determination was announced in the Federal Register on May 23, 2008, and became effective June 7, 2008.
Carbon Monoxide (CO)	On April 26, 1996, CARB approved the “Carbon Monoxide Redesignation Request and Maintenance Plan for Ten Federal Planning Areas” as part of the SIP for CO. USEPA approved this revision on June 1, 1998, and redesignated San Diego to attainment. On October 22, 1998, CARB revised the SIP to incorporate the effects of the CARB action to remove the wintertime oxygen requirement for gasoline in certain areas. On July 22, 2004, CARB approved an update to the SIP that shows how the 10 areas are to maintain the standard through 2018, revises emission estimates, and establishes new on-road motor vehicle emission budgets for transportation conformity purposes. The update was approved by USEPA on November 30, 2005, and it became effective on January 30, 2006.

Source: CARB 2010b

Table 3.15-3. Ambient Air Quality Summary – San Diego

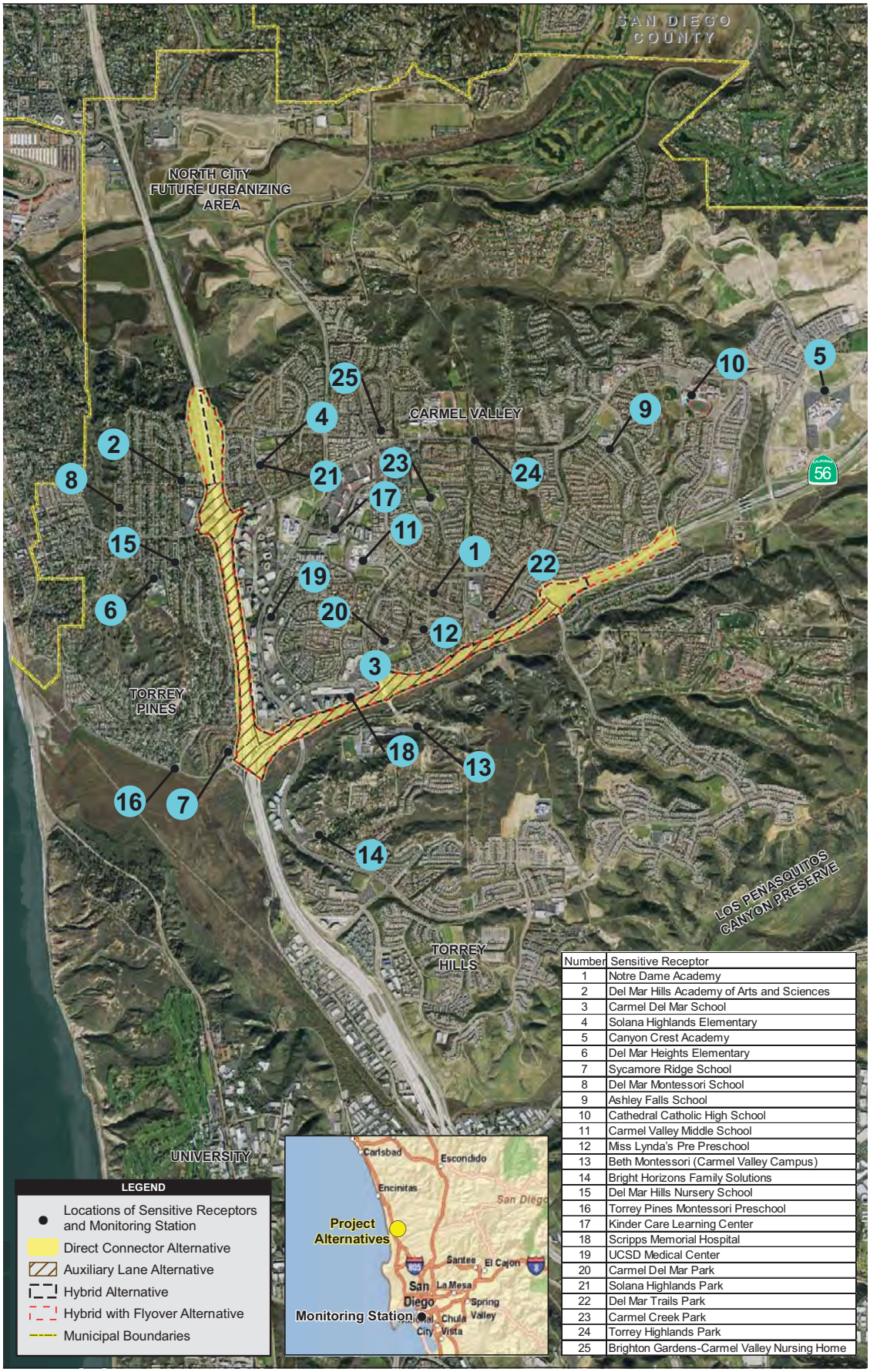
Pollutant Standards	2006	2007	2008
Ozone (O_3)			
Maximum 1-hour concentration (ppm)	0.082	0.087	0.087
Maximum 8-hour concentration (ppm)	0.070	0.072	0.073
Number of Days Standard Exceeded			
CAAQS 1-hour (>0.09 ppm)	0	0	0
CAAQS 8-hour (>0.070 ppm)	1	1	1
NAAQS 8-hour (>0.075 ppm)	0	0	0
Carbon Monoxide (CO)			
Maximum 8-hour concentration (ppm)	3.27	3.01	2.60
Maximum 1-hour concentration (ppm)	5.3	4.4	*
Number of Days Standard Exceeded			
NAAQS 8-hour (>9.0 ppm)	0	0	0
CAAQS 8-hour (>9.0 ppm)	0	0	0
NAAQS 1-hour (>35 ppm)	0	0	0
CAAQS 1-hour (>20 ppm)	0	0	0
Nitrogen Dioxide (NO_2)			
Maximum 1-hour concentration (ppm)	0.094	0.098	0.091
Annual average concentration (ppm)	0.021	0.018	0.019
Number of Days Standard Exceeded			
CAAQS 1-hour (> 0.18 ppm)	0	0	0
Particulate Matter (PM_{10})[1]			
National maximum 24-hour concentration ($\mu g/m^3$)[2]	71.0	110.0	58.0
State maximum 24-hour concentration ($\mu g/m^3$)[2]	74.0	111.0	59.0
State annual average concentration ($\mu g/m^3$)[2]	34.4[3]	31.3[3]	29.3[3]
Number of Days Above Standard			
NAAQS 24-hour (>150 $\mu g/m^3$)	0	0	0
CAAQS 24-hour (>50 $\mu g/m^3$)	11	4	4
Particulate Matter ($PM_{2.5}$)[1]			
National maximum 24-hour concentration ($\mu g/m^3$)[2]	63.3	69.6	42.0
State maximum 24-hour concentration ($\mu g/m^3$)[2]	63.3	71.4	42.0
National annual average concentration ($\mu g/m^3$)[2]	13.1[e]	12.7[e]	13.7[4]
State annual average concentration ($\mu g/m^3$)[2]	13.1[e]	11.7	10.7
Number of Days Above Standard			
NAAQS 24-hour (>65/>35 $\mu g/m^3$)[5]	2	8	3

Notes:
ppm = parts per million; μg/m3 = micrograms per cubic meter
CAAQS = California Ambient Air Quality Standards
NAAQS = National Ambient Air Quality Standards
1 Measurements collected every 6 days.
2 State and national statistics may differ for the following reasons: State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. State statistics are based on local conditions. National statistics are based on standard conditions. State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.
3 Exceeded CAAQS annual standard of 20 μg/m3.
4 Exceeded CAAQS annual standard of 12 μg/m3.
5 NAAQS 24-hour standard was reduced effective December 2006.
* Insufficient data to determine the value.
Source: CARB 2008; SDAPCD 2008

Table 3.15-4. Sensitive Receptors

School	District	Street Address	City	Distance from Proposed Project (feet)
Notre Dame Academy	Private	4343 Del Mar Trails	San Diego	791
Del Mar Hills Academy of Arts and Sciences	Del Mar Union School District	14085 Mango Drive	Del Mar	857
Carmel Del Mar School	Del Mar Union School District	12345 Carmel Park Drive	San Diego	898
Solana Highlands Elementary	Solana Beach School District	3520 Long Run Drive	San Diego	1,219
Canyon Crest Academy	San Dieguito Union High School District	5951 E Village Center Loop Road	San Diego	1,350
Del Mar Heights Elementary	Del Mar Union School District	13555 Boquita Drive	Del Mar	1,960
Sycamore Ridge School	Del Mar Union School District	5333 Carmel Valley Road	San Diego	2,014
Del Mar Montessori School	Private	13941 Durango Drive	Del Mar	2,610
Ashley Falls School	Del Mar Union School District	13030 Ashley Falls Drive	San Diego	2,933
Cathedral Catholic High School	Private	5555 Del Mar Heights Road	San Diego	3,037
Carmel Valley Middle School	San Dieguito Union High School District	3800 Mykonos Lane	San Diego	3,166
Preschool Name	**Capacity**	**Street Address**	**City**	**Distance (feet)**
Miss Lynda's Pre Preschool	12	4019 Santa Nella Place	San Diego	1,077
Beth Montessori (Carmel Valley Campus)	60	11860 Carmel Creek Road	San Diego	1,128
Bright Horizons Family Solutions	151	3720 Arroyo Sorrento Road	San Diego	1,271
Del Mar Hills Nursery School	60	13692 Mango Drive	Del Mar	1,320
Torrey Pines Montessori Preschool	12	2586 Carmel Valley Road	Del Mar	1,889
Kinder Care Learning Center	140	3790 Townsgate Drive	San Diego	3,017
Hospital	**Street Address**		**City**	**Distance (feet)**
Scripps Memorial Hospital	3811 Valley Centre Drive		San Diego	122
UCSD Medical Center	12395 El Camino Real		San Diego	883
Park	**City**		**Distance (feet)**	
Carmel Del Mar Park	San Diego		30	
Solana Highlands Park	San Diego		119	
Del Mar Trails Park	San Diego		358	
Carmel Creek Park	San Diego		3,622	
Torrey Highlands Park	San Diego		3,779	
Nursing Homes	**Capacity**	**Street Address**	**City**	**Distance (feet)**
Brighton Gardens-Carmel Valley	45	13101 Hartfield Avenue	San Diego	4,690

Source: Compiled by AECOM in 2011



Number	Sensitive Receptor
1	Notre Dame Academy
2	Del Mar Hills Academy of Arts and Sciences
3	Carmel Del Mar School
4	Solana Highlands Elementary
5	Canyon Crest Academy
6	Del Mar Heights Elementary
7	Sycamore Ridge School
8	Del Mar Montessori School
9	Ashley Falls School
10	Cathedral Catholic High School
11	Carmel Valley Middle School
12	Miss Lynda's Pre Preschool
13	Beth Montessori (Carmel Valley Campus)
14	Bright Horizons Family Solutions
15	Del Mar Hills Nursery School
16	Torrey Pines Montessori Preschool
17	Kinder Care Learning Center
18	Scripps Memorial Hospital
19	UCSD Medical Center
20	Carmel Del Mar Park
21	Solana Highlands Park
22	Del Mar Trails Park
23	Carmel Creek Park
24	Torrey Highlands Park
25	Brighton Gardens-Carmel Valley Nursing Home

Source: SanGIS 2008; Dokken 2008; DigitalGlobe 2008

0.5 2.5 0 0.5 Miles

Figure 3.15-1
Sensitive Receptors and Monitoring Station

PROJECT-LEVEL CONFORMITY

Carbon Monoxide (CO)

The Transportation Conformity Rule requires the following:

- Federal projects must not cause or contribute to any new localized CO, PM_{10}, and/or $PM_{2.5}$ violations or increase the frequency or severity of any existing CO, PM_{10}, and/or $PM_{2.5}$ violations in CO, PM_{10}, and $PM_{2.5}$ nonattainment and maintenance areas.

The CO portion of the rule applies to the proposed project because the SDAB is classified as a federal CO maintenance area. The air quality analyses of the RTP and RTIP do not include the analyses of local CO impacts because these must be addressed on a project level.

Procedures and guidelines for use in evaluating the potential local-level CO impacts of a project are contained in Caltrans' Transportation Project-Level Carbon Monoxide Protocol (the CO Protocol). The CO Protocol provides a methodology for determining the level of analysis, if any, required on a project (Caltrans 2009a).

On January 5, 2007, FHWA approved Emission Factor Model (EMFAC) 2007 for use in California (CARB 2009b). As of July 31, 2007, Caltrans, through a notice on its Web site, required the use of EMFAC 2007, or CT-EMFAC version 2.6 for use in all CO hot-spot analyses in new projects that require its approval (Caltrans 2009a). CT-EMFAC is an interpretation of CARB's EMFAC model that simplifies the process of getting composite emission factors. EMFAC 2007 is the latest emissions model that calculates emission inventories and emission rates for motor vehicles operating on roads in California. This model reflects CARB's understanding of how vehicles travel and how much they pollute. The EMFAC 2007 model is used to show how California motor vehicle emissions have changed over time and are projected to change in the future. The EMFAC 2007 model supersedes EMFAC 2002.

The CO Protocol states that the determination of project-level CO impacts should be carried out in accordance with the Local CO Analysis flow charts, as shown in detail in the November 2009 Air Quality Analysis.

According to the CO Protocol, the proposed project could worsen air quality, and further analysis of localized CO impacts is warranted. As discussed in Section 3.7, Traffic and Transportation/Pedestrian and Bicycle Facilities, a number of project intersections are anticipated to operate at LOS E or F in 2015 and 2030. Even though these intersections would operate at LOS E or F, they would operate more efficiently with the proposed project than without (i.e., improved LOS and/or lower delay time than the No Build Alternative). However, the proposed project still is expected to worsen traffic flow at some specific intersections with some of the build alternatives identified in the traffic report, and thus has the potential to worsen localized air quality. The November 2009 Air Quality Report and December 2009 Traffic Study contain additional details and a complete list of intersections, LOS, and delay times.

As required by the CO Protocol, a quantitative CO concentration analysis was conducted using EMFAC 2007 and the California Line Source Dispersion Model (CALINE4).[6] The analysis included the intersections of I-5 northbound ramps and Carmel Valley Road, Carmel Creek Road and SR-56 westbound ramps/Valley Center Drive, and Carmel Country Road and SR-56 westbound off-ramp for existing conditions. In addition, the analysis included the No Build Alternative and the Auxiliary Lane Alternative for both the AM and PM peak hours during opening year 2015 and horizon year 2030.

[6] CALINE4 is software developed by Caltrans for use in modeling CO impacts. Additional information regarding CALINE4 can be found online at: http://www.dot.ca.gov/hq/env/air/pages/CO.htm.

These intersections were chosen because of their forecasted LOS E or F conditions in 2015 and 2030. The Auxiliary Lane Alternative was analyzed because it represents the worst-case scenario for CO impacts.

Criteria air pollutant concentrations are measured at 10 monitoring stations in the SDAB. Data from the Beardsley Street monitoring station, which is located approximately 20 miles south of the proposed project site, was used to characterize ambient air quality in the proposed project area.

CO impacts were modeled under worst-case wind-angle conditions at 5 feet from the roadway edge, as public sidewalks occur along all existing roadways. Concentrations at these locations would represent the greatest concentrations of CO because of the limited dispersion area. Several other assumptions were developed to perform the CO screening analysis:

- The ambient 1-hour CO concentration is 5.3 parts per million (ppm), which is the highest concentration at the San Diego – Beardsley Street Air Quality Monitoring Station for the last 3 years.
- The mean January low temperature is 48°F.
- The intersection of I-5 northbound ramps and Carmel Valley Road is at an elevation of approximately 36 feet above mean sea level (AMSL).
- The intersection of Carmel Creek Road and SR-56 westbound ramps/Valley Center Drive is at an elevation of approximately 59 feet AMSL.
- The intersection of Carmel Country Road and SR-56 westbound off-ramp is at an elevation of approximately 125 feet AMSL.

The results of the CO analysis show that CO levels would drop in future years for all alternatives when compared to existing conditions. CO levels slightly increase at sensitive receptors relative to the No Build Alternative, yet do not exceed NAAQS or California Ambient Air Quality Standards (CAAQS). Future predicted CO concentrations are presented in Table 3.15-5, and complete CO analysis calculations are provided in the November 2009 Air Quality Report.

The CO concentrations estimated at the studied intersections were compared to the federal and state 1-hour CO standards. They are 35 ppm and 20 ppm, respectively, for the 1-hour standards, and the federal and state 8-hour CO standards are 9.0 ppm and 9.0 ppm, respectively. As shown in Table 3.15-5, the proposed project's projected traffic conditions would not lead to any exceedances of these standards during the AM or PM peak periods at either of the analyzed intersections. All intersections in the proposed project area are anticipated to experience less delay time and improved operating conditions than the No Build and Auxiliary Lane alternatives. Therefore, the proposed project would not result in or contribute to any significant local air quality impact.

Table 3.15-5. CO Concentrations Existing, 2015, and 2030

Intersection	Existing		2015 No Build Alternative		2015 Auxiliary Lane Alternative		2030 No Build Alternative		2030 Auxiliary Lane Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1-Hour CO Concentrations (ppm)										
I-5 NB Ramps and Carmel Valley Road	9.8	8.9	8.7	8.4	9.4	9.2	7.0	6.9	7.4	7.4
Carmel Creek Road and Valley Center Drive	7.3	6.9	6.3	6.4	6.3	6.4	5.9	6.0	5.9	6.0
Carmel Country Road and SR-56 WB Ramps	7.7	7.8	7.2	7.1	7.6	7.6	6.4	6.3	6.6	6.5
Federal standard	35									
State standard	20									
8-Hour Concentrations (ppm)[1]										
I-5 NB Ramps and Carmel Valley Road	6.9	6.2	6.1	5.9	6.6	6.4	4.9	4.8	5.2	5.2
Carmel Creek Road and Valley Center Drive	5.1	4.8	4.4	4.5	4.4	4.5	4.1	4.2	4.1	4.2
Carmel Country Road and SR-56 WB Ramps	5.4	5.5	5.0	5.0	5.3	5.3	4.5	4.4	4.6	4.6
Federal standard	9.0									
State standard	9.0									

Note:
1 The 8-hour concentrations are extrapolated based on a 0.7 persistence factor.
Source: AECOM 2009

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

On March 10, 2006, USEPA published a final rule that establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality impacts in $PM_{2.5}$ and PM_{10} nonattainment and maintenance areas. Based on that rule, USEPA and FHWA published Transportation Conformity Guidance for Qualitative Hot-Spot Analysis in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas (PM Guidance) (USEPA and USDOT 2006). Although the SDAB is not a federally designated $PM_{2.5}$ and PM_{10} nonattainment or maintenance area, it is designated as a state nonattainment area for both pollutants. Thus, to meet state requirements, the proposed project would be assessed using the procedure outlined in the PM Guidance.

The PM Guidance describes a qualitative hot-spot analysis method that does not involve dispersion modeling. This qualitative $PM_{2.5}$ and PM_{10} hot-spot analysis method involves a more streamlined review of local factors, such as local monitoring data near the proposed project location.

A hot-spot analysis is defined in 40 CFR 93.101 as an estimation of likely future localized $PM_{2.5}$ or PM_{10} pollutant concentrations and a comparison of those concentrations to the relevant air quality standards. A hot-spot analysis assesses the air quality impacts on a scale smaller than an entire nonattainment or maintenance area, including, for example, congested roadway intersections and highways or transit terminals. Such an analysis is a means of demonstrating that a transportation project meets CAA conformity requirements to support state and local air quality goals with respect to potential localized air quality impacts. When a hot-spot analysis is required, it is included within the project-level conformity determination that is made by FHWA or FTA.

To meet statutory requirements, the March 10, 2006, final rule requires $PM_{2.5}$ and PM_{10} hot-spot analyses to be performed for “projects of air quality concern (POAQC).” Qualitative hot-spot analyses

would be performed for these projects. Projects not identified as POAQC are considered to meet statutory requirements without any further hot-spot analyses.

The PM Guidance defines the following types of projects as projects of air quality concern:

- new or expanded highway project that have a significant number of or significant increase in diesel vehicles;
- projects affecting intersections that are LOS D, E, or F with a significant number of diesel vehicles, or those that would change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
- new bus and rail terminals, and transfer points, that have a significant number of diesel vehicles congregating at a single location;
- expanded bus and rail terminals, and transfer points, that significantly increase the number of diesel vehicles congregating at a single location; and
- projects in, or affecting, locations, areas, or categories of sites that are identified in the $PM_{2.5}$ applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

A significant volume for a new highway or expressway is defined as an annual average daily traffic (AADT) volume of 125,000 or more, and a significant number of diesel vehicles is defined as 8 percent or more of that total AADT, or more than 10,000 truck AADT. A significant increase in diesel truck traffic normally is considered to be approximately 10 percent.

The proposed improvements to the I-5/SR-56 corridors would maintain or improve projected future traffic operations over the future no build traffic operations. The existing 2009 AADT volume on I-5 is 235,000. The design year 2030 AADT volume without the proposed project is approximately 434,250 vehicles. The latest estimates are that regional employment and other economic factors will lag about 15 years per the analysis between Series 10 and 12. This provides a design year of essentially 2045. See Section 3.7 for more information. However, the existing diesel fueled truck percentage within the project limits is 4 percent of the AADT. The proposed project would not result in an increase in the ratio of trucks to the volumes, and the estimated horizon year 2030 truck AADT would remain at 4 percent, which is below the threshold of 8 percent.

As indicated in this guidance, pursuant to 40 CFR 93.123(b)(i) and (ii), any new and expanded highway project that does not involve a significant (greater than 8 percent) number or increase in the number of diesel vehicles is a project that is not of air quality concern and, consequently, does not require a PM_{10} or $PM_{2.5}$ hot-spot analysis. Implementation of the proposed project is likely to improve traffic conditions and would not contribute to particulate matter exceedances.

The proposed project is located in an attainment area for federal PM_{10} and $PM_{2.5}$ standards, and in a nonattainment area of state PM_{10} and $PM_{2.5}$ standards. Based on screening using USEPA PM Guidance, the proposed project is not a POAQC; it does not meet the criteria because of relatively low truck ADT, truck percentage, and increase in truck volumes, comparing the build alternatives and No Build Alternative. The proposed project would improve traffic operations by smoothing traffic flow. The proposed project is, therefore, in conformance for federal PM_{10} and $PM_{2.5}$ standards and is unlikely to increase the frequency or severity of any existing exceedances regarding the nonattainment of state PM_{10} and $PM_{2.5}$ standards.

Naturally Occurring Asbestos

The CAA requires USEPA to develop and enforce regulations to protect the general public from exposure to airborne contaminants that are known to be hazardous to human health. In accordance with CAA Section 112, USEPA established National Emissions Standards for Hazardous Air Pollutants (NESHAP) to protect the public. Asbestos was one of the first hazardous air pollutants regulated under this section. On March 31, 1971, USEPA identified asbestos as a hazardous pollutant, and on April 6, 1973, first promulgated the asbestos NESHAP in 40 CFR 61. In 1990, a revised NESHAP regulation was promulgated by USEPA.

Asbestos may be found in existing bridge joint and piping materials during construction of the proposed project. These materials may pose a health hazard if workers are exposed to them during construction activities. The asbestos NESHAP regulations protect the public by minimizing the release of asbestos fibers during activities involving the processing, handling, and disposal of asbestos-containing material. Accordingly, the asbestos NESHAP specifies work practices to be followed during demolitions and renovations of all structures, installations, and buildings (excluding residential buildings that have four or fewer dwelling units). In addition, the regulations require the project applicant to notify applicable state and local agencies and/or USEPA regional offices before all demolitions or before construction that contains a certain threshold amount of asbestos.

Naturally Occurring Asbestos (NOA)-bearing Serpentine

Serpentine is a mineral commonly found in seismically active regions of California, usually in association with ultramafic rocks and along associated faults. Certain types of serpentine occur naturally in a fibrous form known generically as asbestos. Asbestos is a known carcinogen and inhalation of asbestos may result in the development of lung cancer or mesothelioma. CARB has regulated the amount of asbestos in crushed serpentinite used in surfacing applications, such as for gravel on unpaved roads, since 1990. In 1998, new concerns were raised about health hazards from activities that disturb asbestos-bearing rocks and soil. In response, CARB revised their asbestos limit for crushed serpentines and ultramafic rock in surfacing applications from 5 percent to less than 0.25 percent and adopted a new rule requiring best practices dust control measures for activities that disturb rock and soil containing NOA (CDC 2000).

According to A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos (CDC 2000), the project site is not located in an area that is likely to contain NOA. Thus, hazardous exposure to asbestos-containing serpentine materials would not be a concern with the proposed project.

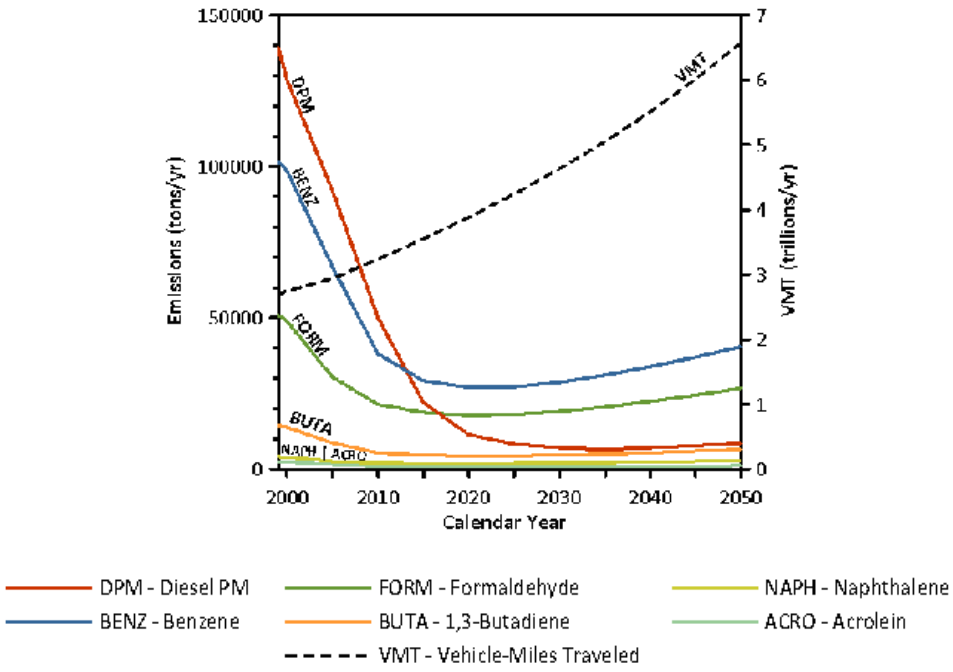
Mobile Source Air Toxics

The following discussion is based on an FHWA informational memorandum regarding “Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents,” dated September 30, 2009 (FHWA 2009), which provides an update to the “Interim Guidance on Air Toxic Analysis in NEPA Documents,” dated February 3, 2006 (FHWA 2006a). The purpose of the guidance is to advise when and how to analyze mobile source air toxins (MSATs) in the NEPA process for highways. This guidance is interim because MSAT science still is evolving. As the science progresses, FHWA will update the guidance.

USEPA is the lead federal agency for administering the CAA and has certain responsibilities regarding the health effects of MSATs. USEPA regulates 188 air toxics, known as hazardous air pollutants, under the CAA. USEPA assessed this expansive list in its latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register 2007) and identified a group of 93 compounds

emitted from mobile sources that are listed in its Integrated Risk Information System (IRIS).[7] In addition, USEPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from its 1999 National Air Toxics Assessment (NATA).[8] These are acrolein, benzene, 1,3-butadiene, diesel PM plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. Although FHWA considers these the priority MSATs, the list is subject to change and may be adjusted in consideration of future USEPA rules.

The 2007 USEPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using USEPA's MOBILE6.2 model, even if vehicle activity (VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown in Figure 3.15-2.



Note:
1 Annual emissions of polycyclic organic matter are projected to be 561 tons/year for 1999, decreasing to 373 tons/year for 2050.
2 Trends for specific locations may be different, depending on locally derived information representing vehicle-miles traveled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors
Source: FHWA 2009

Figure 3.15-2 **National MSAT Emission Trends 1999–2050 for Vehicles Operating on Roadways**

Air toxics analysis is a continuing area of research. Although much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA. Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, FHWA is expected by the public and other agencies to address MSAT impacts in environmental documents. FHWA, USEPA, the Health Effects Institute (HEI), and others

[7] Additional information regarding IRIS can be found online at: http://cfcpub.epa.gov/ncea/iris/index.cfm.
[8] Additional information regarding NATA can be found online at: http://www.epa.gov/ttn/atw/nata1999.

have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions and highway projects. FHWA will continue to monitor the developing research in this emerging field.

Incomplete or Unavailable Information for Project-Specific MSAT Impact Analysis

This air quality analysis includes a basic analysis of the likely MSAT emission impacts of the proposed project. However, available technical tools would not enable the prediction of project-specific health impacts for the emission changes associated with implementation of the proposed project. Because of these limitations, the following discussion is included in accordance with 40 CFR Section 1502.22(b) regarding incomplete or unavailable information.

Information that Is Unavailable or Incomplete

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

USEPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. It is the lead authority for administering the CAA and its amendments and has specific statutory obligations with respect to hazardous air pollutants and MSATs. USEPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. It maintains the IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects."[9] Each report contains assessments of noncancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations also are active in the research and analyses of the human health effects of MSATs, including the HEI. Two HEI studies are summarized in Appendix E of FHWA's *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents* (FHWA 2006a). Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations or in the future as vehicle emissions substantially decrease.[10]

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts—each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame. The results produced by USEPA's MOBILE6.2 model, the California EPA's EMFAC2007 model, and USEPA's Draft MOVES2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 significantly underestimates diesel PM emissions and significantly overestimates benzene emissions.

[9] Available online at: http://www.epa.gov/ncea/iris/index.html.

[10] Additional information regarding adverse human health effects of MSAT compounds can be found online at: http://pubs.healtheffects.org/view.php?id=282 and http://pubs.healtheffects.org/view.php?id=306.

Regarding air dispersion modeling, an extensive evaluation of USEPA's guideline CAL3QHC model was conducted in a National Cooperative Highway Research Program (NCHRP) study,[11] which documents poor model performance at 10 sites across the country—three where intensive monitoring was conducted plus an additional seven with less-intense monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with NAAQS for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially because some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways and to determine the portion of time that people are actually exposed at a specific location.

Considerable uncertainties are associated with the existing estimates of toxicity of the various MSATs because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI.[12] As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. Neither USEPA nor the HEI has established a basis for quantitative risk assessment of diesel PM in ambient settings.[13]

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

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

The proposed project would include new freeway-to-freeway connector ramps, improvements to the surface streets, addition of auxiliary lanes along SR-56 and I-5, and/or interchange improvements. Thus, the proposed project is not expected to facilitate significant additional capacity on I-5 or SR-56. Therefore, the proposed project would not be included in Category (3). By default, the proposed project would be included in Category (2) and would have a low potential for MSAT effects.

[11] Available online at: http://www.epa.gov/scram001/dispersion_alt.htm#hyroad.
[12] Available online at: http://pubs.healtheffects.org/ view.php?id=282.
[13] Additional information regarding the quantitative risk assessment of diesel PM can be found online at: http://www.epa.gov/risk/basicinformation.htm#g and http://pubs.healtheffects.org/getfile.php?u=395.

Evaluation of Project MSAT Impacts

Technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of the proposed project. However, although reliable methods do not exist to accurately estimate the health impacts of MSATs at the project level, it is possible to qualitatively assess the levels of future MSAT emissions for the proposed project. Although a qualitative analysis cannot identify and measure health impacts from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived, in part, from a study conducted by FHWA, "A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives."[14]

The amount of MSATs emitted would be proportional to the VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT for the build alternatives would be slightly higher than that for the No Build Alternative, because the proposed project would increase the efficiency of the roadway and attract rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the build alternatives along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase would be offset somewhat by lower MSAT emission rates because of increased speeds; according to USEPA's MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel PM decrease as speed increases. The extent to which these speed-related emissions decreases would offset VMT-related emissions increases cannot be reliably projected because of the inherent deficiencies of technical models.

Regardless of the build alternative that would be selected, emissions would likely be lower than existing levels in the 2030 year, as a result of USEPA's national control programs that are projected to reduce annual MSAT emissions by 72 percent between 1999 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of USEPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases. As such, the proposed project would not result in any adverse MSAT impacts.

Temporary Regional Construction Impacts

Construction-related activities would result in project-generated emissions of criteria air pollutants (e.g., PM_{10}) and precursors (e.g., reactive organic gases [ROG] and nitrogen oxide [NO_X]). Emissions of fugitive PM dust (e.g., PM_{10} and $PM_{2.5}$) are associated primarily with ground-disturbing activities during site preparation (e.g., site clearing, excavation, vehicle travel on paved and unpaved roads, and grading), and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and VMT on- and off-site. A secondary source of pollutants during construction would be engine exhaust from construction equipment. The primary pollutants of concern would be NO_X and volatile organic compounds (VOC) emissions that would contribute to the formation of ozone, which is a regional pollutant. Emissions of NO_X and VOC would be primarily associated with off-road (e.g., gas and diesel) construction equipment exhaust; secondary sources would include on-road trucks for import and export of materials and worker commuting.

Federal conformity regulations require analysis of construction impacts for projects when construction activities are estimated last for more than 2 years in an individual site. The proposed project would be complete in 2015 and construction would last less than 2 years for each stage; therefore, no quantitative estimates of regional construction emissions have been made. However, specific measures to control dust and particulates would be incorporated into the proposed project specifications.

[14] Available online at: www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm.

Temporary Local Construction Impacts

According to 40 CFR, Part 51, Section 93.123 (5), CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required for construction-related activities that create a temporary increase in air emissions. A temporary increase in air emissions is defined as an increase that would only occur during a construction stage and would last for 5 years or less at any individual site. Construction-related activities would result in short-term emissions of PM_{10} and $PM_{2.5}$ from soil excavation and grading operations, and VOC, NO_X, and CO emissions from the exhaust of off-road heavy-duty diesel equipment used for site preparation (e.g., excavation, grading, and clearing), paving, and other construction activities. Construction activities leading to the generation of ozone precursors and criteria pollutant emissions would be temporary and short in duration and would not be expected to occur at the same site for more than a few days. Thus, proposed project-generated emissions of criteria air pollutants and precursors would not expose sensitive receptors to substantial pollutant concentrations.

No construction impacts would occur related to air quality associated with the No Build Alternative. The No Build Alternative assumes the existing configuration for the I-5/SR-56 interchange, with future improvements that would be part of the proposed I-5 NCC Project, independent of the proposed I-5/SR-56 interchange project. This alternative would not include the construction of direct freeway-to-freeway connectors in the westbound SR-56 to northbound I-5, and southbound I-5 to eastbound SR-56 directions or improvements to local streets in the Carmel Valley area. The existing structures would not be demolished. As such, construction-related air quality impacts would not occur.

CLIMATE CHANGE

Climate change is analyzed in Chapter 4, CEQA Evaluation. Neither USEPA nor FHWA has promulgated explicit guidance or methodology to conduct project-level greenhouse gas analysis. As stated on FHWA's climate change Web site,[15] climate change considerations need to 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 facilitates decision-making and improves efficiency at the program level, and informs 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 more requirements have been set forth in California legislation and executive orders regarding climate change, the issue is addressed in the CEQA chapter of this environmental document and may be used to inform the NEPA decision. The four strategies set forth by FHWA to lessen climate change impacts correlate with efforts that California 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.

3.15.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

In addition to compliance with Caltrans Standards Specifications (2010) Section 14-9.03: Dust Control, following measures would be incorporated into the proposed project to minimize fugitive emissions of PM_{10}, and $PM_{2.5}$:

- Minimize land disturbance to the extent feasible

[15] Available online at: http://www.fhwa.dot.gov/ hep/climate/index.htm.

- Use watering trucks to minimize dust; watering should be sufficient to confine dust plumes to the project work areas
- Suspend grading and earth moving when wind gusts exceed 25 mph unless the soil is wet enough to prevent dust plumes
- Cover all trucks hauling dirt when traveling at speeds greater than 15 mph
- Stabilize the surface of dirt piles if not removed within 2 days
- Limit vehicular paths on unpaved surfaces and stabilize any temporary roads
- Minimize unnecessary vehicular and machinery activities
- Sweep paved streets at least once per day where there is evidence of dirt that has been carried on to the roadway
- Revegetate disturbed land, including vehicular paths created during construction, to avoid future off-road vehicular activities
- Remove unused material

The following measure would be incorporated into the proposed project to minimize exposure to diesel PM:

- Locate construction equipment and truck staging and maintenance areas as far as feasible and nominally downwind of schools, active recreation areas, and other areas of high population density.

3.16 NOISE

3.16.1 REGULATORY SETTING

NEPA and CEQA 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 NEPA and CEQA.

California Environmental Quality Act

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

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and Caltrans, as assigned) involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 3.16-1 lists the noise abatement criteria for use in the NEPA-23 CFR 772 analysis.

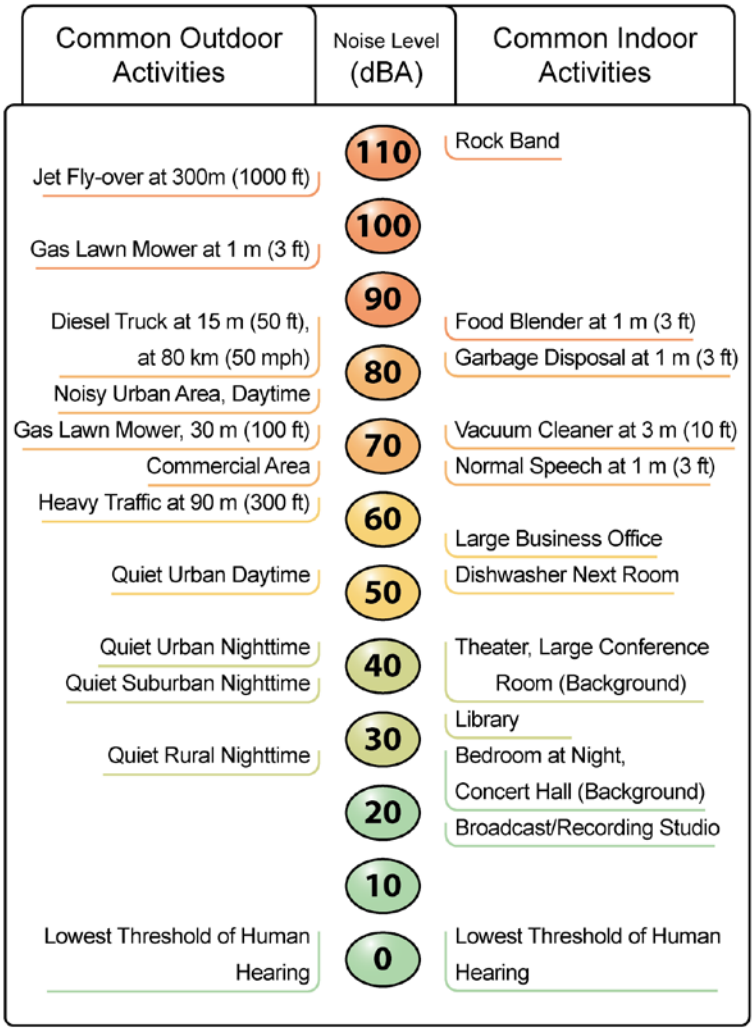
Table 3.16-1. Noise Abatement Criteria

Activity Category	NAC, 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.

Source: Parsons 2010

Table 3.16-2 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

Table 3.16-2. Noise Levels for Common Activities



Source: Parsons 2010

In accordance with the *Caltrans Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006*, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

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

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 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 and the cost per benefited residence, the absolute noise level, build

versus existing noise, environmental impacts of abatement, public and local agencies input, and newly constructed development versus development pre-dating 1978.

3.16.2 AFFECTED ENVIRONMENT

This section is based on the Noise Study Report (NSR) (January 2010) and the Preliminary Noise Abatement Decision Report (NADR) (November 2011), separate technical studies that were prepared for the proposed project and are incorporated by reference. An addendum to the NSR was prepared in October 2011 in order to address the Option 2 design variation under the Direct Connector Alternative.

Noise Receptors

Existing land uses along the study area are primarily residential, with some schools and churches, and commercial land uses which include hotels, office buildings, and retail stores. The terrain of the land surrounding the highway varies from steep slopes to relatively flat land both above and below the freeway. The dominant noise source in the proposed project area is traffic noise from I-5 and SR-56. Many existing noise levels currently exceed the FHWA and Caltrans noise abatement criteria for the areas adjacent to I-5 and SR-56. Several of the residential land uses along I-5 and SR-56 are protected from highway traffic noise by existing soundwalls, property walls, and earthen berms.

Noise measurement sites are locations where noise measurements are taken in order to determine existing noise levels and to verify or calibrate computer noise models. These sites are chosen as being representative of similar outdoor use areas along the proposed project. Locations that are expected to receive the greatest noise impacts, such as the first row of houses from the noise source, are generally chosen. Noise measurements were conducted in frequent outdoor human-use. All measurement sites were selected so that there would be no unusual noises from sources such as dogs, pool pumps, or children that could affect the measured levels.

A total of 144 noise receptors (receptors) were included in the noise study. With the exception of receptor 5.16 that was classified as Category E, all of the receptors were identified to be Activity Category B: The 144 receptors represent 112 single-family residences and 12 multi-family residences, representing 402 residences all together. The 144 receptors also include 12 receptors that represent 3 schools, 7 receptors that represent recreation facilities, and 1 receptor that represents a hotel. Receptor sites in the proposed project area are shown on the project features maps in Chapter 2 (Figures 2.4a through 2.7f) and their existing noise levels are presented in Table 3.16-3.

Table 3.16-3. Noise Receptors

Receptor	Location	Type of Development[1]	# of Units	Activity Category and NAC()[2]	Existing Worst Hour Noise Levels Leq(h), dBA[3]
R 1	Double Tree Hotel - 11915 El Camino Real, San Diego	HM	1	B (67)	56
R 2	12198 Carmel Park Dr, San Diego	SFR	2	B (67)	55
R 3	12174 Carmel Park Dr, San Diego	SFR	3	B (67)	57
R 4	3950 St Agnes Ct, San Diego	SFR	3	B (67)	58
R 4A	3955 St Agnes Ct, San Diego	SFR	1	B (67)	58
R 5	3930 San Leandro Wy, San Diego	SFR	1	B (67)	62
R 6A	3955 St Agnes Ct, San Diego	SFR	1	B (67)	64
R 6	3920 San Gregorio Wy, San Diego	SFR	2	B (67)	63
R 7	3922 San Martine Wy, San Diego	SFR	1	B (67)	63
R 8	3950 San Augustine Wy, San Diego	SFR	4	B (67)	63
R 9	3920 San Augustine Wy, San Diego	SFR	3	B (67)	62
R 9A	3914 San Augustine Wy, San Diego	SFR	1	B (67)	61
R 10	3908 San Augustine Wy, San Diego	SFR	2	B (67)	60
R 11	3907 Montefrio Ct, San Diego	SFR	2	B (67)	57

Receptor	Location	Type of Development[1]	# of Units	Activity Category and NAC()[2]	Existing Worst Hour Noise Levels Leq(h), dBA[3]
R 12	3904 Santa Nella Pl, San Diego	SFR	2	B (67)	57
R 13	12411 Banuelo Cv, San Diego	SFR	2	B (67)	59
R 14	Notre Dame Academy (Playground) -4345 Del Mar Trails, San Diego	SCH	1	B (67)	64
R 15	Notre Dame Academy (Playground) -4345 Del Mar Trails, San Diego	SCH	1	B (67)	62
R 16	12342 Mona Lisa St, San Diego	SFR	2	B (67)	64
R 17	4505 Da Vinci St, San Diego	SFR	6	B (67)	**66**
R 18	4563 Da Vinci St, San Diego	SFR	6	B (67)	65
R 18A	4573 Da Vinci St, San Diego	SFR	4	B (67)	65
R 19	4595 Da Vinci St, San Diego	SFR	6	B (67)	64
R 20	4635 Da Vinci St, San Diego	SFR	8	B (67)	65
R 21	4661 Da Vinci St, San Diego	SFR	3	B (67)	65
R 21A	4665 Da Vinci St, San Diego	SFR	1	B (67)	63
R 21B	4669 Da Vinci St, San Diego	SFR	4	B (67)	62
R 22	4697 Da Vinci St, San Diego	SFR	4	B (67)	61
R 23	12590 Cavallo St, San Diego	SFR	2	B (67)	60
R 24	Park - Carmel Country Rd, San Diego	REC	1	B (67)	62
R 25	12581 Carmel Canyon Rd, San Diego	SFR	2	B (67)	57
R 26	12565 Carmel Canyon Rd, San Diego	SFR	--	B (67)	58
R 27	12563 Carmel Canyon Rd, San Diego	SFR	2	B (67)	58
R 28	4843 Almondwood Wy, San Diego	SFR	3	B (67)	61
R 29A	4861 Almondwood Wy, San Diego	SFR	2	B (67)	61
R 29	4869 Almondwood Wy, San Diego	SFR	2	B (67)	63
R 29B	4875 Almondwood Wy, San Diego	SFR	1	B (67)	64
R 30A	4885 Almondwood Wy, San Diego	SFR	2	B (67)	64
R 30	4915 Almondwood Wy, San Diego	SFR	2	B (67)	64
R 31	4954 Almondwood Wy, San Diego	SFR	14	B (67)	54
R 32	4991 Almondwood Wy, San Diego	SFR	2	B (67)	**67**
R 33	5085 Brookburn Dr, San Diego	SFR	3	B (67)	**66**
R 34	12654 Sandy Crest Ct, San Diego	SFR	2	B (67)	65
R 35	5067 Carmel Knolls Dr, San Diego	SFR	2	B (67)	65
R 35A	5067 Carmel Knolls Dr, San Diego	SFR	1	B (67)	65
R 36	5107 Carmel Knolls Dr, San Diego	SFR	1	B (67)	65
R 37	12701 Chandon Ct, San Diego	SFR	1	B (67)	59
R 38	5119 Vail Creek Ct, San Diego	SFR	3	B (67)	62
R 39	5149 Vail Creek Ct, San Diego	SFR	2	B (67)	62
R 40	5245 Southhampton Cv, San Diego	SFR	2	B (67)	59
R 41	5291 Southhampton Cv, San Diego	SFR	2	B (67)	58
R 42	San Diego Jewish Academy (Sports Field) -11860 Carmel Creek Rd., San Diego	SCH	2	B (67)	63
R 43	San Diego Jewish Academy (Sports Field) -11860 Carmel Creek Rd., San Diego	SCH	2	B (67)	63
R 44	San Diego Jewish Academy (Playground) -11860 Carmel Creek Rd., San Diego	SCH	1	B (67)	65
R 45	San Diego Jewish Academy (Playground) -11860 Carmel Creek Rd., San Diego	SCH	2	B (67)	65
R 46	3621 Carmel Valley Rd, San Diego	SFR	1	B (67)	**66**
R 47	Carmel Valley Rd, San Diego	SFR	1	B (67)	61
R 48	4835 Ruette De Mer, San Diego	SFR	--	B (67)	56
R 49	4835 Ruette De Mer, San Diego	SFR	1	B (67)	53
R 50	4853 Ruette De Mer, San Diego	SFR	4	B (67)	53
R 51	4893 Ruette De Mer, San Diego	SFR	1	B (67)	57
R 52	4905 Ruette De Mer, San Diego	SFR	4	B (67)	57
R 53	4965 Ruette De Mer, San Diego	SFR	6	B (67)	55

Receptor	Location	Type of Development[1]	# of Units	Activity Category and NAC()[2]	Existing Worst Hour Noise Levels Leq(h), dBA[3]
R 54	5049 Ruette De Mer, San Diego	SFR	5	B (67)	58
R 54A	Golf Course, San Diego	REC	1	B (67)	61
R 55	5083 Ruette De Mer, San Diego	SFR	6	B (67)	59
R 56	5163 Ruette De Mer, San Diego	SFR	12	B (67)	52
R 57	5234 Ruette De Mer, San Diego	SFR	2	B (67)	58
R 58	5260 Ruette De Mer, San Diego	SFR	2	B (67)	58
R 59	12618 Caminito Radiante, San Diego	SFR	2	B (67)	59
R 60	12619 Caminito Radiante, San Diego	SFR	3	B (67)	59
R 61	12636 Caminito Radiante, San Diego	SFR	3	B (67)	59
R 62	12668 Caminito Radiante, San Diego	SFR	5	B (67)	58
R 63	12686 Caminito Radiante, San Diego	SFR	3	B (67)	58
R 64	12698 Caminito Radiante, San Diego	SFR	2	B (67)	62
R 4.1	13583 Caminito Carmel, Del Mar	SFR	1	B (67)	**70**
R 4.2	Community Pool - Caminito Pointe Del Mar, Del Mar	REC	1	B (67)	**71**
R 4.2A	Community Patio - Caminito Pointe Del Mar, Del Mar	REC	1	B (67)	**72**
R 4.3	12943 Caminito Pointe Del Mar, Del Mar	SFR	1	B (67)	**72**
R 4.4	Community Tennis Court - Caminito Pointe Del Mar, Del Mar	REC	2	B (67)	**70**
R 4.4A	12949 Caminito Pointe Del Mar, Del Mar	SFR	1	B (67)	**71**
R 4.5	2784 Caminito San Marino, Del Mar	MFR	6	B (67)	**69**
R 4.6	2771 Caminito Cedros, Del Mar	MFR	6	B (67)	**68**
R 4.7A	Del Mar Villas (Pool) - Portofino Cir, Del Mar	REC	0	B (67)	**66**
R 4.7	Del Mar Villas (Pool) - Portofino Cir, Del Mar	REC	1	B (67)	**66**
R 4.8	2777 Caminito Eldorado, Del Mar	MFR	4	B (67)	65
R 4.9	13080 Caminito Cristobal, Del Mar	MFR	6	B (67)	**68**
R 4.10	13110 Portofino Dr, Del Mar	SFR	3	B (67)	65
R 4.11	13131 Portofino Dr, Del Mar	SFR	1	B (67)	**74**
R 4.11A	13139 Portofino Dr, Del Mar	SFR	2	B (67)	**72**
R 4.12	13163 Portofino Dr, Del Mar	SFR	3	B (67)	**72**
R 4.12A	13193 Portofino Dr, Del Mar	SFR	3	B (67)	**70**
R 4.13	13231 Portofino Dr, Del Mar	SFR	4	B (67)	**69**
R 4.14	13303 Portofino Dr, Del Mar	SFR	3	B (67)	**67**
R 4.14A	13319 Portofino Dr, Del Mar	SFR	2	B (67)	**67**
R 4.15	13333 Portofino Dr, Del Mar	SFR	3	B (67)	**66**
R 4.16A	13357 Portofino Dr, Del Mar	SFR	2	B (67)	**66**
R 4.16	13363 Portofino Dr, Del Mar	SFR	2	B (67)	**67**
R 4.16B	13379 Portofino Dr, Del Mar	SFR	1	B (67)	**66**
R 4.17	13395 Portofino Dr, Del Mar	SFR	2	B (67)	**66**
R 4.17A	13415 Portofino Dr, Del Mar	SFR	3	B (67)	**66**
R 4.18	13451 Portofino Dr, Del Mar	SFR	3	B (67)	**68**
R 4.18A	13485 Portofino Dr, Del Mar	SFR	3	B (67)	**67**
R 4.19	13505 Portofino Dr, Del Mar	SFR	2	B (67)	**68**
R 4.19A	13525 Portofino Dr, Del Mar	SFR	2	B (67)	**69**
R 4.20	13555 Portofino Dr, Del Mar	SFR	3	B (67)	**68**
R 4.20A	13575 Portofino Dr, Del Mar	SFR	2	B (67)	**68**
R 4.21	13603 Portofino Dr, Del Mar	SFR	2	B (67)	**68**
R 4.21A	13627 Portofino Dr, Del Mar	SFR	2	B (67)	**68**
R 4.22	13651 Portofino Dr, Del Mar	SFR	2	B (67)	**68**
R 4.22A	Del Mar Village - 13675 Ruette Le Parc Unit B, Del Mar	MFR	8	B (67)	**71**
R 4.23	Del Mar Village - 13681 Ruette Le Parc Unit A, Del Mar	MFR	3	B (67)	**77**
R 4.23A	Del Mar Village - 13691 Ruette Le Parc Unit B, Del Mar	MFR	12	B (67)	**77**
R 4.24	Del Mar Village - 13788 Ruette Le Parc Unit B, Del Mar	MFR	3	B (67)	**72**
R 5.1	Bella Del Mar Apartment Homes - 14047 Mango Dr, Unit A-2, Del Mar	MFR	6	B (67)	**75**
R 5.2	Bella Del Mar Apartment Homes - 14065 Mango Dr, Del Mar	MFR	6	B (67)	**71**

Receptor	Location	Type of Development[1]	# of Units	Activity Category and NAC()[2]	Existing Worst Hour Noise Levels Leq(h), dBA[3]
R 5.3	Del Mar Hills Academy of Arts & Sciences—formerly Del Mar Hills Elementary School (Playground) - 14085 Mango Dr, Del Mar	SCH	3	B (67)	**67**
R 5.4	Del Mar Hills Academy of Arts & Sciences (Class Area) -14085 Mango Dr, Del Mar	SCH	1	B (67)	63
R 5.5A	Del Mar Hills Academy of Arts & Sciences School (Playground) -14085 Mango Dr, Del Mar	SCH	1	B (67)	63
R 5.5	Del Mar Hills Academy of Arts & Sciences (Playground) - 14085 Mango Dr, Del Mar	SCH	1	B (67)	65
R 5.6A	Del Mar Hills Academy of Arts & Sciences (Playground) - 14085 Mango Dr, Del Mar	SCH	1	B (67)	65
R 5.6	Del Mar Hills Academy of Arts & Sciences (Playground) - 14085 Mango Dr, Del Mar	SCH	1	B (67)	64
R 5.7A	14165 Minorca Cove, Del Mar	SFR	2	B (67)	**70**
R 5.7	14175 Minorca Cove, Del Mar	SFR	3	B (67)	**72**
R 5.7B	14211 Minorca Cove, Del Mar	SFR	4	B (67)	**68**
R 5.8	14243 Minorca Cove, Del Mar	SFR	3	B (67)	**66**
R 5.8B	14261 Minorca Cove, Del Mar	SFR	1	B (67)	60
R 5.8A	14261 Minorca Cove, Del Mar	SFR	0	B (67)	**66**
R 5.9B	14269 Minorca Cove, Del Mar	SFR	1	B (67)	**67**
R 5.9A	14267 Minorca Cove, Del Mar	SFR	1	B (67)	**67**
R 5.9	14295 Minorca Cove, Del Mar	SFR	2	B (67)	**67**
R 5.16[4]	East Bluff Community - 3535 Voyager Cir, San Diego	MFR	11	E (52)	47
R 5.16A	East Bluff Community - 3535 Voyager Cir, San Diego	MFR	8	B (67)	58
R 5.17	3355 Lower Ridge Rd, San Diego	SFR	4	B (67)	64
R 5.18	3285 Lower Ridge Rd, San Diego	SFR	6	B (67)	64
R 5.19	13126 Windbreak Rd, San Diego	SFR	6	B (67)	63
R 5.19A	13188 Windbreak Rd, San Diego	SFR	4	B (67)	62
R 5.20A	3404 Lady Hill Rd, San Diego	SFR	2	B (67)	60
R 5.20	3404 Lady Hill Rd, San Diego	SFR	--	B (67)	61
R 5.21	13204 Ocean Vista Rd, San Diego	SFR	2	B (67)	**66**
R 5.22	13212 Ocean Vista Rd, San Diego	SFR	2	B (67)	**69**
R 5.23	13228 Ocean Vista Rd, San Diego	SFR	4	B (67)	**69**
R 5.23A	13240 Ocean Vista Rd, San Diego	SFR	2	B (67)	**68**
R 5.24	13428 Ocean Vista Rd, San Diego	SFR	1	B (67)	**68**

[1] Land Use: SFR – single-family residence; MFR – multi-family residence; SCH – school; HM – hotel/motel; REC – recreational use area.
[2] NAC – Noise Abatement Criterion
[3] Leq(h) are A-weighted, peak hour noise levels in decibels.
[4] This site was chosen as monitoring purpose only, no noise frequent outdoor use in this area, therefore Interior Category E is used.
Bold - Receptor locations where existing noise levels approach (within 1 dBA) or exceed the NAC.
Source: Parsons 2010

3.16.3 ENVIRONMENTAL CONSEQUENCES

The proposed project is a Type 1 project as defined by 23 CFR 772 because the build alternatives would change the vertical and/or horizontal alignment of the existing freeways and depending on the alternative may add additional through lanes. Therefore, the proposed project has been analyzed for noise impacts in accordance with *Caltrans Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006*.

Noise measurements were taken at outdoor locations within the project limits to establish the baseline conditions and calibrate the future traffic noise model. Site surveys and noise measurements were conducted in 2004 and 2007.

Long-term measurements were conducted at five sites in 2007 and three sites in 2004 for a minimum of 24 hours. Short-term measurements were conducted at seven sites in 2004 and 10 sites in 2007 for 20 minutes each. Two additional measurements corresponding to two of the 15 locations were conducted in 2007 for the specific purpose of model calibration only.

Some of the short-term measurements were conducted during time intervals outside of the peak noise hour. These measurements have been adjusted to reflect the peak hourly noise levels using the results of the nearby long-term noise measurements. The peak noise hour was determined by a long-term measurement taken on the same day as each short-term measurement. Short-term measurements not conducted during peak traffic hours, when traffic is observed to be free flowing, were adjusted to the peak hour by the long-term measurement.

Noise Model

FHWA Traffic Noise Model (TNM) version 2.5 was used for the noise computations of the future Build scenarios of both I-5 and SR-56 and the No Build scenario of SR-56. The I-5 portion of I-5/SR-56 is a reanalysis of the I-5 NCC Project. The predicted noise levels for the No Build scenario of I-5 are from the I-5 NCC Project, which were calculated using SOUND2000, Version 3.3 (Caltrans 2010a). Traffic noise levels were modeled using projected year 2030 and LOS C traffic volumes to obtain the worst-case scenario. Traffic volumes of on- and off-ramps under the build and no build conditions were capped at 1,000 vehicles per hour per lane.

Traffic Noise Impacts

Future No Build and Build traffic noise levels were modeled using the LOS C traffic volumes of 1,800 vehicles per hour per lane for mainline traffic and 1,500 vehicles per hour per lane for HOV traffic to obtain the worst-case noise scenario. The traffic volumes of on- and off-ramps and connectors under the No Build and Build conditions were capped at 1,000 vehicles per hour per lane. FHWA's TNM version 2.5 was used for the noise computations of the future build scenarios of both I-5 and SR-56 and the no build scenario of SR-56.

The predicted peak hour noise levels consisted of an evaluation of noise impacts and an analysis with barrier heights. In identifying noise impacts, primary consideration is given to exterior areas of frequent human use.

In accordance with the *Caltrans Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006*, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC. There may be situations where "severe" traffic noise impacts exist or are predicted; a severe noise impact is considered to occur when predicted exterior noise levels equal or exceed 75 dBA-Leq(h) or are 30 dBA or more above existing noise levels.

Tables 3.16-4 through 3.16-7 summarize the existing and predicted future noise levels for the build alternatives and also identifies which receptors would have noise impact that requires consideration of noise abatement. The following text presents a summary of this information for each alternative.

No Build Alternative (Alternative 1)

The No Build Alternative assumes the existing configuration for the I-5/SR-56 interchange with the improvements proposed as part of the I-5 NCC Project, which are independent of the I-5/SR-56 interchange project. This alternative would not include the construction of direct freeway-to–freeway connectors in the westbound SR-56 to northbound I-5 and southbound I-5 to eastbound SR-56

directions or improvements to local streets in the Carmel Valley area. Under the No Build Alternative, the peak noisiest hour noise levels are predicted to range from 54 to 77 dBA Leq(h). Under existing conditions, 57 receptors already approach or exceed the NAC.

Direct Connector Alternative (Alternative 2)

With the Direct Connector Alternative, 86 receptors would approach or exceed the FHWA NAC and would be impacted. See Table 3.16-4 for receptor-specific information for the Direct Connector Alternative. Abatement was considered at these receptors as discussed below. The 86 impacted receptors represent 146 single-family residences, 60 multi-family residences, three schools, and recreation facilities at two locations. At 57 of the 86 impacted receptors, the existing noise levels already approach or exceed the NAC. All but two of the newly impacted receptors are located along the SR-56 corridor. Two receptors representing recreational uses would experience a substantial increase (12 dBA) as defined by the *Caltrans Traffic Noise Analysis Protocol*.

Eighteen receptors along southbound I-5 between Carmel Valley Road and Del Mar Heights Road would be severely impacted; however, of those 18 receptors, currently three are severely impacted.

Feasible abatement measures were considered for impacted receptors and will be discussed in Section 3.16.4. Many of the residential land uses along SR-56 and I-5 are protected from highway traffic noise by existing soundwalls, property walls and earthen berms. As a result, some of the residential land uses protected by the existing walls would either not be impacted or could not meet the feasible abatement requirements by the I-5/SR-56 Interchange Project. Receptors R5.16 and R5.9B along I-5 impacted by the proposed Direct Connector Alternative would not be feasible to abate with standard noise abatement techniques.

Receptor R5.16, which is a multi-family residence, was chosen for noise measurement purposes only and does not represent an area of frequent human use. Therefore, the interior criterion was used. Using a 20-dBA FHWA noise reduction factor, with windows closed, the interior noise level of receptor R5.16 was predicted to be 47 dBA, which is below the indoor noise criteria of 52 dBA.

Receptor R5.9B is a single-family residence located between proposed Soundwalls 5.S567 and 5.S569 on the southbound side of I-5 along Minorca Cove. Due to the sharp decrease in elevation along the ROW, it would not be practical and effective to build a soundwall at the right of way and the shoulder. Furthermore, it would not be practical to locate a soundwall on private property for this single residence to close the gap between Soundwalls 5.S567 and 5.S569.

Retaining Wall Variation for Southbound I-5 (Option 2)

As previously discussed in Section 3.8.4, two retaining wall variations are being considered for the proposed retaining wall required along southbound I-5 between Del Mar Heights Road and Carmel Valley Road. The first variation (Option 1) would construct the proposed retaining wall directly adjacent to the shoulder along southbound I-5. The second variation (Option 2) would construct the proposed retaining wall several feet up the existing slope along southbound I-5, allowing space for a landscape buffer between the retaining wall and the freeway shoulder. Option 2 would provide homeowners with up to 20 feet of additional useable area for their property along Portofino Drive. This increase in backyard space would be accomplished by increasing the height of the proposed retaining wall, placing fill behind the retaining wall, and reconstructing the existing soundwall directly on top of the retaining wall.

With Option 2, the predicted future peak hour average noise levels at Receptors R4.11 to R4.22 range from 69 to 82 dBA and would exceed the NAC at the frequent outdoor use areas along I-5. A soundwall located on top of a retaining wall was considered to abate the predicted traffic noise impacts at the representative outdoor use areas within the proposed project area. Feasible abatement measures were considered for impacted receptors and are discussed in Section 3.16.4.

Table 3.16-4. Predicted Future Noise and Soundwall Analysis – Direct Connector Alternative

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1,2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]											
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]									
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 1	Double Tree Hotel - 11915 El Camino Real, San Diego	56	59	60										
R 2	12198 Carmel Park Dr, San Diego	55	58	60										
R 3	12174 Carmel Park Dr, San Diego	57	59	62										
R 4	3950 St Agnes Ct, San Diego	58	61	63										
R 4A	3955 St Agnes Ct	58	61	63	--	--	62	1	61	2	60	3	59	4
R 5	3930 San Leandro Wy	62	64	66	--	--	65	1	63	3	62	4	**61[3]**	**5**
R 6A	3955 St Agnes Ct	64	66	69	--	--	67	2	65	4	**64**	**5**	**63[3]**	**6**
R 6	3920 San Gregorio Wy	63	65	68	--	--	65	3	64	4	**63**	**5**	**62[3]**	**6**
R 7	3922 San Martine Wy	63	65	67	--	--	66	1	65	2	63	4	**62[3]**	**5**
R 8	3950 San Augustine Wy	63	66	68	--	--	66	2	64	4	**63[3]**	**5**	**62**	**6**
R 9	3920 San Augustine Wy	62	65	67	--	--	65	2	63	4	**62[3]**	**5**	**61**	**6**
R 9A	3914 San Augustine Wy	61	64	66	--	--	64	2	62	4	**61[3]**	**5**	**60**	**6**
R 10	3908 San Augustine Wy	60	63	65	--	--	63	2	62	3	61	4	**60**	**5**
R 11	3907 Montefrio Ct, San Diego	57	60	61										
R 12	3904 Santa Nella Pl, San Diego	57	60	62										
R 13	12411 Banuelo Cv, San Diego	59	62	63										
R 14	Notre Dame Academy (Playground)	64	69	71	**62[3]**	**9**	**60**	**11**	**59**	**12**	**58**	**13**	**58**	**13**
R 15	Notre Dame Academy (Playground)	62	68	70	**62[3]**	**8**	**61**	**9**	**60**	**10**	**59**	**11**	**58**	**12**
R 16	12342 Mona Lisa St	64	64	66	62	4	**60[3]**	**6**	**58**	**8**	**57**	**9**	**57**	**9**
R 17	4505 Da Vinci St	66	66	68	66	2	64	4	**63[3]**	**5**	**61**	**7**	**61**	**7**
R 18	4563 Da Vinci St	65	65	68	66	2	64	4	**62[3]**	**6**	**62**	**6**	**61**	**7**
R 18A	4573 Da Vinci St	65	65	68	65	3	64	4	**62[3]**	**6**	**62**	**6**	**60**	**8**
R 19	4595 Da Vinci St	64	64	67	65	2	63	4	**62[3]**	**5**	**61**	**6**	**60**	**7**
R 20	4635 Da Vinci St	65	65	67	65	2	63	4	**62[3]**	**5**	**61**	**6**	**60**	**7**
R 21	4661 Da Vinci St	65	65	67	65	2	63	4	**62[3]**	**5**	**60**	**7**	**60**	**7**
R 21A	4665 Da Vinci St	63	63	66	63	3	62	4	**61[3]**	**5**	**60**	**6**	**59**	**7**
R 21B	4669 Da Vinci St, San Diego	62	62	65										
R 22	4697 Da Vinci St, San Diego	61	61	63										
R 23	12590 Cavallo St, San Diego	60	60	63										
R 24	Park - Carmel Country Rd, San Diego	62	62	64										
R 25	12581 Carmel Canyon Rd, San Diego	57	57	60										
R 26	12565 Carmel Canyon Rd, San Diego	58	58	60										
R 27	12563 Carmel Canyon Rd, San Diego	58	58	60										
R 28	4843 Almondwood Wy, San Diego	61	61	63										
R 29A	4861 Almondwood Wy, San Diego	61	61	64										
R 29	4869 Almondwood Wy	63	63	65	63	2	61	4	**60[3]**	**5**	**59**	**6**	**58**	**7**
R 29B	4875 Almondwood Wy	64	64	66	64	2	62	4	**61[3]**	**5**	**60**	**6**	**59**	**7**
R 30A	4885 Almondwood Wy	64	64	66	64	2	63	3	**61[3]**	**5**	**60**	**6**	**59**	**7**
R 30	4915 Almondwood Wy	64	64	66	64	2	63	3	**61[3]**	**5**	**60**	**6**	**60**	**6**
R 31	4954 Almondwood Wy, San Diego	54	54	55										

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1,2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]											
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]									
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 32	4991 Almondwood Wy	67	67	68	65	3	**63**	**5**	**62**[3]	**6**	**60**	**8**	**60**	**8**
R 33	5085 Brookburn Dr	66	66	67	65	2	63	4	**62**[3]	**5**	**61**	**6**	**60**	**7**
R 34	12654 Sandy Crest Ct	65	65	66	65	1	63	3	62	4	**61**[3]	**5**	**61**	**5**
R 35	5067 Carmel Knolls Dr	65	65	66	64	2	63	3	62	4	**61**[3]	**5**	**60**	**6**
R 35A	5067 Carmel Knolls Dr	65	65	66	64	2	63	3	62	4	**61**[3]	**5**	**60**	**6**
R 36	5107 Carmel Knolls Dr	65	65	66	64	2	62	4	**61**[3]	**5**	**60**	**6**	**59**	**7**
R 37	12701 Chandon Ct, San Diego	59	59	60										
R 38	5119 Vail Creek Ct, San Diego	62	62	62										
R 39	5149 Vail Creek Ct, San Diego	62	62	62										
R 40	5245 Southhampton Cv, San Diego	59	59	59										
R 41	5291 Southhampton Cv, San Diego	58	58	58										
R 42	San Diego Jewish Academy (Sports Field)	63	67	67	65	2	64	3	63	4	**62**[3]	**5**	**61**	**6**
R 43	San Diego Jewish Academy (Sports Field)	63	67	67	65	2	64	3	63	4	**62**[3]	**5**	**61**	**6**
R 44	San Diego Jewish Academy (Sports Field)	65	69	69	67	2	66	3	65	4	65	4	**64**[3]	**5**
R 45	San Diego Jewish Academy (Sports Field)	65	68	69	67	2	66	3	655	4	65	4	**64**[3]	**5**
R 46	3621 Carmel Valley Rd	66	70	71	**65**	**6**	**65**[3]	**6**	**63**	**8**	**63**	**8**	**62**	**9**
R 47	Carmel Valley Rd	61	65	67	**62**	**5**	**62**[3]	**5**	**60**	**7**	**60**	**7**	**59**	**8**
R 48	4835 Ruette De Mer, San Diego	56	57	60										
R 49	4835 Ruette De Mer, San Diego	53	54	56										
R 50	4853 Ruette De Mer, San Diego	53	54	56										
R 51	4893 Ruette De Mer, San Diego	57	58	61										
R 52	4905 Ruette De Mer, San Diego	57	58	60										
R 53	4965 Ruette De Mer, San Diego	55	56	58										
R 54	5049 Ruette De Mer, San Diego	58	60	62										
R 54A	Golf Course, San Diego	61	62	64										
R 55	5083 Ruette De Mer, San Diego	59	60	62										
R 56	5163 Ruette De Mer, San Diego	52	54	55										
R 57	5234 Ruette De Mer, San Diego	58	59	61										
R 58	5260 Ruette De Mer, San Diego	58	59	60										
R 59	12618 Caminito Radiante, San Diego	59	60	61										
R 60	12619 Caminito Radiante, San Diego	59	60	61										
R 61	12636 Caminito Radiante, San Diego	59	60	60										
R 62	12668 Caminito Radiante, San Diego	58	59	59										
R 63	12686 Caminito Radiante, San Diego	58	59	59										
R 64	12698 Caminito Radiante, San Diego	62	63	63										
R 4.1	13583 Caminito Carmel	70	71	72	**64**[3]	**8**	**63**	**9**	71	1	**62**	**10**	**61**	**11**
R 4.2	Caminito Pointe Del Mar (Community Pool)	71	72	71	67	4	**64**	**7**	**63**[3]	**8**	**61**	**10**	**60**	**11**
R 4.2A	Caminito Pointe Del Mar (Community Patio)	72	73	70	68	2	66	4	**64**[3]	**6**	**64**	**6**	**63**	**7**
R 4.3*	12943 Caminito Pointe Del Mar	72	73	75	75	0	73	2	71	4	**69**[3]	**6**	**68**	**7**
R 4.4*	Caminito Pointe Del Mar (Community Tennis Court)	70	70	75	**69**	**6**	**66**	**9**	**64**	**11**	**63**[3]	**12**	**62**	**13**
R 4.4A	12949 Caminito Pointe Del Mar	71	72	74	73	1	73	1	72	2	70	4	**69**	**5**

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1,2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]													
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]											
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 4.5	2784 Caminito San Marino	69	72	68	--	--	--	--	65	3	64	4	**63[3]**	**5**
R 4.6	2771 Caminito Cedros	68	68	72	**67**	**5**	**65**	**7**	**65**	**7**	**65**	**7**	**65[3]**	**7**
R 4.7A*	Del Mar Villas (Pool)	66	66	78	**69**	**9**	**69[3]**	**9**	**67**	**11**	**66**	**12**	**65**	**13**
R 4.7*	Del Mar Villas (Pool)	66	66	78	**69[3]**	**9**	**68**	**10**	**67**	**11**	**66**	**12**	**65**	**13**
R 4.8*	2777 Caminito Eldorado	65	65	75	**67[3]**	**8**	**66**	**9**	**65**	**10**	**65**	**10**	**64**	**11**
R 4.9*	13080 Caminito Cristobal	68	67	79	**70[3]**	**9**	**68**	**11**	**67**	**12**	**67**	**12**	**66**	**13**
R 4.10	13110 Portofino Dr	65	65	65	63	2	63	2	63	2	63	2	63	2
R 4.11*	13131 Portofino Dr	74	74	83	**71[3]**	**12**	**69**	**14**	**67**	**16**	**66**	**17**	**65**	**18**
R 4.11A*	13139 Portofino Dr	72	72	83	**70[3]**	**13**	**68**	**15**	**64**	**16**	**66**	**17**	**65**	**18**
R 4.12*	13163 Portofino Dr	72	72	82	**70[3]**	**12**	**68**	**14**	**67**	**15**	**66**	**16**	**65**	**17**
R 4.12A	13193 Portofino Dr	70	69	70	--	--	66	4	**65**	**5**	**65[3]**	**5**	**64**	**6**
R 4.13	13231 Portofino Dr	69	69	68	--	--	66	2	65	3	64	4	64	4
R 4.14	13303 Portofino Dr	67	69	68	--	--	66	2	65	3	64	4	64	4
R 4.14A	13319 Portofino Dr	67	69	69	--	--	66	3	**64**	**5**	**64[3]**	**5**	**63**	**6**
R 4.15	13333 Portofino Dr	66	69	68	--	--	66	2	65	3	64	4	**63[3]**	**5**
R 4.16A	13357 Portofino Dr	66	68	67	--	--	65	2	64	3	64	3	63[3]	4
R 4.16	13363 Portofino Dr	67	69	67	--	--	66	1	64	3	64	3	63	4
R 4.16B	13379 Portofino Dr	66	68	67	--	--	65	2	64	3	63	4	**62[3]**	**5**
R 4.17	13395 Portofino Dr	66	68	66	--	--	64	2	64	2	63	3	62	4
R 4.17A	13415 Portofino Dr	66	69	68	--	--	65	3	64	4	63	5	**62[3]**	**6**
R 4.18	13451 Portofino Dr	68	68	67	--	--	65	2	64	3	64	3	63	4
R 4.18A	13485 Portofino Dr	67	68	67	--	--	65	2	64	3	63	4	**62[3]**	**5**
R 4.19	13505 Portofino Dr	68	69	67	--	--	65	2	64	3	63	4	**62[3]**	**5**
R 4.19A	13525 Portofino Dr	69	69	67	--	--	66	1	65	2	64	3	63	4
R 4.20	13555 Portofino Dr	68	69	67	--	--	66	1	65	2	64	3	63	4
R 4.20A	13575 Portofino Dr	68	69	68	--	--	66	2	65	3	64	4	**63[3]**	**5**
R 4.21*	13603 Portofino Dr	68	69	75	**67**	**8**	**67**	**8**	**66**	**9**	**66**	**9**	**66[3]**	**9**
R 4.21A*	13627 Portofino Dr	68	69	78	**67[3]**	**11**	**66**	**12**	**65**	**13**	**65**	**13**	**64**	**14**
R 4.22*	13651 Portofino Dr	68	68	76	**64[3]**	**9**	**66**	**10**	**65**	**11**	**64**	**12**	**63**	**13**
R 4.22A*	Del Mar Village	71	71	75	**63[3]**	**12**	**68**	**7**	**68**	**7**	**68**	**7**	**68**	**7**
R 4.23*	Del Mar Village	77	77	80	77	3	**71[3]**	**9**	**70**	**10**	**69**	**11**	**69**	**11**
R 4.23A*	Del Mar Village	77	76	80	**5**	**5**	**70[3]**	**10**	**68**	**12**	**66**	**14**	**65**	**15**
R 4.24*	Del Mar Village	72	72	75	**68**	**7**	**65[3]**	**10**	**63**	**12**	**61**	**14**	**60**	**15**
R 5.1*	Bella Del Mar Apartment Homes	75	71	76	**65[3]**	**11**	**63**	**13**	**62**	**14**	**62**	**14**	**61**	**15**
R 5.2*	Bella Del Mar Apartment Homes	71	72	75	**64[3]**	**11**	**63**	**12**	**62**	**13**	**61**	**14**	**61**	**14**
R 5.3	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	**67**	**69**	64										
R 5.4	Del Mar Hills Academy of Arts & Sciences (Class Area) -14085 Mango Dr, Del Mar	63	65	61										
R 5.5A	Del Mar Academy of Arts & Sciences (Playground)	63	70	69	**61[3]**	**8**	**61**	**8**	**60**	**9**	**60**	**9**	**59**	**10**
R 5.5	Del Mar Academy of Arts & Sciences (Class Area)	65	67	62	60	2	59	3	59	3	59	3	59	3

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1,2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]											
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]									
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 5.6A	Del Mar Academy of Arts & Sciences (Playground)	65	67	66	**59**[3]	**7**	**58**	**8**	**58**	**8**	**57**	**9**	**57**	**9**
R 5.6	Del Mar Academy of Arts & Sciences (Playground)	64	65	61	58	3	57	4	57	4	57	4	57	4
R 5.7A	14165 Minorca Cove	70	70	73	**66**[3]	**7**	**66**	**7**	**66**	**7**	**66**	**7**	**65**	**8**
R 5.7	14175 Minorca Cove	72	71	74	**63**[3]	**11**	**62**	**12**	**62**	**12**	**61**	**13**	**60**	**14**
R 5.7B	14211 Minorca Cove	68	68	69	**61**[3]	**8**	**61**	**8**	**60**	**9**	**59**	**10**	**59**	**10**
R 5.8	14243 Minorca Cove	66	66	65	**59**	**6**	**59**	**6**	**59**	**6**	**58**	**7**	**57**	**8**
R 5.8B	14261 Minorca Cove	60	67	66	**60**[3]	**6**	**59**	**7**	**58**	**8**	**58**	**8**	**57**	**9**
R 5.8A	14261 Minorca Cove	66	66	63	59	4	59	4	59	4	**58**	**5**	**58**	**5**
R 5.9B	14269 Minorca Cove	67	67	67	67	0	67	0	67	0	67	0	67	0
R 5.9A	14267 Minorca Cove	67	67	67	67	0	65	2	63	4	**62**[3]	**5**	**61**	**6**
R 5.9	14295 Minorca Cove	67	67	66	64	2	62	4	**61**[3]	**5**	**60**	**6**	**59**	**7**
R 5.16[4]	East Bluff Community	67 (47)	68 (48)	67 (47)	65 (45)	2	63 (43)	4	**62 (42)**	**5**	**61 (41)**	**6**	**61 (41)**	**6**
R 5.16A	East Bluff Community - 3535 Voyager Cir, San Diego	58	60	60										
R 5.17	3355 Lower Ridge Rd, San Diego	64	64	65										
R 5.18	3285 Lower Ridge Rd, San Diego	64	63	62										
R 5.19	13126 Windbreak Rd, San Diego	63	63	62										
R 5.19A	13188 Windbreak Rd, San Diego	62	62	63										
R 5.20A	3404 Lady Hill Rd, San Diego	60	**67**	63										
R 5.20	3404 Lady Hill Rd, San Diego	61	61	59										
R 5.21	13204 Ocean Vista Rd	66	67	66	62	4	62	4	**61**[3]	**5**	**61**	**5**	**61**	**5**
R 5.22	13212 Ocean Vista Rd	69	70	69	**59**[3]	**10**	**59**	**10**	**58**	**11**	**57**	**12**	**57**	**12**
R 5.23	13228 Ocean Vista Rd	69	70	70	**58**[3]	**12**	**56**	**14**	**56**	**14**	**54**	**16**	**54**	**16**
R 5.23A	13240 Ocean Vista Rd	68	69	67	**58**[3]	**9**	**57**	**10**	**57**	**10**	**56**	**11**	**56**	**11**
R 5.24	13428 Ocean Vista Rd	68	69	65	64	1	64	1	64	1	64	1	64	1

[1] The NAC for all of the project noise receptors is 67 dBA for activity category B.
[2] Insertion loss, or I.L., is defined as the decibel reduction of insertion at the modeled abatement soundwall. **Bold** data indicate feasible noise abatement (i.e., a 5-dBA or greater reduction).
[3] Anticipated soundwall height.
[4] This site was chosen for monitoring purposes only; no area of frequent human use in this area. Therefore, interior Category E is used and the numbers in parenthesis refers to the interior noise level.
*Severely impacted receptors.
Source: Parsons 2010

Auxiliary Lane Alternative (Alternative 3)

With the Auxiliary Lane Alternative, 67 receptors would approach or exceed the FHWA NAC and would be impacted (see Table 3.16-5 for receptor-specific information for the Auxiliary Lane Alternative). Abatement was considered at these receptors as discussed below. The 67 impacted receptors represent 113 single-family residences, 50 multi-family residences, recreational facility at one location, and three schools. At 52 of the 67 impacted receptors, the existing noise levels already approach or exceed the NAC. All but 2 of the newly impacted receptors are located along the SR-56 corridor. No receptors would experience a substantial increase (12 dBA) as defined by the *Caltrans Traffic Noise Analysis Protocol*. With this alternative, the largest increase in noise level would be 6 dBA.

Five receptors along southbound I-5 between Carmel Valley Road and Del Mar Heights Road would be severely impacted. Of those five receptors, three receptors are currently severely impacted.

Many of the residential land uses along SR-56 and I-5 are protected from highway traffic noise by existing soundwalls, property walls and earthen berms. As a result, some of the residential land uses protected by the existing walls would either not be impacted or could not meet the feasible abatement requirements by the I-5/SR-56 Interchange Project. Receptors R4.5, R4.9, R5.16, and R5.9B along I-5 impacted by the proposed Auxiliary Lane Alternative would not be feasible to abate with standard noise abatement techniques.

Receptors R4.5 and R4.9 represents two groups of multi-family residences on the southbound side of I-5, north of Carmel Valley Road. Receptor R4.5 is protected by an existing 8-ft high soundwall. The existing soundwall decreases in height from 14 to 8 ft in front of Receptor R4.9. The results show that raising the height of the existing soundwall to 16 ft would not provide a 5-dBA noise reduction to any of the residences; therefore, it would not be feasible.

Similar to the Direct Connector Alternative, Receptor R5.16 would approach or exceed the NAC. Using a 20-dBA FHWA noise reduction factor with windows closed, the interior noise level of Receptor R5.16 is predicted to be 46 dBA, which is below the indoor noise criteria of 52 dBA.

Similar to the Direct Connector Alternative, it would not be practical to build a soundwall along the right of way or shoulder for receptor R5.9B due to the sharp decrease in elevation along the right of way. Furthermore, it would not be practical to locate a soundwall on private property for this single residence to close the gap between Soundwalls 5.S567 and 5.S569.

Table 3.16-5. Predicted Future Noise and Soundwall Analysis – Auxiliary Lane Alternative

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1, 2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]											
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]									
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 1	Double Tree Hotel - 11915 El Camino Real, San Diego	56	59	59										
R 2	12198 Carmel Park Dr, San Diego	55	58	60										
R 3	12174 Carmel Park Dr, San Diego	57	59	61										
R 4	3950 St Agnes Ct, San Diego	58	61	62										
R 4A	3955 St Agnes Ct, San Diego	58	61	62										
R 5	3930 San Leandro Wy, San Diego	62	64	**65**										
R 6A	3955 St Agnes Ct	64	66	**67**	--	--	65	2	63	4	**62**	**5**	**62[3]**	**5**
R 6	3920 San Gregorio Wy	63	65	**67**	--	--	64	3	63	4	**62**	**5**	**61[3]**	**6**
R 7	3922 San Martine Wy	63	65	**66**	--	--	64	2	63	3	62	4	**61[3]**	**5**
R 8	3950 San Augustine Wy	63	66	**66**	--	--	65	1	63	3	62	4	**61[3]**	**5**
R 9	3920 San Augustine Wy	62	65	**66**	--	--	64	2	62	4	**61[3]**	**5**	**60**	**6**
R 9A	3914 San Augustine Wy, San Diego	61	64	64										
R 10	3908 San Augustine Wy, San Diego	60	63	64										
R 11	3907 Montefrio Ct, San Diego	57	60	61										
R 12	3904 Santa Nella Pl, San Diego	57	60	61										
R 13	12411 Banuelo Cv, San Diego	59	62	62										
R 14	Notre Dame Academy (Playground)	64	69	**70**	**60[3]**	**10**	**59**	**11**	**58**	**12**	**57**	**13**	**56**	**14**
R 15	Notre Dame Academy (Playground)	62	68	**68**	**60[3]**	**8**	**59**	**9**	**58**	**10**	**58**	**10**	**56**	**12**
R 16	12342 Mona Lisa St, San Diego	64	64	65										
R 17	4505 Da Vinci St	66	66	**67**	64	3	**62**	**5**	**61[3]**	**6**	**60**	**7**	**59**	**8**
R 18	4563 Da Vinci St	65	65	**66**	64	2	62	4	**61[3]**	**5**	**60**	**6**	**59**	**7**
R 18A	4573 Da Vinci St	65	65	**66**	64	2	62	4	**61[3]**	**5**	**60**	**6**	**59**	**7**
R 19	4595 Da Vinci St	64	64	64	63	1	62	2	60	4	**59**	**5**	**58**	**6**
R 20	4635 Da Vinci St, San Diego	65	65	65										
R 21	4661 Da Vinci St, San Diego	65	65	65										
R 21A	4665 Da Vinci St, San Diego	63	63	64										
R 21B	4669 Da Vinci St, San Diego	62	62	63										
R 22	4697 Da Vinci St, San Diego	61	61	61										
R 23	12590 Cavallo St, San Diego	60	60	61										
R 24	Park - Carmel Country Rd, San Diego	62	62	62										
R 25	12581 Carmel Canyon Rd, San Diego	57	57	58										
R 26	12565 Carmel Canyon Rd, San Diego	58	58	59										
R 27	12563 Carmel Canyon Rd, San Diego	58	58	58										
R 28	4843 Almondwood Wy, San Diego	61	61	62										
R 29A	4861 Almondwood Wy, San Diego	61	61	62										
R 29	4869 Almondwood Wy, San Diego	63	63	64										
R 29B	4875 Almondwood Wy, San Diego	64	64	64										
R 30A	4885 Almondwood Wy, San Diego	64	64	64										
R 30	4915 Almondwood Wy, San Diego	64	64	65										
R 31	4954 Almondwood Wy, San Diego	54	54	54										

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1, 2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]													
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]											
					8 ft		10 ft		12 ft		14 ft		16 ft			
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.		
R 32	4991 Almondwood Wy	67	67	**67**	64	3	**62**	**5**	**61**[3]	**6**	**60**	**7**	**59**	**8**		
R 33	5085 Brookburn Dr	66	66	**66**	64	2	62	4	**61**[3]	**5**	**60**	**6**	**59**	**7**		
R 34	12654 Sandy Crest Ct	65	65	**66**	64	2	63	3	62	4	**61**[3]	**5**	**60**	**6**		
R 35	5067 Carmel Knolls Dr	65	65	65	64	1	62	3	61	4	**60**[3]	**5**	**59**	**6**		
R 35A	5067 Carmel Knolls Dr	65	65	**66**	64	2	62	4	**61**[3]	**5**	**60**	**6**	**59**	**7**		
R 36	5107 Carmel Knolls Dr	65	65	65	63	2	62	3	**60**[3]	**5**	**60**	**5**	**58**	**7**		
R 37	12701 Chandon Ct, San Diego	59	59	59												
R 38	5119 Vail Creek Ct, San Diego	62	62	62												
R 39	5149 Vail Creek Ct, San Diego	62	62	62												
R 40	5245 Southhampton Cv, San Diego	59	59	59												
R 41	5291 Southhampton Cv, San Diego	58	58	58												
R 42	San Diego Jewish Academy (Sports Field)	63	67	**68**	66	2	65	3	**63**	**5**	**63**[3]	**5**	**61**	**7**		
R 43	San Diego Jewish Academy (Sports Field)	63	67	**67**	65	2	64	3	63	4	**62**[3]	**5**	**61**	**6**		
R 44	San Diego Jewish Academy (Sports Field)	65	69	**69**	67	2	66	3	66	3	65	4	**64**[3]	**5**		
R 45	San Diego Jewish Academy (Sports Field)	65	68	**69**	67	2	66	3	66	3	65	4	**64**[3]	**5**		
R 46	3621 Carmel Valley Rd	66	70	**70**	**64**[3]	**6**	**62**	**8**	**62**	**8**	**61**	**9**	**61**	**9**		
R 47	Carmel Valley Rd	61	65	65	61	4	**59**	**6**	**59**	**6**	**58**	**7**	**57**	**8**		
R 48	4835 Ruette De Mer, San Diego	56	57	58												
R 49	4835 Ruette De Mer, San Diego	53	54	54												
R 50	4853 Ruette De Mer, San Diego	53	54	54												
R 51	4893 Ruette De Mer, San Diego	57	58	59												
R 52	4905 Ruette De Mer, San Diego	57	58	58												
R 53	4965 Ruette De Mer, San Diego	55	56	57												
R 54	5049 Ruette De Mer, San Diego	58	60	60												
R 54A	Golf Course, San Diego	61	62	62												
R 55	5083 Ruette De Mer, San Diego	59	60	61												
R 56	5163 Ruette De Mer, San Diego	52	54	54												
R 57	5234 Ruette De Mer, San Diego	58	59	59												
R 58	5260 Ruette De Mer, San Diego	58	59	59												
R 59	12618 Caminito Radiante, San Diego	59	60	60												
R 60	12619 Caminito Radiante, San Diego	59	60	60												
R 61	12636 Caminito Radiante, San Diego	59	60	60												
R 62	12668 Caminito Radiante, San Diego	58	59	59												
R 63	12686 Caminito Radiante, San Diego	58	59	60												
R 64	12698 Caminito Radiante, San Diego	62	63	63												
R 4.1	13583 Caminito Carmel	70	71	**73**	**65**[3]	**8**	**64**	**9**	**63**	**10**	**63**	**10**	**62**	**11**		
R 4.2	Caminito Pointe Del Mar (Community Pool)	71	72	**72**	**67**	**5**	**65**	**7**	**64**[3]	**8**	**62**	**10**	**61**	**11**		
R 4.2A	Caminito Pointe Del Mar (Community Patio)	72	73	**70**	68	2	66	4	**65**[3]	**5**	**64**	**6**	**63**	**7**		
R 4.3*	12943 Caminito Pointe Del Mar	72	73	**76**	75	1	74	2	**71**	**5**	**69**[3]	**7**	**68**	**8**		
R 4.4*	Caminito Pointe Del Mar (Community Tennis Court)	70	70	**75**	**70**	**5**	**66**	**9**	**65**	**10**	**63**[3]	**12**	**62**	**13**		
R 4.4A	12949 Caminito Pointe Del Mar	71	72	**74**	74	0	73	1	72	2	71	3	70	4		

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1, 2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]											
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]									
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 4.5	2784 Caminito San Marino	69	72	**66**	--	--	--	--	65	1	64	2	63	3
R 4.6	2771 Caminito Cedros, Del Mar	**68**	**68**	65										
R 4.7A	Del Mar Villas (Pool) - Portofino Cir, Del Mar	**66**	**66**	65										
R 4.7	Del Mar Villas (Pool) - Portofino Cir, Del Mar	**66**	**66**	65										
R 4.8	2777 Caminito Eldorado, Del Mar	65	65	64										
R 4.9	13080 Caminito Cristobal	68	67	**66**	--	--	--	--	--	--	65	1	65	1
R 4.10	13110 Portofino Dr, Del Mar	65	65	63										
R 4.11	13131 Portofino Dr	74	74	**69**	--	--	68	1	7	2	66	3	66	3
R 4.11A	13139 Portofino Dr	72	72	**69**	--	--	67	2	66	3	65	4	**64[3]**	**5**
R 4.12	13163 Portofino Dr	72	72	**70**	--	--	68	2	66	4	**65**	**5**	**64[3]**	**6**
R 4.12A	13193 Portofino Dr	70	69	**69**	--	--	66	3	65	4	**64**	**5**	**63[3]**	**6**
R 4.13	13231 Portofino Dr	69	69	**67**	--	--	65	2	64	3	63	4	63	4
R 4.14	13303 Portofino Dr	67	69	**67**	--	--	66	1	65	2	64	3	63	4
R 4.14A	13319 Portofino Dr	67	69	**68**	--	--	65	3	64	4	**63**	**5**	**62[3]**	**6**
R 4.15	13333 Portofino Dr	66	69	**68**	--	--	65	3	64	4	64	4	**63[3]**	**5**
R 4.16A	13357 Portofino Dr	66	68	**66**	--	--	65	1	64	2	63	3	62	4
R 4.16	13363 Portofino Dr	67	69	**67**	--	--	65	2	64	3	63	4	63	4
R 4.16B	13379 Portofino Dr	66	68	**66**	--	--	64	2	63	3	63	3	62	4
R 4.17	13395 Portofino Dr	66	68	**66**	--	--	64	2	64	2	63	3	62	4
R 4.17A	13415 Portofino Dr	66	69	**68**	--	--	65	3	64	4	**63**	**5**	**63[3]**	**5**
R 4.18	13451 Portofino Dr	68	68	**67**	--	--	65	2	64	3	64	3	63	4
R 4.18A	13485 Portofino Dr	67	68	**66**	--	--	65	1	64	2	63	3	62	4
R 4.19	13505 Portofino Dr	68	69	**67**	--	--	65	2	64	3	63	4	**62[3]**	**5**
R 4.19A	13525 Portofino Dr	69	69	**66**	--	--	65	1	64	2	63	3	63	3
R 4.20	13555 Portofino Dr	68	69	**67**	--	--	65	2	64	3	63	4	**62[3]**	**5**
R 4.20A	13575 Portofino Dr	68	69	**68**	--	--	66	2	64	4	**63**	**5**	**62[3]**	**6**
R 4.21	13603 Portofino Dr	68	69	**67**	--	--	66	1	65	2	64	3	63	4
R 4.21A	13627 Portofino Dr	68	69	**68**	--	--	66	2	65	3	64	4	**63[3]**	**5**
R 4.22	13651 Portofino Dr	68	68	**66**	--	--	65	1	64	2	64	2	63	3
R 4.22A	Del Mar Village	71	71	**72**	**61[3]**	**11**	**61**	**11**	**60**	**12**	**59**	**13**	**59**	**13**
R 4.23*	Del Mar Village	77	77	**79**	76	3	**70[3]**	**9**	**68**	**11**	**66**	**13**	**64**	**15**
R 4.23A*	Del Mar Village	77	76	**79**	75	4	**69[3]**	**10**	**66**	**13**	**65**	**14**	**63**	**16**
R 4.24	Del Mar Village	72	72	**73**	**67**	**6**	**64[3]**	**9**	**62**	**11**	**60**	**13**	**60**	**13**
R 5.1*	Bella Del Mar Apartment Homes	75	71	**75**	**64[3]**	**11**	**63**	**12**	**62**	**13**	**61**	**14**	**60**	**15**
R 5.2	Bella Del Mar Apartment Homes	71	72	**74**	**64[3]**	**10**	**63**	**11**	**62**	**12**	**61**	**13**	**60**	**14**
R 5.3	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	**67**	**69**	63										
R 5.4	Del Mar Hills Academy of Arts & Sciences (Class Area) -14085 Mango Dr, Del Mar	63	65	61										
R 5.5A	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	63	**70**	**68**	**61[3]**	**7**	**60**	**8**	**60**	**8**	**59**	**9**	**59**	**9**

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1, 2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]											
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]									
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 5.5	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	65	**67**	62	--	--	59	3	59	3	58	4	58	4
R 5.6A	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	65	**67**	65	**59**[3]	**6**	58	4	**57**	**8**	**57**	**8**	**57**	**8**
R 5.6	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	64	65	60	57	3	57	3	57	3	57	3	57	3
R 5.7A	14165 Minorca Cove	70	70	**72**	**66**[3]	**6**	**65**	**7**	**65**	**7**	**65**	**7**	**65**	**7**
R 5.7	14175 Minorca Cove	72	71	**73**	**63**[3]	**10**	**62**	**11**	**61**	**12**	**60**	**13**	**60**	**13**
R 5.7B	14211 Minorca Cove	68	68	**68**	**61**[3]	**7**	**60**	**8**	**60**	**8**	**59**	**9**	**58**	**10**
R 5.8	14243 Minorca Cove	66	66	64	**59**[3]	**5**	**59**	**5**	**58**	**6**	**58**	**6**	**57**	**7**
R 5.8B	14261 Minorca Cove	60	67	**66**	**59**[3]	**7**	**59**	**7**	**58**	**8**	**58**	**8**	**57**	**9**
R 5.8A	14261 Minorca Cove	66	66	62	59	3	59	3	59	3	58	4	58	4
R 5.9B	14269 Minorca Cove	67	67	**67**	67	0	67	0	67	0	67	0	67	0
R 5.9A	14267 Minorca Cove	67	67	**67**	67	0	65	2	63	4	**62**[3]	**5**	**60**	**7**
R 5.9	14295 Minorca Cove	67	67	**66**	62	4	**61**	**5**	**61**[3]	**5**	**60**	**6**	**59**	**7**
R 5.16[4]	East Bluff Community	67 (47)	68 (48)	66 (46)	64 (44)	2	63 (43)	3	62 (42)	4	**61 (41)**	**5**	**60 (40)**	**6**
R 5.16A	East Bluff Community - 3535 Voyager Cir, San Diego	58	60	60										
R 5.17	3355 Lower Ridge Rd, San Diego	64	64	64										
R 5.18	3285 Lower Ridge Rd, San Diego	64	63	62										
R 5.19	13126 Windbreak Rd, San Diego	63	63	61										
R 5.19A	13188 Windbreak Rd, San Diego	62	62	62										
R 5.20A	3404 Lady Hill Rd, San Diego	60	**67**	63										
R 5.20	3404 Lady Hill Rd, San Diego	61	61	59										
R 5.22	13212 Ocean Vista Rd	69	70	**69**	**59**[3]	**10**	**58**	**11**	**58**	**11**	**57**	**12**	**56**	**13**
R 5.23	13228 Ocean Vista Rd	69	70	**69**	**58**[3]	**11**	**56**	**13**	**55**	**14**	**53**	**16**	**53**	**16**
R 5.23A	13240 Ocean Vista Rd	68	69	**67**	**58**[3]	**9**	**57**	**10**	**57**	**10**	**57**	**10**	**56**	**11**
R 5.24	13428 Ocean Vista Rd	68	69	65	65	0	65	0	65	0	65	0	65	0

[1] The NAC for all of the project noise receptors is 67 dBA for activity category B.
[2] Insertion loss, or I.L., is defined as the decibel reduction of insertion at the modeled abatement soundwall. **Bold** data indicate feasible noise abatement (i.e., a 5-dBA or greater reduction).
[3] Anticipated soundwall height.
[4] This site was chosen for monitoring purposes only; no area of frequent human use in this area. Therefore, interior Category E is used and the numbers in parenthesis refers to the interior noise level.
*Severely impacted receptors.
Source: Parsons 2010

Hybrid Alternative (Alternative 4)

With the Hybrid Alternative, 71 receptors would approach or exceed the FHWA NAC and would be impacted (see Table 3.16-6 for receptor-specific information for the Hybrid Alternative). The 71 receptors represent 128 single-family residences, 50 multi-family residences, recreational facilities at one location and three schools. At 52 of the 71 impacted receptors, the existing noise levels already approach or exceed the NAC. All but two of the newly impacted receptors are located along the SR-56 corridor. No receptors would experience a substantial increase (12 dBA) as defined by the *Caltrans Traffic Noise Analysis Protocol*. With this alternative, the largest increase in noise level would be 6 dBA.

Six receptors along southbound I-5 between Carmel Valley Road and Del Mar Heights Road would be severely impacted. Of those six receptors, three receptors are currently severely impacted.

Many of the residential land uses along SR-56 and I-5 are protected from highway traffic noise by existing soundwalls, property walls and earthen berms. As a result, some of the residential land uses protected by the existing walls would either not be impacted or could not meet the feasible abatement requirements by the I-5/SR-56 Interchange Project. Receptors R4.5, R4.9, R5.16 and R5.9B along I-5 impacted by the proposed Hybrid Alternative would not be feasible to abate with standard noise abatement techniques.

As with the Auxiliary Lane Alternative, raising the height of the existing soundwall to 16 ft would not provide a 5-dBA noise reduction to any of the residences represented by Receptors R4.5 and R4.9. Therefore, it would not be feasible to abate with standard noise abatement techniques.

As with the Direct Connector and Auxiliary Lane Alternatives, the indoor noise level at Receptor R5.16 with the windows closed, is predicted to be 46 dBA, which is below the indoor noise criteria of 52 dBA.

Similar to the Direct Connector and Auxiliary Lane Alternatives, it would not be practical to build a soundwall at R5.9B due to the sharp decrease in elevation along the right of way. Furthermore, it would be impractical to locate a soundwall on private property for this single residence to close the gap between Soundwalls 5.S567 and 5.S569. Therefore, it would not be feasible to abate with standard noise abatement techniques.

Table 3.16-6. Predicted Future Noise and Soundwall Analysis – Hybrid Alternative

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1,2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]											
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]									
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 1	Double Tree Hotel - 11915 El Camino Real, San Diego	56	59	59										
R 2	12198 Carmel Park Dr, San Diego	55	58	59										
R 3	12174 Carmel Park Dr, San Diego	57	59	62										
R 4	3950 St Agnes Ct, San Diego	58	61	63										
R 4A	3955 St Agnes Ct, San Diego	58	61	62										
R 5	3930 San Leandro Wy, San Diego	62	64	65										
R 6A	3955 St Agnes Ct	64	66	**68**	--	--	66	2	64	4	**63[3]**	**5**	**62**	**6**
R 6	3920 San Gregorio Wy	63	65	**67**	--	--	65	2	63	4	63	4	**62[3]**	**5**
R 7	3922 San Martine Wy	63	65	**67**	--	--	65	2	64	3	63	4	**62[3]**	**5**
R 8	3950 San Augustine Wy	63	66	**67**	--	--	65	2	64	3	63	4	**62[3]**	**5**
R 9	3920 San Augustine Wy	62	65	**66**	--	--	64	2	62	4	62	4	**60[3]**	**6**
R 9A	3914 San Augustine Wy, San Diego	61	64	65										
R 10	3908 San Augustine Wy, San Diego	60	63	64										
R 11	3907 Montefrio Ct, San Diego	57	60	61										
R 12	3904 Santa Nella Pl, San Diego	57	60	61										
R 13	12411 Banuelo Cv, San Diego	59	62	63										
R 14	Notre Dame Academy (Playground)	64	69	**71**	**61[3]**	**10**	**60**	**11**	**58**	**13**	**58**	**13**	**57**	**14**
R 15	Notre Dame Academy (Playground)	62	68	**69**	**61[3]**	**8**	**60**	**9**	**59**	**10**	**58**	**11**	**57**	**12**
R 16	12342 Mona Lisa St, San Diego	64	64	65										
R 17	4505 Da Vinci St	66	66	**67**	65	2	63	4	**62[3]**	**5**	**61**	**6**	**60**	**7**
R 18	4563 Da Vinci St	65	65	**67**	64	3	63	4	**62[3]**	**5**	**61**	**6**	**60**	**7**
R 18A	4573 Da Vinci St	65	65	**66**	64	2	63	3	**61[3]**	**5**	**61**	**5**	**60**	**6**
R 19	4595 Da Vinci St	64	64	65	64	1	62	3	61	4	**60**	**5**	**59**	**6**
R 20	4635 Da Vinci St	65	65	**66**	64	2	62	4	**61[3]**	**5**	**60**	**6**	**59**	**7**
R 21	4661 Da Vinci St	65	65	**66**	64	2	62	4	**61[3]**	**5**	**60**	**6**	**59**	**7**
R 21A	4665 Da Vinci St	63	63	65	62	3	61	4	**60[3]**	**5**	**59**	**6**	**58**	**7**
R 21B	4669 Da Vinci St, San Diego	62	62	64										
R 22	4697 Da Vinci St, San Diego	61	61	62										
R 23	12590 Cavallo St, San Diego	60	60	62										
R 24	Park - Carmel Country Rd, San Diego	62	62	64										
R 25	12581 Carmel Canyon Rd, San Diego	57	57	59										
R 26	12565 Carmel Canyon Rd, San Diego	58	58	60										
R 27	12563 Carmel Canyon Rd, San Diego	58	58	59										
R 28	4843 Almondwood Wy, San Diego	61	61	63										
R 29A	4861 Almondwood Wy, San Diego	61	61	63										
R 29	4869 Almondwood Wy, San Diego	63	63	65										
R 29B	4875 Almondwood Wy, San Diego	64	64	65										
R 30A	4885 Almondwood Wy	64	64	**66**	63	3	62	4	**61[3]**	**5**	**60**	**6**	**59**	**7**
R 30	4915 Almondwood Wy	64	64	**66**	64	2	62	4	**61[3]**	**5**	**60**	**6**	**59**	**7**
R 31	4954 Almondwood Wy, San Diego	54	54	55										

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1,2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]													
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]											
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 32	4991 Almondwood Wy	67	67	**67**	65	2	**62**	**5**	**61**[3]	**6**	**60**	**7**	**59**	**8**
R 33	5085 Brookburn Dr	66	66	**66**	64	2	62	4	**61**[3]	**5**	**60**	**6**	**59**	**7**
R 34	12654 Sandy Crest Ct	65	65	**66**	64	2	63	3	62	4	**61**[3]	**5**	**60**	**6**
R 35	5067 Carmel Knolls Dr	65	65	65	64	1	62	3	61	4	**60**[3]	**5**	**59**	**6**
R 35A	5067 Carmel Knolls Dr	65	65	**66**	64	2	62	4	**61**[3]	**5**	**60**	**6**	**59**	**7**
R 36	5107 Carmel Knolls Dr	65	65	65	63	2	62	3	63	2	**60**	**5**	**59**	**6**
R 37	12701 Chandon Ct, San Diego	59	59	59										
R 38	5119 Vail Creek Ct, San Diego	62	62	62										
R 39	5149 Vail Creek Ct, San Diego	62	62	62										
R 40	5245 Southhampton Cv, San Diego	59	59	59										
R 41	5291 Southhampton Cv, San Diego	58	58	58										
R 42	San Diego Jewish Academy (Sports Field)	63	67	**67**	65	2	64	3	**62**	**5**	**61**	**6**	**62**[3]	**5**
R 43	San Diego Jewish Academy (Sports Field)	63	67	**67**	65	2	64	3	**62**	**5**	**61**	**6**	**61**[3]	**6**
R 44	San Diego Jewish Academy (Sports Field)	65	69	**69**	66	3	65	4	65	4	**64**	**5**	**63**[3]	**6**
R 45	San Diego Jewish Academy (Sports Field)	65	68	**68**	66	2	65	3	65	3	**61**	**7**	**63**[3]	**5**
R 46	3621 Carmel Valley Rd	66	70	**70**	**65**[3]	**5**	**63**	**7**	**62**	**8**	**61**	**9**	**61**	**9**
R 47	Carmel Valley Rd	61	65	65	62	3	**60**	**5**	**59**	**6**	64	1	**58**	**7**
R 48	4835 Ruette De Mer, San Diego	56	57	58										
R 49	4835 Ruette De Mer, San Diego	53	54	55										
R 50	4853 Ruette De Mer, San Diego	53	54	55										
R 51	4893 Ruette De Mer, San Diego	57	58	61										
R 52	4905 Ruette De Mer, San Diego	57	58	58										
R 53	4965 Ruette De Mer, San Diego	55	56	57										
R 54	5049 Ruette De Mer, San Diego	58	60	58										
R 54A	Golf Course, San Diego	61	62	63										
R 55	5083 Ruette De Mer, San Diego	59	60	61										
R 56	5163 Ruette De Mer, San Diego	52	54	54										
R 57	5234 Ruette De Mer, San Diego	58	59	59										
R 58	5260 Ruette De Mer, San Diego	58	59	59										
R 59	12618 Caminito Radiante, San Diego	59	60	60										
R 60	12619 Caminito Radiante, San Diego	59	60	60										
R 61	12636 Caminito Radiante, San Diego	59	60	60										
R 62	12668 Caminito Radiante, San Diego	58	59	59										
R 63	12686 Caminito Radiante, San Diego	58	59	60										
R 64	12698 Caminito Radiante, San Diego	62	63	63										
R 4.1	13583 Caminito Carmel	70	71	**72**	**65**[3]	**7**	**64**	**8**	**63**	**9**	**62**	**10**	**62**	**10**
R 4.2	Caminito Pointe Del Mar (Community Pool)	71	72	**72**	**67**	**5**	**64**	**8**	**64**[3]	**8**	**61**	**11**	**60**	**12**
R 4.2A	Caminito Pointe Del Mar (Community Patio)	72	73	**70**	68	2	66	4	**64**[3]	**6**	**64**	**6**	**63**	**7**
R 4.3*	12943 Caminito Pointe Del Mar	72	73	**76**	75	1	73	3	**71**	**5**	**69**[3]	**7**	**67**	**9**
R 4.4*	Caminito Pointe Del Mar (Community Tennis Court)	70	70	**75**	**69**	**6**	**66**	**9**	**64**	**11**	**63**[3]	**12**	**62**	**13**
R 4.4A	12949 Caminito Pointe Del Mar	71	72	**74**	74	0	73	1	72	2	70	4	70	4

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1, 2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]											
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]									
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 4.5	2784 Caminito San Marino	69	72	**66**	--	--	65	1	65	1	64	2	63	3
R 4.6	2771 Caminito Cedros, Del Mar	**68**	**68**	64										
R 4.7A	Del Mar Villas (Pool) - Portofino Cir, Del Mar	**66**	**66**	65										
R 4.7	Del Mar Villas (Pool) - Portofino Cir, Del Mar	**66**	**66**	65										
R 4.8	2777 Caminito Eldorado, Del Mar	65	65	64										
R 4.9	13080 Caminito Cristobal	68	67	**66**	--	--	66	0	66	0	65	1	65	1
R 4.11	13131 Portofino Dr	74	74	**69**	--	--	68	1	67	2	66	3	66	3
R 4.11A	13139 Portofino Dr	72	72	**69**	--	--	67	2	66	3	66	3	**64[3]**	**5**
R 4.12	13163 Portofino Dr	72	72	**70**	--	--	68	2	66	4	**65**	**5**	**64[3]**	**6**
R 4.12A	13193 Portofino Dr	70	69	**69**	--	--	66	3	65	4	**64**	**5**	**63[3]**	**6**
R 4.13	13231 Portofino Dr	69	69	**67**	--	--	65	2	64	3	63	4	63	4
R 4.14	13303 Portofino Dr	67	69	**67**	--	--	66	1	65	2	64	3	63	4
R 4.14A	13319 Portofino Dr	67	69	**68**	--	--	65	3	64	4	**63**	**5**	**63[3]**	**5**
R 4.15	13333 Portofino Dr	66	69	**68**	--	--	65	3	64	4	64	4	**63[3]**	**5**
R 4.16A	13357 Portofino Dr	66	68	**67**	--	--	65	2	64	3	63	4	**62[3]**	**5**
R 4.16	13363 Portofino Dr	67	69	**67**	--	--	65	2	64	3	64	3	63	4
R 4.16B	13379 Portofino Dr	66	68	**66**	--	--	**65**	**7**	64	2	63	3	62	4
R 4.17	13395 Portofino Dr	66	68	**66**	--	--	64	2	64	2	63	3	62	4
R 4.17A	13415 Portofino Dr	66	69	**68**	--	--	65	3	64	4	64	4	**63[3]**	**5**
R 4.18	13451 Portofino Dr	68	68	**67**	--	--	65	2	64	3	64	3	63	4
R 4.18A	13485 Portofino Dr	67	68	**66**	--	--	65	1	64	2	63	3	62	4
R 4.19	13505 Portofino Dr	68	69	**67**	--	--	65	2	64	3	63	4	**62[3]**	**5**
R 4.19A	13525 Portofino Dr	69	69	**66**	--	--	66	0	64	2	63	3	63	3
R 4.20	13555 Portofino Dr	68	69	**67**	--	--	66	1	64	3	64	3	63	4
R 4.20A	13575 Portofino Dr	68	69	**68**	--	--	66	2	65	3	**63**	**5**	**63[3]**	**5**
R 4.21	13603 Portofino Dr	68	69	**67**	--	--	66	1	65	2	64	3	63	4
R 4.21A	13627 Portofino Dr	68	69	**68**	--	--	66	2	65	3	64	4	**63[3]**	**5**
R 4.22	13651 Portofino Dr	68	68	**66**	--	--	65	1	64	2	64	2	63	3
R 4.22A	Del Mar Village	71	71	**72**	**62[3]**	**10**	**62**	**10**	**60**	**12**	**60**	**12**	**59**	**13**
R 4.23*	Del Mar Village	77	77	**79**	76	3	**70[3]**	**9**	**68**	**11**	**66**	**13**	**64**	**15**
R 4.23A*	Del Mar Village	77	76	**79**	75	4	**69[3]**	**10**	**67**	**12**	**65**	**14**	**63**	**16**
R 4.24	Del Mar Village	72	72	**73**	**67**	**6**	**64[3]**	**9**	**62**	**11**	**60**	**13**	**60**	**13**
R 5.1*	Bella Del Mar Apartment Homes	75	71	**75**	**64[3]**	**11**	**63**	**12**	**62**	**13**	**61**	**14**	**60**	**15**
R 5.2*	Bella Del Mar Apartment Homes	71	72	**75**	**64[3]**	**11**	**63**	**12**	**62**	**13**	**61**	**14**	**60**	**15**
R 5.3	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	**67**	**69**	64										
R 5.4	Del Mar Hills Academy of Arts & Sciences (Class Area) - 14085 Mango Dr, Del Mar	63	65	61										
R 5.5A	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	63	**70**	**69**	**61[3]**	**8**	**60**	**9**	**60**	**9**	**59**	**10**	**59**	**10**
R 5.5	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	65	**67**	62	59	3	59	3	59	3	59	3	58	4

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1,2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]											
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]									
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 5.6A	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	65	**67**	**66**	**59**[3]	**7**	**58**	**8**	**58**	**8**	**57**	**9**	**57**	**9**
R 5.6	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	64	65	61	58	3	57	4	57	4	57	4	57	4
R 5.7A	14165 Minorca Cove	70	70	**72**	**66**[3]	**6**	**66**	**6**	**66**	**6**	**65**	**7**	**65**	**7**
R 5.7	14175 Minorca Cove	72	71	**74**	**63**[3]	**11**	**62**	**12**	**61**	**13**	**60**	**14**	**60**	**14**
R 5.7B	14211 Minorca Cove	68	68	**68**	**61**[3]	**7**	**60**	**8**	**60**	**8**	**59**	**9**	**59**	**9**
R 5.8	14243 Minorca Cove	66	66	64	**59**[3]	**5**	**59**	**5**	**58**	**6**	**58**	**6**	**57**	**7**
R 5.8B	14261 Minorca Cove	60	67	**66**	**60**[3]	**6**	**69**	**7**	**58**	**8**	**58**	**8**	**57**	**9**
R 5.8A	14261 Minorca Cove	66	66	62	59	3	59	3	59	3	58	4	58	4
R 5.9B	14269 Minorca Cove	67	67	**67**	67	0	67	0	67	0	67	0	67	0
R 5.9A	14267 Minorca Cove	67	67	**67**	67	0	65	2	63	4	**62**[3]	**5**	**61**	**6**
R 5.9	14295 Minorca Cove	67	67	**66**	63	3	62	4	**61**[3]	**5**	**60**	**6**	**59**	**7**
R 5.16[4]	East Bluff Community	67 (47)	68 (48)	67 (47)	64 (44)	3	63 (43)	4	**62 (42)**	**5**	**61 (41)**	**6**	**60 (40)**	**7**
R 5.16A	East Bluff Community - 3535 Voyager Cir, San Diego	58	60	60										
R 5.17	3355 Lower Ridge Rd, San Diego	64	64	65										
R 5.18	3285 Lower Ridge Rd, San Diego	64	63	62										
R 5.19	13126 Windbreak Rd, San Diego	63	63	61										
R 5.19A	13188 Windbreak Rd, San Diego	62	62	62										
R 5.20A	3404 Lady Hill Rd, San Diego	60	**67**	62										
R 5.20	3404 Lady Hill Rd, San Diego	61	61	59										
R 5.21	13204 Ocean Vista Rd	66	67	65	62	3	**61**	**5**	61	4	61	4	**60**	**5**
R 5.22	13212 Ocean Vista Rd	69	70	**69**	**59**[3]	**10**	**58**	**11**	**58**	**11**	**57**	**12**	**56**	**13**
R 5.23	13228 Ocean Vista Rd	69	70	**69**	**58**[3]	**11**	**56**	**13**	**55**	**14**	**53**	**16**	**53**	**16**
R 5.23A	13240 Ocean Vista Rd	68	69	**67**	**58**[3]	**9**	**57**	**10**	**56**	**11**	**56**	**11**	**55**	**12**
R 5.24	13428 Ocean Vista Rd	68	69	65	64	1	64	1	64	1	64	1	64	1

[1] The NAC for all of the project noise receptors is 67 dBA for activity category B.
[2] Insertion loss, or I.L., is defined as the decibel reduction of insertion at the modeled abatement soundwall. **Bold** data indicate feasible noise abatement (i.e., a 5-dBA or greater reduction).
[3] Anticipated soundwall height.
[4] This site was chosen for monitoring purposes only; no area of frequent human use in this area. Therefore, interior Category E is used and the numbers in parenthesis refers to the interior noise level.
*Severely impacted receptors.
Source: Parsons 2010

Hybrid with Flyover Alternative (Alternative 5)

With the Hybrid with Flyover Alternative, 81 receptors would approach or exceed the FHWA NAC and would be impacted (see Table 3.16-7 for receptor-specific information for the Hybrid with Flyover Alternative). These 81 receptors represent 146 single-family residences, 50 multi-family residences, recreational facilities at one location and 3 schools. At 49 of the 80 impacted receptors, the existing noise levels already approach or exceed the NAC. All but two of the newly impacted receptors are located along the SR-56 corridor. No receptors would experience a substantial increase (12 dBA) as defined by the *Caltrans Traffic Noise Analysis Protocol*. With this alternative, the largest increase in noise level would be 6 dBA.

Six receptors along southbound I-5 between Carmel Valley Road and Del Mar Heights Road would be severely impacted. Of those six receptors, three receptors are currently severely impacted.

Many of the residential land uses along SR-56 and I-5 are protected from highway traffic noise by existing soundwalls, property walls and earthen berms. As a result, some of the residential land uses protected by the existing walls would either not be impacted or could not meet the feasible abatement requirements by the I-5/SR-56 Interchange Project. Receptors R4.5, R4.9, R5.16 and R5.9B along I-5 impacted by the proposed Hybrid with Flyover Alternative would not be feasible to abate with standard noise abatement techniques.

As with the Auxiliary Lane and Hybrid Alternatives, raising the height of the existing soundwall to 16 ft would not provide a 5-dBA noise reduction to any of the residences represented by Receptors R4.5 and R4.9. Therefore, it would not be feasible to abate with standard noise abatement techniques.

As with the Direct Connector, Auxiliary Lane, and Hybrid Alternatives, using a 20-dBA FHWA noise reduction factor with windows closed, the indoor noise level at Receptor R5.16 is predicted to be 46 dBA, which is below the indoor noise criteria of 52 dBA.

Similar to the Direct Connector, Auxiliary Lane, and Hybrid Alternatives, it would not be practical to build a soundwall at R5.9B due to the sharp decrease in elevation along the ROW. Furthermore, it would be impractical to locate a soundwall on private property for this single residence to close the gap between Soundwalls 5.S567 and 5.S569. Therefore, it would not be feasible to abate with standard noise abatement techniques.

Table 3.16-7. Predicted Future Noise and Soundwall Analysis – Hybrid with Flyover Alternative

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1,2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]											
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]									
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 1	Double Tree Hotel - 11915 El Camino Real, San Diego	56	59	59										
R 2	12198 Carmel Park Dr, San Diego	55	58	60										
R 3	12174 Carmel Park Dr, San Diego	57	59	62										
R 4	3950 St Agnes Ct, San Diego	58	61	63										
R 4A	3955 St Agnes Ct	58	61	63	--	--	62	1	61	2	60	3	59	4
R 5	3930 San Leandro Wy	62	64	**66**	--	--	65	1	63	3	62	4	**61**[3]	**5**
R 6A	3955 St Agnes Ct	64	66	**69**	--	--	67	2	65	4	**64**	**5**	**63**[3]	**6**
R 6	3920 San Gregorio Wy	63	65	**68**	--	--	65	3	64	4	**63**	**5**	**62**[3]	**6**
R 7	3922 San Martine Wy	63	65	**67**	--	--	66	1	65	2	63	4	**62**[3]	**5**
R 8	3950 San Augustine Wy	63	66	**68**	--	--	66	2	64	4	**63**[3]	**5**	**62**	**6**
R 9	3920 San Augustine Wy	62	65	**67**	--	--	65	2	63	4	**62**[3]	**5**	**61**	**6**
R 9A	3914 San Augustine Wy	61	64	**66**	--	--	64	2	62	4	**61**[3]	**5**	**60**	**6**
R 10	3908 San Augustine Wy	60	63	65	--	--	63	2	62	3	61	4	**60**	**5**
R 11	3907 Montefrio Ct, San Diego	57	60	61										
R 12	3904 Santa Nella Pl, San Diego	57	60	62										
R 13	12411 Banuelo Cv, San Diego	59	62	63										
R 14	Notre Dame Academy (Playground)	64	69	**71**	**62**[3]	**9**	**60**	**11**	**59**	**12**	**58**	**13**	**58**	**13**
R 15	Notre Dame Academy (Playground)	62	68	**70**	**61**[3]	**9**	**61**	**9**	**60**	**12**	**59**	**11**	**57**	**13**
R 16	12342 Mona Lisa St	64	64	**66**	63	3	**61**[3]	**5**	**59**	**7**	**58**	**8**	**57**	**9**
R 17	4505 Da Vinci St	66	66	**68**	66	2	64	4	**63**[3]	**5**	**61**	**7**	**61**	**7**
R 18	4563 Da Vinci St	65	65	**68**	65	3	64	4	**62**[3]	**6**	**62**	**6**	**61**	**7**
R 18A	4573 Da Vinci St	65	65	**68**	65	3	64	4	**62**[3]	**6**	**62**	**6**	**60**	**8**
R 19	4595 Da Vinci St	64	64	**67**	65	2	63	4	**62**[3]	**5**	**61**	**6**	**60**	**7**
R 20	4635 Da Vinci St	65	65	**67**	65	2	63	4	**62**[3]	**5**	**61**	**6**	**60**	**7**
R 21	4661 Da Vinci St	65	65	**67**	**62**	**5**	63	4	**62**[3]	**5**	**61**	**6**	**60**	**7**
R 21A	4665 Da Vinci St	63	63	**66**	63	3	62	4	**61**[3]	**5**	**60**	**6**	**59**	**7**
R 21B	4669 Da Vinci St, San Diego	62	62	65										
R 22	4697 Da Vinci St, San Diego	61	61	63										
R 23	12590 Cavallo St, San Diego	60	60	63										
R 24	Park - Carmel Country Rd, San Diego	62	62	64										
R 25	12581 Carmel Canyon Rd, San Diego	57	57	60										
R 26	12565 Carmel Canyon Rd, San Diego	58	58	60										
R 27	12563 Carmel Canyon Rd, San Diego	58	58	60										
R 28	4843 Almondwood Wy, San Diego	61	61	63										
R 29A	4861 Almondwood Wy, San Diego	61	61	64										
R 29	4869 Almondwood Wy	63	63	**66**	63	3	**61**[3]	**5**	**60**	**6**	**59**	**7**	**58**	**8**
R 29B	4875 Almondwood Wy	64	64	**66**	64	2	62	4	**61**[3]	**5**	**60**	**6**	**59**	**7**
R 30A	4885 Almondwood Wy	64	64	**66**	64	2	63	3	**61**[3]	**5**	**60**	**6**	**59**	**7**
R 30	4915 Almondwood Wy	64	64	**66**	64	2	63	3	**61**[3]	**5**	**60**	**6**	**60**	**6**
R 31	4954 Almondwood Wy, San Diego	54	54	55										

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1,2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]													
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]											
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 32	4991 Almondwood Wy	67	67	**68**	65	3	**63**	**5**	**62**[3]	**6**	**60**	**8**	**60**	**8**
R 33	5085 Brookburn Dr	66	66	**67**	65	2	63	4	**62**[3]	**5**	**61**	**6**	**60**	**7**
R 34	12654 Sandy Crest Ct	65	65	**66**	65	1	63	3	61	4	**61**[3]	**5**	**61**	**5**
R 35	5067 Carmel Knolls Dr	65	65	**66**	64	2	63	3	62	4	**61**[3]	**5**	**60**	**6**
R 35A	5067 Carmel Knolls Dr	65	65	**66**	64	2	63	3	62	4	**61**[3]	**5**	**60**	**6**
R 36	5107 Carmel Knolls Dr	65	65	**66**	64	2	62	4	**61**[3]	**5**	**60**	**6**	**59**	**7**
R 37	12701 Chandon Ct, San Diego	59	59	60										
R 38	5119 Vail Creek Ct, San Diego	62	62	62										
R 39	5149 Vail Creek Ct, San Diego	62	62	62										
R 40	5245 Southhampton Cv, San Diego	59	59	59										
R 41	5291 Southhampton Cv, San Diego	58	58	58										
R 42	San Diego Jewish Academy (Sports Field)	63	67	**66**	64	2	64	2	63	3	62	4	**61**[3]	**5**
R 43	San Diego Jewish Academy (Sports Field)	63	67	**66**	64	2	64	2	63	3	62	4	**61**[3]	**5**
R 44	San Diego Jewish Academy (Sports Field)	65	69	**68**	66	2	65	3	65	3	64	4	64	4
R 45	San Diego Jewish Academy (Sports Field)	65	68	**68**	66	2	65	3	65	3	64	4	64	4
R 46	3621 Carmel Valley Rd	66	70	**70**	**66**[3]	**5**	**64**	**7**	**63**	**8**	**63**	**8**	**62**	**9**
R 47	Carmel Valley Rd	61	65	**67**	**62**[3]	**5**	**61**	**6**	**60**	**7**	**60**	**7**	**59**	**8**
R 48	4835 Ruette De Mer, San Diego	56	57	60										
R 49	4835 Ruette De Mer, San Diego	53	54	56										
R 50	4853 Ruette De Mer, San Diego	53	54	56										
R 51	4893 Ruette De Mer, San Diego	57	58	62										
R 52	4905 Ruette De Mer, San Diego	57	58	58										
R 53	4965 Ruette De Mer, San Diego	55	56	58										
R 54	5049 Ruette De Mer, San Diego	58	60	60										
R 54A	Golf Course, San Diego	61	62	64										
R 55	5083 Ruette De Mer, San Diego	59	60	63										
R 56	5163 Ruette De Mer, San Diego	52	54	55										
R 57	5234 Ruette De Mer, San Diego	58	59	61										
R 58	5260 Ruette De Mer, San Diego	58	59	60										
R 59	12618 Caminito Radiante, San Diego	59	60	61										
R 60	12619 Caminito Radiante, San Diego	59	60	61										
R 61	12636 Caminito Radiante, San Diego	59	60	60										
R 62	12668 Caminito Radiante, San Diego	58	59	59										
R 63	12686 Caminito Radiante, San Diego	58	59	59										
R 64	12698 Caminito Radiante, San Diego	62	63	63										
R 4.1	13583 Caminito Carmel	70	71	**72**	**65**[3]	**7**	**64**	**8**	**63**	**9**	**62**	**10**	**62**	**10**
R 4.2	Caminito Pointe Del Mar (Community Pool)	71	72	**72**	**67**	**5**	**64**	**8**	72[3]	0	**61**	**11**	**60**	**12**
R 4.2A	Caminito Pointe Del Mar (Community Patio)	72	73	**70**	68	2	66	4	70[3]	0	**64**	**6**	**63**	**7**
R 4.3*	12943 Caminito Pointe Del Mar	72	73	**76**	75	1	73	3	**71**	**5**	**69**[3]	**7**	**67**	**9**
R 4.4*	Caminito Pointe Del Mar (Community Tennis Court)	70	70	**75**	**69**	**6**	**66**	**9**	**64**	**11**	**63**[3]	**12**	**62**	**13**
R 4.4A	12949 Caminito Pointe Del Mar	71	72	**74**	74	0	73	1	72	2	70	4	70	4

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1, 2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]											
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]									
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 4.5	2784 Caminito San Marino	69	72	**66**	--	--	65	1	65	1	64	2	63	3
R 4.6	2771 Caminito Cedros, Del Mar	**68**	**68**	64										
R 4.7A	Del Mar Villas (Pool) - Portofino Cir, Del Mar	**66**	**66**	65										
R 4.7	Del Mar Villas (Pool) - Portofino Cir, Del Mar	**66**	**66**	65										
R 4.8	2777 Caminito Eldorado, Del Mar	65	65	64										
R 4.9	13080 Caminito Cristobal	68	67	**66**	--	--	66	0	66	0	65	1	65	1
R 4.11	13131 Portofino Dr	74	74	**69**	--	--	68	1	67	2	66	3	65	4
R 4.11A	13139 Portofino Dr	72	72	**69**	--	--	67	2	66	3	65	4	**64[3]**	**5**
R 4.12	13163 Portofino Dr	72	72	**70**	--	--	68	2	66	4	**65**	**5**	**64[3]**	**6**
R 4.12A	13193 Portofino Dr	70	69	**69**	--	--	66	3	65	4	**64**	**5**	**63[3]**	**6**
R 4.13	13231 Portofino Dr	69	69	**67**	--	--	65	2	64	3	63	4	63	4
R 4.14	13303 Portofino Dr	67	69	**67**	--	--	66	1	65	2	64	3	63	4
R 4.14A	13319 Portofino Dr	67	69	**68**	--	--	65	3	64	4	**63**	**5**	**62[3]**	**6**
R 4.15	13333 Portofino Dr	66	69	**68**	--	--	65	3	64	4	64	4	**63[3]**	**5**
R 4.16A	13357 Portofino Dr	66	68	**66**	--	--	65	1	64	2	63	3	62	4
R 4.16	13363 Portofino Dr	67	69	**67**	--	--	65	2	64	3	64	3	63	4
R 4.16B	13379 Portofino Dr	66	68	**66**	--	--	64	2	63	3	63	3	62	4
R 4.17	13395 Portofino Dr	66	68	**66**	--	--	64	2	63	3	62	4	62	4
R 4.17A	13415 Portofino Dr	66	69	**67**	--	--	65	2	64	3	63	4	**62[3]**	**5**
R 4.18	13451 Portofino Dr	68	68	**66**	--	--	65	1	64	2	63	3	62	4
R 4.18A	13485 Portofino Dr	67	68	**66**	--	--	64	2	63	3	62	4	62	4
R 4.19	13505 Portofino Dr	68	69	**66**	--	--	64	2	63	3	62	4	**61[3]**	**5**
R 4.19A	13525 Portofino Dr	69	69	**66**	--	--	65	1	64	2	63	3	62	4
R 4.20	13555 Portofino Dr	68	69	**67**	--	--	65	2	64	3	63	4	**62**	**5**
R 4.20A	13575 Portofino Dr	68	69	**68**	--	--	65	3	64	4	**63**	**5**	**62[3]**	**6**
R 4.21	13603 Portofino Dr	68	69	**67**	--	--	66	1	65	2	64	3	63	4
R 4.21A	13627 Portofino Dr	68	69	**66**	--	--	66	2	65	3	64	4	**63[3]**	**5**
R 4.22	13651 Portofino Dr	68	68	**66**	--	--	65	1	64	2	64	2	63	3
R 4.22A	Del Mar Village	71	71	**72**	**62[3]**	**10**	**62**	**10**	**60**	**12**	**60**	**12**	**59**	**13**
R 4.23*	Del Mar Village	77	77	**79**	76	3	**70[3]**	**9**	**68**	**11**	**66**	**13**	**64**	**15**
R 4.23A*	Del Mar Village	77	76	**79**	75	4	**69[3]**	**10**	**67**	**12**	**65**	**14**	**63**	**16**
R 4.24	Del Mar Village	72	72	**73**	**67**	**6**	**64[3]**	**9**	**62**	**11**	**60**	**13**	**60**	**13**
R 5.1*	Bella Del Mar Apartment Homes	75	71	**75**	**64[3]**	**11**	**63**	**12**	**62**	**13**	**61**	**14**	**60**	**15**
R 5.2*	Bella Del Mar Apartment Homes	71	72	**75**	**64[3]**	**11**	**63**	**12**	**62**	**13**	**61**	**14**	**60**	**15**
R 5.3	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	**67**	**69**	64										
R 5.4	Del Mar Hills Academy of Arts & Sciences (Class Area) - 14085 Mango Dr, Del Mar	63	65	61										
R 5.5A	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	63	**70**	**69**	**61[3]**	**8**	**60**	**9**	**0**	**9**	**59**	**10**	**59**	**10**
R 5.5	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	65	**67**	62	59	3	59	3	59	3	59	3	58	4

Receptor No.	Site Location	Existing Noise Levels $L_{eq}(h)$, dBA[1,2]	Future Peak Hour Noise Levels, $L_{eq}(h)$, dBA[1]											
			Future "No-Build"	Project "Build" Without Soundwall	Noise Prediction with Soundwall and Soundwall Insertion (I.L.)[2,3]									
					8 ft		10 ft		12 ft		14 ft		16 ft	
					L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R 5.6A	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	65	**67**	**66**	**59**[3]	**7**	**58**	**8**	**58**	**8**	**57**	**9**	**57**	**9**
R 5.6	Del Mar Hills Academy of Arts & Sciences (Playground) -14085 Mango Dr, Del Mar	64	65	61	58	3	57	4	57	4	57	4	57	4
R 5.7A	14165 Minorca Cove	70	70	**72**	**66**[3]	**6**	**66**	**6**	**66**	**6**	**65**	**7**	**65**	**7**
R 5.7	14175 Minorca Cove	72	71	**74**	**63**[3]	**11**	**62**	**12**	**61**	**13**	**60**	**14**	**60**	**14**
R 5.7B	14211 Minorca Cove	68	68	**68**	**61**[3]	**7**	**60**	**8**	**60**	**8**	**59**	**9**	**59**	**9**
R 5.8	14243 Minorca Cove	66	66	64	**59**[3]	**5**	**59**	**5**	**58**	**6**	**58**	**6**	**57**	**7**
R 5.8B	14261 Minorca Cove	60	67	**66**	**60**[3]	**6**	**59**	**7**	**58**	**8**	**58**	**8**	**57**	**9**
R 5.8A	14261 Minorca Cove	66	66	62	59	3	59	3	59	3	58	4	58	4
R 5.9B	14269 Minorca Cove	67	67	**67**	67	0	67	0	67	0	67	0	67	0
R 5.9A	14267 Minorca Cove	67	67	**67**	67	0	65	2	63	4	**62**[3]	**5**	**61**	**6**
R 5.9	14295 Minorca Cove	67	67	**66**	63	3	62	4	**61**[3]	**5**	**60**	**6**	**59**	**7**
R 5.16[4]	East Bluff Community	67 (47)	68 (48)	67 (47)	64 (44)	3	63 (43)	4	**62 (42)**	**5**	**61 (41)**	**6**	**60 (40)**	**7**
R 5.17	3355 Lower Ridge Rd, San Diego	64	64	65										
R 5.18	3285 Lower Ridge Rd, San Diego	64	63	62										
R 5.19	13126 Windbreak Rd, San Diego	63	63	61										
R 5.19A	13188 Windbreak Rd, San Diego	62	62	62										
R 5.20A	3404 Lady Hill Rd, San Diego	60	**67**	62										
R 5.20	3404 Lady Hill Rd, San Diego	61	61	59										
R 5.21	13204 Ocean Vista Rd	66	67	65	62	3	61	4	61	4	61	4	**60**	**5**
R 5.22	13212 Ocean Vista Rd	69	70	**69**	**59**[3]	**10**	**58**	**11**	**58**	**11**	**57**	**12**	**56**	**13**
R 5.23	13228 Ocean Vista Rd	69	70	**69**	**58**[3]	**11**	**56**	**13**	**55**	**14**	**53**	**16**	**53**	**16**
R 5.23A	13240 Ocean Vista Rd	68	69	**67**	**58**[3]	**9**	**57**	**10**	**56**	**11**	**56**	**11**	**55**	**12**
R 5.24	13428 Ocean Vista Rd	68	69	65	64	1	64	1	64	1	64	1	64	1

[1] The NAC for all of the project noise receptors is 67 dBA for activity category B.
[2] Insertion loss, or I.L., is defined as the decibel reduction of insertion at the modeled abatement soundwall. **Bold** data indicate feasible noise abatement (i.e., a 5-dBA or greater reduction).
[3] Anticipated soundwall height.
[4] This site was chosen for monitoring purposes only; no area of frequent human use in this area. Therefore, interior Category E is used and the numbers in parenthesis refers to the interior noise level.
*Severely impacted receptors.
Source: Parsons 2010

Construction Noise Impacts

Construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading; removal of existing pavement; loading, unloading, and placing materials; and paving. Diesel engine-driven trucks also would bring materials to the site and remove the spoils from excavation. Under load conditions, diesel engine noise levels may be 74 to 89 dBA at a distance of 50 ft from the equipment. Occasional pile driving would be performed, which would generate noise levels of 88 to 101 dBA at 50 ft from the equipment (FHWA 2006b). Construction equipment noise is considered a “point source” and is attenuated over distance at a rate of 6 dBA for each doubling of distance. Thus, a noise level of 85 dBA at 50 ft would be 79 dBA at 100 ft and 73 dBA at 200 ft from the source.

During excavating, grading, and paving operations, equipment moves to different locations and goes through varying load cycles. Additionally, there are breaks for the operators and for nonequipment tasks, such as measurement. Although maximum noise levels may be 85 to 90 dBA at a distance of 50 ft during most construction activities, hourly average noise levels near the edge of the project site at locations where the excavation, grading, and paving occur would be anticipated to be 65 to 75 dBA Leq. Maximum noise levels during pavement breaking would be about 88 dBA Lmax. Noise at the construction sites would be intermittent and the intensity of it would vary. The degree of construction noise may vary for different areas of the project site and also vary depending on the construction activities. Table 3.16-8 summarizes noise levels produced by construction equipment commonly used on roadway construction projects.

Table 3.16-8. Construction Operation Noise Level

Equipment	Maximum Noise Level (dBA at 50 feet)
Auger Drill Rig	86
Asphalt Paver	89
Asphalt Roller	78
Backhoe	75
Compactor	76
Concrete Pump	81
Crane	85
Dozer	85
Excavator	83
Front End Loader	74
Grader	75
Heavy Duty Dump Trucks	77
Vibratory Roller	78
Pavement Breaker	88
Pile Driver, Impact	101
Pile Driver, Vibratory	96

Source: Parsons 2010

No Build Alternative

Under the No Build Alternative, no highway construction is planned and no improvements beyond routine maintenance would be provided for this alternative; therefore, there would be no project-related construction noise.

Build Alternatives

Equipment involved in construction is expected to generate noise levels ranging from 74 to 101 dBA at a distance of 50 ft. The loudest equipment is the vibratory and impact pile driver, which would most

likely be used for the construction of the connector structures. Noise produced by construction equipment would be reduced over distance at a rate of about 6 dBA per doubling of distance. Further, construction noise would be short-term, intermittent, and dominated by local traffic noise. Thus, construction-related noise would be considered a temporary nuisance. To ensure noise limits would not be exceeded, detailed calculation must be conducted prior to start of construction activities to determine the noise levels associated with various construction stages. If there is a possibility of noise impacts, appropriate noise control measures must be considered to meet Caltrans requirements. Noise monitoring must also be considered during the construction activities to verify that these activities did not exceed the applicable noise limits.

3.16.4 IT IS ANTICIPATED THAT SOME PROJECT CONSTRUCTION ACTIVITIES WOULD BE PERFORMED AT NIGHT. DEMOLITION OF THE EXISTING DEL MAR HEIGHTS ROAD OVERCROSSING, WHICH WOULD BE REQUIRED UNDER ALL OF THE PROPOSED BUILD ALTERNATIVES, IS ONE SUCH ACTIVITY. THIS WORK WOULD INVOLVE THE USE OF MISCELLANEOUS CONSTRUCTION EQUIPMENT SUCH AS HEAVY DUTY DUMP TRUCKS, FRONT END LOADERS, AND PAVEMENT BREAKERS. THE LOUDEST OF THESE MACHINES IS THE PAVEMENT BREAKER, WHICH WOULD PRODUCE A MAXIMUM NOISE LEVEL OF 88 DBA AT A DISTANCE OF 15 METERS (50 FEET) FROM THE OPERATION. THEREFORE, DEMOLITION OF THE OVERCROSSING MAY RESULT IN TEMPORARY NOISE LEVELS THAT EXCEED 86 DBA AT 15 M (50 FT) FROM THE JOB SITE ACTIVITIES PERFORMED DURING NIGHTTIME DEMOLITION.AVOIDANCE, MINIMIZATION AND/OR ABATEMENT

Abatement measures have been considered for all impacted receptors. Noise abatement measures that are determined to be reasonable and feasible at the time of final design would be incorporated into the proposed project plans and specifications. This section discusses whether noise abatement measures at impacted receptors are reasonable under applicable standards and feasible.

There may be situations where “severe” traffic noise impacts exist or are predicted but the abatement measures listed in 23 CFR 772.13(c) are not feasible or reasonable. A severe noise impact is considered to occur when predicted exterior noise levels equal or exceed 75 dBA-Leq(h) or are 30 dBA or more above existing noise levels. In these instances, noise abatement measures other than those listed in 23 CFR 772.13(c) must be considered. Such measures are considered “unusual and extraordinary” abatement measures and may include measures such as constructing noise barriers that have an estimated construction cost that exceeds the reasonableness allowance or providing interior abatement in residential units.

Unusual and extraordinary abatement proposed on a Federal-aid project is subject to approval by FHWA on a case-by-case basis. Unusual and extraordinary abatement must reduce noise by at least 5 dBA to be considered feasible from an acoustical perspective. Noise barriers that abate for receptors that are severely impacted are considered beyond the reasonableness basis stated above. Severely impacted receptors (receptors that have a noise level of 75 dBA or above) will still receive attenuation by means of unusual and extraordinary abatement, even if the proposed sound barrier is found to be not reasonable from the basis of cost.

There are several means of unusual and extraordinary abatement. If the barrier abates for many **severely impacted receptors or severely impacted receptors that are in close proximity to one another,** the entire proposed barrier or a portion of the proposed barrier may be constructed. If the

barrier abates for a small number of severely impacted receptors, or if the severely impacted receptors are not in close proximity to one another, the residences represented by these receptors may receive individual abatement. If individual barriers are difficult or not feasible to construct, the residences may receive alternate forms of abatement such as interior abatement (air-conditioning, double-paned windows, etc.). The exact method of providing abatement for severely impacted receptors that are found to be not reasonable will be determined in more detail later during final design.

Short-term Construction Noise Impacts

Short-term construction noise impacts would be avoided or minimized with implementation of the following noise control measures during Project construction:

- Ensure that all equipment items have the manufacturers' recommended noise abatement measures, such as mufflers, engine enclosures, and engine vibration isolators, intact and operational. All construction equipment would be inspected at periodic intervals to ensure proper maintenance and presence of noise control devices (e.g., mufflers and shrouding, etc.).

- A construction noise monitoring program will be implemented.

- Noisier operations will be performed during times least sensitive to receptors with the exception of the Del Mar Heightls Blvd. Bridge which will be demolished in two stages at night with the episodes separated by a period of new construction.

- The community will be informed of anticipated construction activities and schedules.

No Build Alternative (Alternative 1)

Under the No Build Alternative, no noise abatement would be constructed as a result of the proposed project.

Direct Connector (Alternative 2)

Impacts under the Direct Connector Alternative have been identified at 86 Category B receptors. The abatement measures considered for specific receptor locations are summarized below. Nineteen soundwalls have been considered as part of the Direct Connector Alternative. With the Direct Connector Alternative, six soundwalls are preliminarily recommended and two more are conditionally recommended, which were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. Table 3.16-9a provides a summary of the preliminarily recommended noise barriers, including the number of benefited residences, reasonable allowance cost per noise barrier and estimated construction cost per barrier. Table 3.16-9b provides a summary of the preliminarily not recommended noise barriers. Table 3.16-9c provides a summary of the preliminarily conditionally recommended noise barriers that were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. Figures 2-4a through 2-4f also show locations of receptors and preliminarily recommended barriers for the Direct Connector Alternative.

<u>Soundwall 56.S27 (R4A to R-10: Residences along Westbound SR-56 near Carmel Creek Road)</u>

Soundwall 56.S27 would be located along westbound of SR-56 east of Carmel Creek Road and would provide a 5-dBA noise reduction for 13 single-family residences represented by Receptors R4A through R10. Existing noise levels at this location vary from 58 dBA to 64 dBA; predicted future noise levels range from 63 dBA to 69 dBA. Soundwall 56.S27 would be 4.3 to 14 to 16 ft in height and it would replace an existing 8-ft high glass/block soundwall located on the ROW and private property. However,

Soundwall 56.S27 is not reasonable to construct due to the estimated construction cost ($1,532,565) exceeding the total reasonable cost allowance ($481,000). Therefore, construction of Soundwall 56.S27 is not recommended (Table 3.16-9b).

Soundwall 56.S31 (R14 and R15: Notre Dame Academy)

Soundwall 56.S31 is located adjacent to westbound SR-56 inside the Notre Dame Academy property along the playground, which is represented by Receptors R14 and R15. Existing noise levels at this location range from 62 dBA to 64 dBA; predicted future noise levels would be 70-71 dBA. There is an existing earthen berm between the playground and the highway; however, the berm does not provide enough protection for the receptors to prevent an impact. The soundwall, which would be 8 ft in height, would provide a 5-dBA noise reduction for the Notre Dame Academy playground. Soundwall 56.S31 is not reasonable due to the estimated construction cost ($176,733) exceeding the total reasonable cost allowance ($82,000). Therefore, construction of Soundwall 56.S31 is not recommended (Table 3.16-9b).

Soundwall 56.S35 (R16-R21A: Residences along Westbound SR-56 near Carmel Country Road)

The soundwall would be 10 to 12 ft high and would provide a 5-dBA noise reduction for 35 attached single-family residences represented by Receptors R16 through R21A. Existing noise levels at this location range from 63-66 dBA; predicted future noise levels would be 66-68 dBA. Soundwall S35 would be located on the westbound side of SR-56 on the right-of-way line and private property. This soundwall would replace an existing 6-ft high block property wall. The estimated construction cost of soundwall 56.S35 ($1,035,259), including all easement costs, is less than the reasonable cost allowance ($1,295,000) and so is considered reasonable. Soundwall 56.S35 is preliminarily recommended (Table 3.16-9a and location shown on Figure 2-4e).

Soundwall 56.S41 (R29-R30: Residences along Westbound SR-56 near Carmel Country Road)

The soundwall would provide a 5-dBA noise reduction for seven single-family residences represented by Receptors R29 through R30. Existing noise levels at this location range from 63-64 dBA and predicted future noise levels would be 65 dBA. Soundwall 56.S41 would be 12 ft in height located on the westbound side of the highway on the right-of-way line. It would replace an existing 6-ft high block property wall. Soundwall 56.S41 is not reasonable due to the estimated construction cost ($424,086) exceeding the total reasonable cost allowance ($231,000). Therefore, construction of Soundwall 56.S41 is not recommended (Table 3.16-9b).

Soundwall 56.S47 (R32-R36: Residences along Westbound SR-56 near SR-56 Bike Trail)

Soundwall 56.S47 would provide a 5-dBA noise reduction for 11 single-family residences represented by Receptors R32 through R36. Existing noise levels at this location range from 65-67 dBA and future predicted noise levels would range from 66-68 dBA. The 10- to 14-ft high soundwall, which would be located on the westbound side of SR-56, would replace an existing 6-ft high block property wall and would connect to an existing soundwall. Soundwall 56.S47 has been raised higher than otherwise required at Receptor R32 to provide a 5 dBA noise reduction at Receptor R33. Soundwall 56.S47 is not reasonable due to the estimated construction cost ($919,515) exceeding the total reasonable cost allowance ($385,000). Therefore, construction of Soundwall 56.S47 is not recommended (Table 3.16-9b).

Soundwall 56.S20 (R42-R45: San Diego Jewish Academy)

The soundwall would provide a 5-dBA noise reduction for the sports field and playground of the San Diego Jewish Academy represented by Receptors R42 through R45. Soundwall 56.S20 would be 12 to

16 ft in height located inside the eastbound right-of-way of SR-56 on top of an existing earthen berm. Existing noise levels at this location range from 63-65 dBA and future predicted noise levels would range from 67-69 dBA. Soundwall 56.S20 is not reasonable due to the estimated construction cost ($1,138,048) exceeding the total reasonable cost allowance ($259,000). Therefore, construction of Soundwall 56.S20 is not recommended (Table 3.16-9b).

Soundwall 56.S34 (R46 and R47: Residences along Eastbound SR-56 near SR-56 Bike Trail)

Soundwall 56.S34 would be located along the eastbound side of SR-56 inside the right-of-way on top of an existing earthen berm. Existing noise levels at this location range from 61 to 66 dBA and predicted future noise levels would range from 67-71 dBA. The 8- to 10-ft high soundwall would provide a 5-dBA noise reduction for two single-family residences represented by Receptors R46 and R47. Soundwall 56.S34 is not reasonable due to the estimated construction cost ($488,040) exceeding the total reasonable cost allowance ($102,000). Therefore, construction of Soundwall 56.S34 is not recommended (Table 3.16-9b).

Soundwall 56.S34 (Option): Soundwall 56.S34 would be located along the eastbound side of SR-56 on private property. The 12- to 14-ft high soundwall would provide a 5-dBA noise reduction for one single-family residence represented by Receptors R46 and R47. Soundwall S34 (Option) is not reasonable due to the estimated construction cost ($465,908) exceeding the total reasonable cost allowance ($98,000). Therefore, construction of Soundwall S34 (Option) is not recommended (Table 3.16-9b).

Soundwall 05.S539 (R 4.1: Residence along Southbound I-5 near Carmel Valley Road)

Soundwall 05.S539 would provide a 5-dBA noise reduction for one single-family residence represented by Receptor R4.1. The existing noise level at this receptor is 70 dBA and the future predicted noise level is 72 dBA. The soundwall would be 8 ft in height and located on private property. Due to the higher elevation of the property, a soundwall would not be feasible at any other location. Soundwall 05.S539 is not reasonable due to the estimated construction cost ($100,127) exceeding the total reasonable cost allowance ($37,000). Therefore, construction of Soundwall 05.S539 is not recommended (Table 3.16-9b).

Soundwall 05.S541 (R4.2 to R4.4: Residences along Southbound I-5 near/on Caminito Pointe Del Mar)

Soundwall 05.S541, located on the southbound side of I-5, would provide a 5-dBA noise reduction for the recreational area of a gated housing community, composed of a pool and tennis courts, represented by Receptors R4.2, R4.2A, and R4.4 as well as a single-family residence represented by Receptor R4.3. Existing noise levels at these receptors range from 70-72 dBA and predicted future noise levels would range from 70-75 dBA. Currently, an existing 6-ft high property wall is located on the property line. Soundwall 05.S541 has been raised higher than otherwise required at Receptor R4.4 to provide the required noise reduction and to break the truck stack line-of-sight at Receptor R4.3. However, Soundwall 05.S541 would not provide a 5-dBA noise reduction to the residence represented by Receptor R4.4A because the soundwall would not completely block the line-of-sight to the highway due to the higher elevation of the house. Soundwall 05.S541 is not reasonable due to the estimated construction cost ($570,430) exceeding the total reasonable cost allowance ($225,000). Since R4.3 and R4.4 are severely impacted (i.e., predicted noise levels with the project would be 75 dBA or greater), abatement must be considered. Therefore, construction of soundwall 05.S541 is preliminarily recommended under unusual and extraordinary abatement (Table 3.16-9a and location shown on Figure 2-4a).

Soundwall 05.S545 (R4.5-4.9 and R4.11-R12: Residences along Southbound I-5 on/near Portofino Drive)

Soundwall 05.S545 would be 8 to 16 ft in height and located on the southbound side of I-5 on top of a retaining wall and on private property. Existing noise levels at these receptors range from 65-74 dBA and predicted future noise levels would range from 68-83 dBA. Soundwall 05.S545 would provide a 5-dBA noise reduction to 17 multi-family residences represented by R4.5, R4.6, R4.8, and R4.9, as well as a pool area represented by Receptors R4.7A and R4.7, and six single-family residences represented by Receptors R4.11 through R4.12.

Currently, an existing 8- to 14-ft high soundwall is located on the property line and within the right-of-way. However, part of the existing soundwall protecting the multi-family residences and pool area along Portofino Circle would have to be demolished to make room for the southbound I-5 widening. Soundwall 05.S545 would be raised higher than otherwise required at Receptor R4.6 to provide a 5-dBA noise reduction at Receptor R4.5. Soundwalls 05.S551, 05.S545, and 05.S555 would work as a collective system of soundwalls for Receptors R4.5, R4.6, R4.7A, R4.7, R4.8, R4.9, R4.11 through R4.12, R4.12A through R4.21, and Receptors R4.21A and R4.22. The estimated construction cost ($831,872) of 05.S545, including all easement costs, is less than the reasonable cost allowance ($1,368,000) and so is considered reasonable. Construction of Soundwall 05.S545 is preliminarily recommended (Table 3.16-9a and location shown on Figure 2-4a).

Soundwall 05.S551(R4.12A-R4.21: Residences along Southbound I-5 on Portofino Drive)

Soundwall 05.S551 would be 14 to 16 ft in height located on the southbound side of I-5 on private property. Existing noise levels at these receptors range from 66-70 dBA and predicted future noise levels would range from 66-75 dBA. Soundwall 05.S551 would provide a 5-dBA noise reduction to 18 single-family residences represented by Receptors R4.12A through R4.21.

Currently, an existing 8-ft high glass/block soundwall is located on private property between these stations that would not be demolished as part of this project. Soundwall 05.S551 has been raised higher than otherwise required at Receptors R4.17A and R4.21 to provide a 5-dBA noise reduction at Receptors R4.16B and R4.20A, respectively. Soundwall 05.S551 would not provide feasible abatement to every residence located behind the wall. However, the wall would provide at least a 4-dBA noise reduction to all residences. Soundwalls 05.S551, 05.S545, and 05.S555 would work as a collective system of soundwalls for Receptors R4.5, R4.6, R4.7A, R4.7, R4.8, R4.9, R4.11 through R4.12, R4.12A through R4.21, and Receptors R4.21A and R4.22. Soundwall 05.S551 is not reasonable due to the estimated construction cost ($3,093,703) exceeding the total reasonable cost allowance ($810,000). Therefore, construction of Soundwall 05.S551 is not recommended (Table 3.16-9b). R4.21 is severely impacted, which would benefit from construction of 05.S555 and future noise levels at this receptor would be reduced from 75 dBA to 67 dBA.

Soundwall 05.S551 (Option 2) (R4.11-R4.22: Residences along Southbound I-5 on Portofino Drive)

An option to noise barrier 05.S551 was developed that analyzed the feasibility of constructing a noise barrier on top of a re-aligned retaining wall. The retaining wall would be located several feet up the existing slope along southbound I-5. This buffer would provide homeowners with up to 20 feet of additional useable area for their property along Portofino Drive. This increase in backyard space would be accomplished by increasing the height of the proposed retaining wall, placing fill behind the retaining wall, and reconstructing the soundwall directly on top of the retaining wall. Soundwall 05.S551 (Option 2) would be 8 to 12 ft in height and would be located on private property and Caltrans right of way along the southbound side of I-5, north of SR-56. This area is represented by receiver sites R4.11 to R4.22. The soundwall would extend for approximately 3,606 feet. The proposed noise barrier would replace an

existing 8-foot soundwall. The wall would benefit approximately 52 single-family residences represented by Receptors R4.11 through R4.22).

Soundwall 05.S551 (Option 2) would provide feasible abatement to every residence located behind the wall. However, the wall would provide at least a 3 to 4-dBA noise reduction to all residences. Soundwall 05.S551 (Option 2) is reasonable because the estimated construction cost ($1,349,403) does not exceed the total reasonable cost allowance ($3,068,000). Therefore, construction of Soundwall 05.S551 (Option 2) is recommended (Table 3.16-9a).

Soundwall 05.S555 (R4.21A and R4.22: Residences along Southbound I-5 on Portofino Drive)

Soundwall.05.S555 would be 8 ft in height located on the southbound side of I-5 on private property. Existing noise levels at these receptors is 68 dBA and the future predicted noise levels would be 76-78 dBA. Soundwall 05.S555 would provide a 5-dBA noise reduction to four single-family residences represented by Receptors R4.21A and R4.22. Currently, an existing 8-ft high glass/block soundwall is located on the property line. This existing soundwall at these receptor locations would be demolished to make room for the southbound I-5 widening. Soundwalls 05.S551, 05.S545, and 05.S555 would work as a collective system of soundwalls for Receptors R4.5, R4.6, R4.7A, R4.7, R4.8, R4.9, R4.11 through R4.12, R4.12A through R4.21, and Receptors R4.21A and R4.22. The estimated construction cost ($125,225) of 05.S555, including all easement costs, is less than the reasonable cost allowance ($220,000) and so is considered reasonable. Construction of Soundwall 05.S555 is preliminarily recommended (Table 3.16-9a and Figure 2-4b).

Soundwall 05.S557 (R4.22A-R4.24: Residences in Del Mar Village)

Soundwall 05.S557 would be located on the southbound side of I-5 on private property. The existing noise levels at these receptors ranges from 71 dBA to 77 dBA and the predicted future noise level for these receptors would be 75-80 dBA. Soundwall 05.S557 would provide a 5-dBA noise reduction to grassy backyard outdoor use areas for 10 multi-family residences represented by Receptors R4.22A through R4.24. The soundwall would be 8 to 10 ft in height. Soundwall S557 is not constructible. Due to the lack of flat surface area (only 5 ft behind these residences), many large trees in the area would have to be removed for Soundwall S557 to be built. Soundwall 05.S557 is not reasonable due to the estimated construction cost ($555,812) with all easements exceeding the total reasonable cost allowance ($450,000). This soundwall is not constructible either. Therefore, construction of Soundwall 05.S557 is not recommended. Since R4.22.A, R4.23, R4.23A, and R4.24 are severely impacted, abatement must be considered. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement (Table 3.16-9b).

Soundwall 05.S561 (R5.1 and R5.2: Residences in Bella Del Mar Apartment Homes)

Soundwall 05.S561 would be 8 ft in height located along the southbound side of I-5. The existing noise levels at these receptors ranges from 71 dBA to 75 dBA and the predicted future noise level for these receptors would be 75-76 dBA. Soundwall 05.S561 would provide feasible abatement for the outdoor use areas for six multi-family residences, represented by Receptors R5.1 and R5.2. The outdoor use areas for the multi-family residences are patios. It is not feasible to abate for highway traffic noise from within the right-of-way in this area due to the right-of-way elevation compared to the residence elevation; however, a soundwall on private property would provide feasible noise abatement for the outdoor use areas for the multi-family residences, represented by Receptors R5.1 and R5.2, in this area. Permission would be needed from the property owners of the multi-family complex to place Soundwall 05.S561 at this location. Soundwall 05.S561 is not reasonable due to the estimated construction cost ($372,049) with all easements exceeding the total reasonable cost allowance ($246,000). Since R5.1 and R5.2 are severely impacted abatement must be considered. It is recommended that Soundwall 05.S561 be constructed with FHWA approval under unusual and extraordinary abatement (Table 3.16-9a and location shown on Figure 2-4b).

Soundwall 05.S563 (R5.5A and R5.6A: Del Mar Hills Academy of Arts & Sciences)

Soundwall 05.S563 would be located along the southbound side of I-5 at a height of 8 ft. The existing noise levels at this location range from 63-65 dBA and the predicted future noise level for these receptors would be 66-69 dBA. It is not feasible to abate for highway traffic noise from within the right-of-way in this area due to the right-of-way elevation compared to the school elevation. A soundwall along the property line would provide feasible abatement for the outdoor use areas at Del Mar Hills Academy of Arts and Sciences (formerly Del Mar Hills Elementary School), represented by Receptors R5.5A and R5.6A. However, this soundwall would not provide noise abatement to any classroom. An existing wall located along southbound I-5 protects a second playground and the classrooms represented by Receptors R5.3 and R5.4, respectively. Receptors R5.3 and R5.4 would not be impacted. The noise levels outside the classroom are predicted to be 61 dBA. Referring to the indoor/outdoor noise measurements conducted at this school as part of the I-5 North Coast Corridor Widening Project Noise Study Report (Parsons 2007), the noise levels inside the classrooms would be reduced by 21 dBA to a noise level of 40 dBA, which is well below the indoor noise abatement criteria of 52 dBA. Soundwall 05.S563 is not reasonable due to the estimated construction cost ($299,811) exceeding the total reasonable cost allowance ($188,000). Therefore, construction of Soundwall 05.S563 is not recommended. However, Soundwall 05.S563 may be recommended if negotiations with property owners could result in reducing or eliminating easement costs required for construction. If the estimated construction cost could not be reduced to less than or equal to the reasonable allowance, construction of soundwall 05.S563 would not be recommended (Table 3.16-9c).

Soundwall 05.S567 (R5.7A –R5.8B: Residences along Southbound I-5 North of Del Mar Heights Road)

Soundwall 05.S567 would be located on the right-of-way line and private property along the southbound side of I-5. The 8-ft high wall would provide feasible abatement for 13 single-family residences, represented by Receptors R5.7A to R5.8B from highway traffic noise. Existing noise levels at this location range from 60-72 dBA; future predicted noise levels would range from 66-74 dBA. While the northern end of Soundwall 05.S567 and Soundwall 05.S569 both run along the right-of-way and are adjacent to each other, they are considered different walls because of an elevation drop between them that prevents the gap from being closed. Permission would be needed from the property owners of some of the single-family residences to place Soundwall 05.S567 at the southern end of this location. The estimated construction cost ($611,679) of soundwall 05.S567, including all easement costs, is less than the reasonable cost allowance ($637,000) and so is considered reasonable. Soundwall 05.S567 is preliminarily recommended (Table 3.16-9a and location shown on Figure 2-4c).

Soundwall 05.S569 (R5.9A and R5.9: Residences along Southbound I-5 North of Del Mar Heights Road)

Soundwall 05.S569, which would be 8 to 14 ft in height, is located along the southbound side of I-5, situated on the right-of-way line and private property. The existing noise level at these receptors is 67 dBA and the predicted future noise level for these receptors would be 66-67 dBA. The wall would provide feasible abatement and achieve the minimum 5-dBA noise reduction for three single-family residences, represented by Receptors R5.9A and R5.9, from highway traffic noise. While both soundwalls 05.S567 and 05.S569 run along the right-of-way and are adjacent to each other, they are considered different walls because of an elevation drop between them that prevents the gap from being closed. Soundwall 05.S569 is not reasonable due to the estimated construction cost ($258,630) exceeding the total reasonable cost allowance ($129,000). Therefore, construction of Soundwall 05.S569 is not recommended (Table 3.16-9b).

Soundwall 05.S568 (Residences along northbound I-5 North of Del Mar Heights Road)

Soundwall 05.S568 would be located on the right-of-way and on private property along the northbound side of I-5. The 8- to 12-ft high wall would provide feasible abatement and achieve the minimum 5-dBA noise reduction for 10 single family residences, represented by Receptors R5.21 through R5.23A, from highway traffic noise. The existing noise level at these receptors is 66-69 dBA and the predicted future noise level for these receptors would be 66-70 dBA. However, it may not be practical to construct a soundwall at this location due to the topographical characteristics at this location and backyard decks. Soundwall 05.S568 is not reasonable due to the estimated construction cost ($537,363) exceeding the total reasonable cost allowance ($410,000). Therefore, construction of Soundwall 05.S568 is not recommended. However, Soundwall 05.S568 may be recommended if negotiations with property owners could result in reducing or eliminating easement costs required for construction. If the estimated construction cost could not be reduced to less than or equal to the reasonable allowance, construction of 05.S568 would not be recommended (Table 3.16-9c).

Table 3.16-9a. Summary of Preliminarily Recommended Noise Barriers – Direct Connector Alternative

Barrier No.	Receptor No.	Type[1] and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height Total Length	Reasonable Cost per Residence[2]	Reasonable Allowance Cost per Barrier(s)	Estimated Construction Cost per Barrier(s)[3]
56.S35	R16 to R21A	35 SFR	ROW / Private Property WB SR-56	10-12 ft 1,286 ft	$37,000	$1,295,000	$1,035,259
5.S541[4]	R4.2 to R4.4	1 SFR & 1 REC (4 Frontage Units)	Private Property SB I-5	8-14 ft 600 ft	$45,000	$225,000	$570,430 *($375,645)*
5.S545	R4.5 to R4.12	6 SFR, 17 MFR & 1 REC (1 Frontage Unit)	ROW / Retaining Wall / Private Property SB I-5	8-16 ft 1,640 ft	$57,000	$1,368,000	$831,872
5.S551 (Option 2)	R4.11 to R4.22	52 SFR	Private Property /Retaining Wall SB I-5	8-12 ft 3,606 ft	$59,000	$3,068,000	$1,349,403 *($806,750)*
5.S555	R4.21 & R4.22	4 SFR	Private Property SB I-5	8 ft 404 ft	$55,000	$220,000	$125,225
5.S561[4]	R5.1 & R5.2	6 MFR	Private Property SB I-5	8 ft 512 ft	$41,000	$246,000	$372,049 *($233,465)*
5.S567	R5.7A to R5.8B	13 SFR	ROW/Private Property SB I-5	8 ft 991 ft	$49,000	$637,000	$611,679

[1] Land Use: SFR - single-family residence; MFR - multi-family residence; SCH - school; REC - recreational facility.
[2] Based on the base reasonable allowance of $31,000 per residence.
[3] Estimated total cost with all easements is provided for each barrier. Estimated total cost without easements is provided in italics.
[4] These soundwalls were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided.
Source: Dokken 2010a

Table 3.16-9b. Summary of Preliminarily Not Recommended Noise Barriers – Direct Connector Alternative

Barrier No.	Receptor No.	Type[1] and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height Total Length	Reasonable Cost per Residence[2]	Reasonable Allowance Cost per Barrier(s)	Estimated Construction Cost per Barrier(s)[3]
56.S27	R4A to R10	13 SFR	ROW / Private Property WB SR-56	14 ft to 16 ft 1,615 ft	$37,000	$481,000	$1,532,565
56.S31	R14 & R15	1 SCH (2 Frontage Units)	Private Property WB SR-56	8 ft 253 ft	$41,000	$82,000	$176,733
56.S41	R29 to R30	7 SFR	ROW WB SR-56	712 ft 541 ft	$33,000	$231,000	$424,086
56.S47	R32 to R36	11 SFR	ROW WB SR-56	10 ft to 14 ft 1,112 ft	$35,000	$385,000	$919,515
56.S20	R42 to R45	1 SCH (7 Frontage Units)	Inside ROW EB SR-56	12 ft to 16 ft 1,526 ft	$37,000	$259,000	$1,138,048
56.S34	R46 & R47	2 SFR	Inside ROW EB SR-56	8 ft to 10 ft 974 ft	$51,000	$102,000	$488,040
56.S34 (Option)	R46 & R47	2 SFR	Private Property EB SR-56	12 ft to 14 ft 561 ft	$49,000	$98,000	$465,908
5.S539	R4.1	1 SFR	Private Property SB I-5	8 ft 361 ft	$37,000	$37,000	$100,127
5.S551	R4.12A to R4.21	18 SFR	Private Property SB I-5	14 ft to 16 ft 2,763 ft	$45,000	$810,000	$3,093,703
5.S557[4]	R4.22A to R4.24	10 MFR	Private Property SB I-5	8 ft to 10 ft 718 ft	$45,000	$450,000	$555,812 *($350,009)*
5.S569	R5.9A to R5.9	3 SFR	ROW / Private Property SB I-5	8 ft to 14 ft 348 ft	$43,000	$129,000	$258,630

[1] Land Use: SFR - single-family residence; MFR - multi-family residence; SCH - school; REC - recreational facility.
[2] Based on the base reasonable allowance of $31,000 per residence.
[3] Estimated total cost with all easements is provided for each barrier. Estimated total cost without easements is provided in italics.
[4] S557 is neither constructible nor reasonable to construct. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement.
Source: Dokken 2010a

Table 3.16-9c. Summary of Conditionally Recommended Noise Barriers – Direct Connector Alternative

Barrier No.	Receptor No.	Type[1] and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height Total Length	Reasonable Cost per Residence[2]	Reasonable Allowance Cost per Barrier(s)	Estimated Construction Cost per Barrier(s)[3]
5.S563[4]	R5.5A to R5.6	1 SCH (4 Frontage Units)	Private Property SB I-5	8 ft 427 ft	$47,000	$188,000	$299,811 *($184,571)*
5.S568[4]	R5.21 to R5.23A	10 SFR	ROW / Private Property NB I-5	8 ft to 12 ft 705 ft	$41,000	$410,000	$537,363 *($333,102)*

[1] Land Use: SFR - single-family residence; MFR - multi-family residence; SCH - school; REC - recreational facility.
[2] Based on the base reasonable allowance of $31,000 per residence.
[3] Estimated total cost with all easements is provided for each barrier. Estimated total cost without easements is provided in italics.
[4] These soundwalls were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided.
Source: Dokken 2010a

Areas without Proposed Abatement

Receptor R5.16: Receptor R5.16 was chosen for noise measurement purposes only and does not represent an area of outdoor use. However, this receptor does represent multi-family dwelling units. Therefore, the interior criteria would be used. Using a 20-dBA FHWA noise reduction factor due to the building with windows closed, the interior noise level of Receptor R5.16 is predicted to be 47 dBA, which is below the indoor noise criteria of 52 dBA. Figure 2-4b shows the location of Receptor R5.16.

Receptor R5.9B: Receptor R5.9B is located between Soundwalls 05.S567 and 05.S569 on the southbound side of I-5 along Minorca Cove. Due to the sharp decrease in elevation along the right-of-way, it would not be practical to build a soundwall at the right-of-way and the shoulder would not be effective due to the difference in elevation. Furthermore, because Soundwalls 05.S567 and 05.S569, which are located at the right-of-way, are feasible for the other single-family residences in this area, it would not be practical to locate a soundwall on private property for this single residence to close the gap between Soundwalls 05.S567 and 05.S569. Figure 2-4b shows the location of Receptor R5.9B.

Auxiliary Lane Alternative (Alternative 3)

Under the Auxiliary Lane Alternative, impacts were identified for 67 Category B receptor locations. The abatement measures for specific receptor locations are summarized below. Sixteen soundwalls have been considered for the Auxiliary Lane Alternative. One of the 16 recommended soundwalls is optional and proposed along SR-56. With the Auxiliary Lane Alternative, three soundwalls are preliminarily recommended and three more are conditionally recommended, which were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. Table 3.16-10a provides a summary of the preliminarily recommended noise barriers, including the number of benefited residences, reasonable allowance cost per noise barrier, and estimated construction cost per barrier. Table 3.16-10b provides a summary of the preliminarily not recommended noise barriers. Table 3.16-10c provides a summary of the conditionally recommended noise barriers that were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. Figures 2-5a through 2-5f show the locations of the receptors and preliminarily recommended barriers for the Auxiliary Lane Alternative.

Soundwall 56.S27 (R6A-R9: Residences along Westbound SR-56 near Carmel Creek Road)

Soundwall 56.S27 would be located along westbound of SR-56 east of Carmel Creek Road and would provide a 5-dBA noise reduction for 11 single-family residences represented by Receptors R6A through R9. Existing noise levels at this location vary from 62 dBA to 64 dBA; predicted future noise levels range from 66 dBA to 67 dBA. Soundwall 56.S27 would be 14 to 16 ft in height and it would replace an existing 8-ft high glass/block soundwall located on the right of way and private property. However, Soundwall 56.S27 is not reasonable to construct due to the estimated construction cost ($1,146,892) exceeding the total reasonable cost allowance ($407,000). Therefore, construction of Soundwall 56.S27 is not recommended (Table 3.16-10b).

Soundwall 56.S31 (R14 and R25: Notre Dame Academy)

Soundwall 56.S31 is located adjacent to westbound SR-56 inside the Notre Dame Academy property along the playground, which is represented by Receptors R14 and R15 located westbound of SR-56. Existing noise levels at this location range from 62 dBA to 64 dBA; predicted future noise levels would be 68-70 dBA. There is an existing earthen berm between the playground and the highway; however, the berm does not provide enough protection for the receptors to prevent an impact. The soundwall, which would be 8 ft in height, would provide a 5-dBA noise reduction for the Notre Dame Academy playground. Soundwall 56.S31 is not reasonable due to the estimated construction cost ($176,733) exceeding the total reasonable cost allowance ($82,000). Therefore, construction of Soundwall 56.S31 is not recommended (Table 3.16-10b).

Soundwall 56.S35 (R17-R19: Residences along Westbound SR-56 near Carmel Country Road)

The soundwall would be 10 to 12 ft high and would provide a 5-dBA noise reduction for 14 attached single-family residences represented by Receptors R17 through R119. Existing noise levels at this location range from 64-66 dBA; predicted future noise levels would be 64-67 dBA. Soundwall 56.S35 would be located on the westbound side of SR-56 on the right-of-way line and private property. This soundwall would replace an existing 6-ft high block property wall. Receptor R19, located behind the proposed soundwall, would be extended to provide feasible abatement to Receptor R18A. However, Receptor R19 is not anticipated to be impacted and would not receive any benefits from Soundwall 56.S35. Soundwall 56.S35 is not reasonable due to the estimated construction cost ($492,334) exceeding the total reasonable cost allowance ($462,000). Therefore, construction of Soundwall 56.S35 is not recommended. However, Soundwall 56.S35 may be recommended if negotiations with property owners could result in reducing or eliminating easement costs required for construction. If the estimated construction cost could not be reduced to less than or equal to the reasonable allowance, construction of 56.S35 would not be recommended (Table 3.16-10c).

Soundwall 56.S47 (R32-R36: Residences along Westbound SR-56 near SR-56 Bike Trail)

Soundwall 56.S47 would provide a 5-dBA noise reduction for 10 single-family residences represented by Receptors R32 through R36. Existing noise levels at this location range from 65-67 dBA and future predicted noise levels would range from 65-67 dBA. The 10- to 14-ft high soundwall, which would be located on the westbound side of SR-56, would replace an existing 6-ft high block property wall and would connect to an existing soundwall. Receptor R36 is not anticipated to be impacted and would not receive any benefits from Soundwall 56.S47. Soundwall 56.S47 is not reasonable due to the estimated construction cost ($908,822) exceeding the total reasonable cost allowance ($350,000). Therefore, construction of Soundwall S47 is not recommended (Table 3.16-10b).

Soundwall 56.S20 (R42-R45: San Diego Jewish Academy)

The soundwall would provide a 5-dBA noise reduction for the sports field and playground of the San Diego Jewish Academy represented by Receptors R42 through R45. Soundwall 56.S20 would be 12 to 16 ft in height and would be located inside the eastbound right-of-way of SR-56 on top of an existing earthen berm. Existing noise levels at this location range from 63-65 dBA and future predicted noise levels would range from 67-69 dBA. Soundwall 56.S20 is not reasonable due to the estimated construction cost ($1,135,345) exceeding the total reasonable cost allowance ($245,000). Therefore, construction of Soundwall 56.S20 is not recommended (Table 3.16-10b).

Soundwall 56.S34 (R46: Residence along Eastbound SR-56 near SR-56 Bike Trail)

Soundwall 56.S34 would be located along the eastbound side of SR-56 inside the right-of-way on top of an existing earthen berm. The 8- to 10-ft high soundwall would provide a 5-dBA noise reduction for one single-family residence represented by Receptors R46. Existing noise level at this location is 66 dBA and predicted future noise levels would be 70 dBA. Soundwall 56.S34 is not reasonable due to the estimated construction cost ($423,405) exceeding the total reasonable cost allowance ($49,000). Therefore, construction of Soundwall 56.S34 is not recommended (Table 3.16-10b).

Soundwall 56.S34 (Option): Soundwall 56.S34 would be located along the eastbound side of SR-56 on private property. The 12- to 14-ft high soundwall would provide a 5-dBA noise reduction for one single-family residence represented by Receptor R46. Soundwall S34 (Option) is not reasonable due to the estimated construction cost ($238,235) exceeding the total reasonable cost allowance ($51,000). Therefore, construction of Soundwall S34 (Option) is not recommended (Table 3.16-10b).

Soundwall 05.S539 (R4.1: Residence along Southbound I-5 near Carmel Valley Road)

Soundwall 05.S539 would provide a 5-dBA noise reduction for one single-family residence represented by Receptor R4.1. The existing noise level at this receptor is 70 dBA and the future predicted noise level is 73 dBA. The soundwall would be 8 ft in height and located on private property. Due to the higher elevation of the property, a soundwall would not be feasible at any other location. Soundwall 05.S539 is not reasonable due to the estimated construction cost ($100,127) exceeding the total reasonable cost allowance ($39,000). Therefore, construction of Soundwall 05.S539 is not recommended (Table 3.16-10b).

Soundwall 05.S541 (R4.2-R4.4: Residences along Southbound I-5 near/on Caminito Pointe Del Mar)

Soundwall 05.S541, located on the southbound side of I-5, would provide a 5-dBA noise reduction for the recreational area of a gated housing community, composed of a pool, patio and tennis courts, represented by Receptors R4.2, R4.2A, and R4.4 as well as a single-family residence represented by Receptor R4.3. Existing noise levels at these receptors range from 70-72 dBA and predicted future noise levels would range from 70-75 dBA. Currently, an existing 6- to 7-ft high property wall is located on the property line. Soundwall 05.S541 has been raised higher than otherwise required at Receptor R4.4 to provide the required noise reduction and to break the truck stack line-of-sight at Receptor R4.3. However, Soundwall 05.S541 would not provide a 5-dBA noise reduction to the residence represented by Receptor R4.4A because the soundwall would not completely block the line-of-sight to the highway due to the higher elevation of the house. Soundwall 05.S541 is not reasonable due to the estimated construction cost ($587,446) exceeding the total reasonable cost allowance ($225,000). Since R4.3 and R4.4 are severely impacted (i.e., predicted noise levels with the project would be 75 dBA or greater), abatement must be considered. Therefore, construction of soundwall 05.S541 is preliminarily recommended under unusual and extraordinary abatement.

Soundwall 05.S551(R4.11-R4.22: Residences along Southbound I-5 on Portofino Drive)

Soundwall 05.S551 would be 14 to 16 ft in height and would be located on the southbound side of I-5 on private property. Existing noise levels at these receptors range from 66-74 dBA and predicted future noise levels would range from 66-70 dBA. Soundwall 05.S551 would provide a 5-dBA noise reduction to 20 single-family residences represented by Receptors R4.11 through R4.22. Currently, an existing 8-ft high glass/block soundwall is located on private property in this location that would not be demolished as part of this project. Soundwall 05.S551 has been raised higher than otherwise required at R4.12 to provide a 5-dBA noise reduction at Receptor R4.12A. Soundwall 05.S551 would not provide feasible abatement to every residence located behind the wall. However, the wall would provide at least a 3 to 4-dBA noise reduction to all residences. Soundwall 05.S551 is not reasonable due to the estimated construction cost ($4,118,220) exceeding the total reasonable cost allowance ($900,000). Therefore, construction of Soundwall 05.S551 is not recommended (Table 3.16-10b).

Soundwall 05.S557 (R4.22A-R4.24: Residences in Del Mar Village)

Soundwall 05.S557 would be located on the southbound side of I-5 on private property. The existing noise levels at these receptors ranges from 71 dBA to 77 dBA and the predicted future noise level for these receptors would be 72-79 dBA. Soundwall 05.S557 would provide a 5-dBA noise reduction to grassy backyard outdoor use areas for 10 multi-family residences represented by Receptors R4.22A through R4.24. The soundwall would be 8 to 10 ft in height. Due to the lack of flat surface area (only 5 ft behind these residences), many large trees in the area would have to be removed for Soundwall S557 to be built. Soundwall 05.S557 is not reasonable due to the estimated construction cost ($555,812) with all easements exceeding the total reasonable cost allowance ($430,000). This soundwall is not constructible either. Therefore, construction of Soundwall 05.S557 is not recommended. Since R4.23 and R4.23A, are severely impacted, abatement must be considered. It is recommended that severely

impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement (Table 3.16-10b).

Soundwall 05.S561 (R 5.1-R5.2: Residences in Bella Del Mar Apartment Homes)

Soundwall 05.S561 would be 8 ft in height and would be located along the southbound side of I-5. The existing noise levels at these receptors ranges from 71 dBA to 75 dBA and the predicted future noise level for these receptors would be 74-75 dBA. Soundwall 05.S561 would provide feasible abatement for the outdoor use areas for six multi-family residences, represented by Receptors R5.1 and R5.2. The outdoor use areas for the multi-family residences are patios. It is not feasible to abate for highway traffic noise from within the right-of-way in this area due to the right-of-way elevation compared to the residence elevation; however, a soundwall on private property would provide feasible noise abatement for the outdoor use areas for the multi-family residences, represented by Receptors R5.1 and R5.2. Permission would be needed from the property owners of the multi-family complex to place Soundwall 05.S561 at this location. Soundwall 05.S561 is not reasonable due to the estimated construction cost ($372,049) with all easements exceeding the total reasonable cost allowance ($246,000). Since R5.1 and R5.2 are severely impacted abatement must be considered. It is recommended that Soundwall 05.S561 be constructed with FHWA approval under unusual and extraordinary abatement (Table 3.16-10a and location shown on Figure 2-5b).

Soundwall 05.S563 (R5.5A and R5.6: Del Mar Hills Academy of Arts & Sciences)

Soundwall 05.S563 would be located along the southbound side of I-5 at a height of 8 ft. The existing noise levels at this location range from 63-65 dBA and the predicted future noise level for these receptors would be 60-68 dBA. It is not feasible to abate for highway traffic noise from within the right-of-way in this area due to the right-of-way elevation compared to the school elevation. A soundwall along the property line would provide feasible abatement for the outdoor use areas at Del Mar Hills Academy of Arts and Sciences (formerly Del Mar Hills Elementary School), represented by Receptors R5.5A and R5.6. However, this soundwall would not provide noise abatement to any classroom. An existing wall located along southbound I-5 protects a second playground and the classrooms represented by Receptors R5.3 and R5.4, respectively. Receptors R5.3 and R5.4 would not be impacted. The noise levels outside the classroom are predicted to be 61 dBA. Referring to the indoor/outdoor noise measurements conducted at this school as part of the I-5 North Coast Corridor Widening Project Noise Study Report (Parsons 2007), the noise levels inside the classrooms would be reduced by 21 dBA to a noise level of 40 dBA, which is well below the indoor noise abatement criteria of 52 dBA. Soundwall 05.S563 is not reasonable due to the estimated construction cost ($299,811) exceeding the total reasonable cost allowance ($188,000). Therefore, construction of Soundwall 05.S563 is not recommended. However, Soundwall 05.S563 may be recommended if negotiations with property owners could result in reducing or eliminating easement costs required for construction. If the estimated construction cost could not be reduced to less than or equal to the reasonable allowance, construction of soundwall 05.S563 would not be recommended (Table 3.16-10c).

Soundwall 05.S567 (R5.7A-R5.8B: Residences along Southbound I-5 North of Del Mar Heights Road)

Soundwall 05.S567 would be located on the right-of-way line and private property along the southbound side of I-5. The 8-ft high wall would provide feasible abatement for 13 single-family residences, represented by Receptors R5.7A to R5.8B from highway traffic noise. The existing noise level in this location range from 60-72 dBA; future predicted noise levels would be 62-73 dBA. While the northern end of Soundwall 05.S567 and Soundwall 05.S569 both run along the right-of-way and are adjacent to each other, they are considered different walls because of an elevation drop between them that prevents the gap from being closed. Permission would be needed from the property owners of some of the single-family residences to place Soundwall 05.S567 at the southern end of this location. The estimated construction cost ($611,679) of soundwall 05.S567, including all easement costs, is less

than the reasonable cost allowance ($637,000) and so is considered reasonable. Soundwall 05.S567 is preliminarily recommended (Table 3.16-10a and location shown on Figure 2-5c).

Soundwall 05.S569 (R5.9A and R5.9: Residences along Southbound I-5 North of Del Mar Heights Road)

Soundwall 05.S569, which would be 8 to 14 ft in height, is located along the southbound side of I-5, situated on the right-of-way line and private property. The existing noise level at these receptors is 67 dBA and the predicted future noise level for these receptors would be 66-67 dBA. The wall would provide feasible abatement and achieve the minimum 5-dBA noise reduction for three single-family residences, represented by Receptors R5.9A and R5.9, from highway traffic noise. While both soundwalls 05.S567 and 05.S569 run along the right-of-way and are adjacent to each other, they are considered different walls because of an elevation drop between them that prevents the gap from being closed. Soundwall 05.S569 is not reasonable due to the estimated construction cost ($258,630) exceeding the total reasonable cost allowance ($129,000). Therefore, construction of Soundwall 05.S569 is not recommended (Table 3.16-10b).

Soundwall 05.S568 (R5.21-R5.23A: Residences along northbound I-5 North of Del Mar Heights Road)

Soundwall 05.S568 would be located on the right-of-way and on private property along the northbound side of I-5. The 8-ft high wall would provide feasible abatement and achieve the minimum 5-dBA noise reduction for nine single family residences, represented by Receptors R5.21 through R5.23A, from highway traffic noise. The existing noise level at these receptors is 66-68 dBA and the predicted future noise level for these receptors would be 65-69 dBA. Receptor R5.21 is not predicted to be impacted; however, Soundwall 05.S568 would begin at the property of Receptor R5.21 to provide a minimum 5-dBA noise reduction for Receptor R5.22. Soundwall 05.S568 is not reasonable due to the estimated construction cost ($505,048) exceeding the total reasonable cost allowance ($333,000). Therefore, construction of Soundwall 05.S568 is not recommended. However, Soundwall 05.S568 may be recommended if negotiations with property owners could result in reducing or eliminating easement costs required for construction. If the estimated construction cost could not be reduced to less than or equal to the reasonable allowance, construction of 05.S568 would not be recommended (Table 3.16-10c).

Table 3.16-10a. Summary of Preliminarily Recommended Noise Barriers – Auxiliary Lane Alternative

Barrier No.	Receptor No.	Type[1] and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height Total Length	Reasonable Cost per Residence[2]	Reasonable Allowance Cost per Barrier(s)	Estimated Construction Cost per Barrier(s)[3]
5.S541[4]	R4.2 to R4.4	1 SFR & 1 REC (4 Frontage Units)	Private Property SB I-5	8 ft, 12 ft, & 14 ft 600 ft	$45,000	$225,000	$587,446 *($388,142)*
5.S561[4]	R5.1 & R5.2	6 MFR	Private Property SB I-5	8 ft 512 ft	$41,000	$246,000	$372,049 *($233,465)*
5.S567	R5.7A to R5.8B	13 SFR	ROW / Private Property SB I-5	8 ft 991 ft	$49,000	$637,000	$611,679

[1] Land Use: SFR - single-family residence; MFR - multi-family residence; SCH - school; REC - recreational facility.
[2] Based on the base reasonable allowance of $31,000 per residence.
[3] Estimated total cost with all easements is provided for each barrier. Estimated total cost without easements is provided in italics.
[4] The receptors are severely impacted. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement.
Source: Dokken 2010a

Table 3.16-10b. Summary of Preliminarily Not Recommended Noise Barriers – Auxiliary Lane Alternative

Barrier No.	Receptor No.	Type[1] and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height Total Length	Reasonable Cost per Residence[2]	Reasonable Allowance Cost per Barrier(s)	Estimated Construction Cost per Barrier(s)[3]
56.S27	R6A to R9	11 SFR	ROW WB SR-56	14 ft to 16 ft 1,188 ft	$37,000	$407,000	$1,146,892
56.S31	R14 & R15	1 SCH (2 Frontage Units)	Private Property WB SR-56	8 ft 253 ft	$41,000	$82,000	$176,733
56.S47	R32 to R36	10 SFR	ROW WB SR-56	10 ft to 14 ft 1,115 ft	$35,000	$350,000	$908,822
56.S20	R42 to R45	1 SCH (7 Frontage Units)	Inside ROW EB SR-56	12 ft to 16 ft 1,526 ft	$35,000	$245,000	$1,135,345
56.S34	R46	1 SFR	Inside ROW EB SR-56	8 ft to 10 ft 846 ft	$49,000	$49,000	$423,405
56.S34 (Option)	R46	1 SFR	Private Property EB SR-56	12 ft to 14 ft 292 ft	$51,000	$51,000	$238,235
5.S539	R4.1	1 SFR	Private Property SB I-5	8 ft 361 ft	$39,000	$39,000	$100,127
5.S551	R4.11 to 4.22	20 SFR	Private Property SB I-5	14 ft to 16 ft 3,547 ft	$45,000	$900,000	$4,118,220
5.S557[4]	R4.22A to R4.24	10 MFR	Private Property SB I-5	8 ft to 10 ft 718 ft	$43,000	$430,000	$555,812 *($350,009)*
5.S569	R5.9A & R5.9	3 SFR	ROW / Private Property SB I-5	8 ft to 14 ft 348 ft	$43,000	$129,000	$258,630

[1] Land Use: SFR - single-family residence; MFR - multi-family residence; SCH - school; REC - recreational facility.
[2] Based on the base reasonable allowance of $31,000 per residence.
[3] Estimated total cost with all easements is provided for each barrier. Estimated total cost without easements is provided in italics.
[4] S557 is neither constructible nor reasonable to construct. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement.
Source: Dokken 2010a

Table 3.16-10c. Summary of Conditionally Recommended Noise Barriers – Auxiliary Lane Alternative

Barrier No.	Receptor No.	Type[1] and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height Total Length	Reasonable Cost per Residence[2]	Reasonable Allowance Cost per Barrier(s)	Estimated Construction Cost per Barrier(s)[3]
56.S35[4]	R17 to R19	14 SFR	ROW / Private Property WB SR-56	10 ft to 12 ft 640 ft	$33,000	$462,000	$492,334 *($378,362)*
5.S563[4]	R5.5A to R5.6	1 SCH (4 Frontage Units)	Private Property SB I-5	8 ft 427 ft	$47,000	$188,000	$299,811 *($184,571)*
5.S568[4]	R5.21 to R5.23A	9 SFR	ROW / Private Property NB I-5	8 ft 705 ft	$37,000	$333,000	$505,048 *($305,924)*

[1] Land Use: SFR - single-family residence; MFR - multi-family residence; SCH - school; REC - recreational facility.
[2] Based on the base reasonable allowance of $31,000 per residence.
[3] Estimated total cost with all easements is provided for each barrier. Estimated total cost without easements is provided in italics.
[4] These soundwalls were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided.
Source: Dokken 2010a

Receptors without Proposed Noise Abatement:

Receptors R4.5 and R4.9: Receptors R4.5 and R4.9 represent two groups of multi-family residences on the southbound side of I-5, north of Carmel Valley Road. Receptor R4.5 is protected by an existing 8-ft high soundwall. The existing soundwall decreases in height from 14 to 8 ft in front of Receptor R4.9 The results show that raising the height of the existing soundwall to 16 ft would not provide a 5-dBA benefit to any of the residences; therefore, it would not be feasible. Figure 2-5a shows the location of the receptors.

Receptor R5.16: Receptor R5.16 was chosen for noise measurement purposes only and does not represent an area of outdoor use. However, this receptor does represent multi-family residential units. Therefore, the interior criteria would be used. Assuming a 20-dBA noise reduction due to the building with windows closed, the interior noise level of Receptor R5.16 is predicted to be 46 dBA, which is below the indoor noise criteria of 52 dBA. However, with the windows open, the indoor noise level is predicted to be as high as 56 dBA. Figure 2-5b shows the location of Receptor R5.16.

Receptor R5.9B: Receptor R5.9B is located between Soundwalls S567 and S569 on the southbound side of I-5 along Minorca Cove. Due to the sharp decrease in elevation along the ROW, it would not be practical to build a soundwall at the ROW and the shoulder would not be effective due to the difference in elevation. Furthermore, because Soundwalls S567 and S569, which are located at the ROW, are feasible for the other single-family residences in this area, it would not be practical to locate a soundwall on private property for this single residence to close the gap between Soundwalls S567 and S569. Figure 2-5c shows the location of Receptor R5.9B.

Hybrid Alternative (Alternative 4)

Under the Hybrid Alternative, impacts were identified for 71 Category B receptor locations. The abatement measures considered for specific receptor locations are summarized below. With the Hybrid Alternative, 4 soundwalls are preliminarily recommended and 2 more are conditionally recommended which were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. Seventeen soundwalls have been considered for the Hybrid Alternative. In addition, there is one optional soundwall (Soundwall S34) proposed along SR-56. Table 3.16-11a provides a summary of the preliminarily recommended noise barriers, including the number of benefited residences, reasonable allowance cost per noise barrier, and estimated construction cost per barrier. Table 3.16-11b provides a summary of the preliminarily not recommended noise barriers. Table 3.16-11c provides a summary of the conditionally recommended noise barriers that were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. Figures 2-6a through 2-6f show the locations of the receptors and preliminarily recommended barriers for the Hybrid Alternative.

Soundwall 56.S27 (R6A-R9: Residences along Westbound SR-56 near Carmel Creek Road)

Soundwall 56.S27 would be located along westbound of SR-56 east of Carmel Creek Road and would provide a 5-dBA noise reduction for 11 single-family residences represented by Receptors R6A through R9. Existing noise levels at this location vary from 62 dBA to 64 dBA; predicted future noise levels range from 66 dBA to 68 dBA. Soundwall 56.S27 would be 12 to 16 ft in height and it would replace an existing 8-ft high glass/block soundwall located on the right of way and private property. However, Soundwall 56.S27 is not reasonable to construct due to the estimated construction cost ($1,125,567) exceeding the total reasonable cost allowance ($407,000). Therefore, construction of Soundwall 56.S27 is not recommended (Table 3.16-11b).

Soundwall 56.S31 (R14 and R15: Notre Dame Academy)

Soundwall 56.S31 is located adjacent to westbound SR-56 inside the Notre Dame Academy property along the playground, which is represented by Receptors R14 and R15 located westbound of SR-56. Existing noise levels at this location range from 62 dBA to 64 dBA; predicted future noise levels would be 69-71 dBA. There is an existing earthen berm between the playground and the highway; however, the berm does not provide enough protection for the receptors to prevent an impact. The soundwall, which would be 8 ft in height, would provide a 5-dBA noise reduction for the Notre Dame Academy playground. Soundwall 56.S31 is not reasonable due to the estimated construction cost ($176,733) exceeding the total reasonable cost allowance ($82,000). Therefore, construction of Soundwall 56.S31 is not recommended (Table 3.16-11b).

Soundwall 56.S35 (R17-R21A: Residences along Westbound SR-56 near Carmel Country Road)

The soundwall would be 10 to 12 ft high and would provide a 5-dBA noise reduction for 31 attached single-family residences represented by Receptors R17 through R21A. Existing noise levels at this location range from 63-66 dBA; predicted future noise levels would be 65-67 dBA. Soundwall 56.S35 would be located on the westbound side of SR-56 on the right-of-way line and private property. This soundwall would replace an existing 6-ft high block property wall. Receptor R19, located behind the proposed soundwall, would be extended to provide feasible abatement to Receptor R18A. However, Receptor R19 is not anticipated to be impacted and would not receive any benefits from Soundwall 56.S35. Soundwall 56.S35 is reasonable due to the estimated construction cost ($968,930) not exceeding the total reasonable cost allowance ($1,023,000). Therefore, construction of Soundwall 56.S35 is preliminarily recommended (Table 3.16-11a and Figure 2-6e).

Soundwall 56.S41 (R30A-R30: Residences along Westbound SR-56 near Carmel Country Road)

The soundwall would provide a 5-dBA noise reduction for four single-family residences represented by Receptors R30A through R30. The existing noise level at this location is 64 dBA and predicted future noise levels would be 66 dBA. Soundwall 56.S41 would be 12 ft in height located on the westbound side of the highway on the right-of-way line. It would replace an existing 6-ft high block property wall. Soundwall 56.S41 is not reasonable due to the estimated construction cost ($271,281) exceeding the total reasonable cost allowance ($132,000). Therefore, construction of Soundwall 56.S41 is not recommended (Table 3.16-11b).

Soundwall 56.S47 (R32-R35A: Residences along Westbound SR-56 near SR-56 Bike Trail)

Soundwall 56.S47 would provide a 5-dBA noise reduction for 10 single-family residences represented by Receptors R32 through R35A. Existing noise levels at this location range from 65-67 dBA and future predicted noise levels would range from 65-67 dBA. The 12- to 14-ft high soundwall, which would be located on the westbound side of SR-56, would replace an existing 6-ft high block property wall and would connect to an existing soundwall. Receptor R36 is not anticipated to be impacted and would not receive any benefits from Soundwall 56.S47. Soundwall 56.S47 is not reasonable due to the estimated construction cost ($865,458) exceeding the total reasonable cost allowance ($350,000). Therefore, construction of Soundwall S47 is not recommended (Table 3.16-11b).

Soundwall 56.S20 (R42-R45: San Diego Jewish Academy)

The soundwall would provide a 5-dBA noise reduction for the sports field and playground of the San Diego Jewish Academy represented by Receptors R42 through R45. Soundwall 56.S20 would be 12 to 16 ft in height and would be located inside the eastbound right-of-way of SR-56 on top of an existing earthen berm. Existing noise levels at this location range from 63-65 dBA and future predicted noise levels would range from 67-69 dBA. Soundwall 56.S20 is not reasonable due to the estimated

construction cost ($1,317,618) exceeding the total reasonable cost allowance ($259,000). Therefore, construction of Soundwall 56.S20 is not recommended (Table 3.16-11b).

Soundwall 56.S34 (R46: Residence along Eastbound SR-56 near SR-56 Bike Trail)

Soundwall 56.S34 would be located along the eastbound side of SR-56 inside the right-of-way on top of an existing earthen berm. The 8- to 10-ft high soundwall would provide a 5-dBA noise reduction for one single-family residence represented by Receptor R46. Existing noise level at this location is 66 dBA and predicted future noise levels would be 70 dBA. Soundwall 56.S34 is not reasonable due to the estimated construction cost ($422,462) exceeding the total reasonable cost allowance ($47,000). Therefore, construction of Soundwall 56.S34 is not recommended (Table 3.16-11b).

Soundwall 56.S34 (Option): Soundwall 56.S34 would be located along the eastbound side of SR-56 on private property. The 12- to 14-ft high soundwall would provide a 5-dBA noise reduction for one single-family residence represented by Receptor R46. Soundwall S34 (Option) is not reasonable due to the estimated construction cost ($238,235) exceeding the total reasonable cost allowance ($49,000). Therefore, construction of Soundwall S34 (Option) is not recommended (Table 3.16-11b).

Soundwall 05.S539 (R4.1: Residence along Southbound I-5 near Carmel Valley Road)

Soundwall 05.S539 would provide a 5-dBA noise reduction for one single-family residence represented by Receptor R4.1. The existing noise level at this receptor is 70 dBA and the future predicted noise level is 72 dBA. The soundwall would be 8 ft in height and located on private property. Due to the higher elevation of the property, a soundwall would not be feasible at any other location. Soundwall 05.S539 is not reasonable due to the estimated construction cost ($100,127) exceeding the total reasonable cost allowance ($37,000). Therefore, construction of Soundwall 05.S539 is not recommended (Table 3.16-11b).

Soundwall 05.S541 (R4.2-R4.4: Residences along Southbound I-5 near/on Caminito Pointe Del Mar)

Soundwall 05.S541, located on the southbound side of I-5, would provide a 5-dBA noise reduction for the recreational area of a gated housing community, composed of a pool, patio and tennis courts, represented by Receptors R4.2, 4.2A, and R4.4 as well as a single-family residence represented by Receptor R4.3. Existing noise levels at these receptors range from 70-72 dBA and predicted future noise levels would range from 70-76 dBA. Currently, an existing 6- to 7-ft high property wall is located on the property line. Soundwall 05.S541 has been raised higher than otherwise required (8-14 feet) at Receptor R4.4 to provide the required noise reduction and to break the truck stack line-of-sight at Receptor R4.3. However, Soundwall 05.S541 would not provide a 5-dBA noise reduction to the residence represented by Receptor R4.4A because the soundwall would not completely block the line-of-sight to the highway due to the higher elevation of the house. Soundwall 05.S541 is not reasonable due to the estimated construction cost ($587,446) exceeding the total reasonable cost allowance ($225,000). Since R4.3 and R4.4 are severely impacted (i.e., predicted noise levels with the project would be 75 dBA or greater), abatement must be considered. Therefore, construction of soundwall 05.S541 is preliminarily recommended under unusual and extraordinary abatement (Table 3.16-11a).

Soundwall 05.S551(R4.12-R4.21A: Residences along Southbound I-5 on Portofino Drive)

Soundwall 05.S551 would be 14 to 16 ft in height and would be located on the southbound side of I-5 on private property. Existing noise levels at these receptors range from 66-72 dBA and predicted future noise levels would range from 66-70 dBA. Soundwall 05.S551 would provide a 5-dBA noise reduction to 23 single-family residences represented by Receptors R4.12 through R4.21A. Currently, an existing 8-ft high glass/block soundwall is located on private property in this location that would not be demolished as part of this project. Soundwall 05.S551 has been raised higher than otherwise required

at R4.12 to provide a 5-dBA noise reduction at Receptor R4.12A. Soundwall 05.S551 would not provide feasible abatement to every residence located behind the wall. However, the wall would provide at least a 3 to 4-dBA noise reduction to all residences. Soundwall 05.S551 is not reasonable due to the estimated construction cost ($4,118,220) exceeding the total reasonable cost allowance ($1,081,000). Therefore, construction of Soundwall 05.S551 is not recommended (Table 3.16-11b).

Soundwall 05.S557 (R4.225A-R4.24: Residences in Del Mar Village)

Soundwall 05.S557 would be located on the southbound side of I-5 on private property. The existing noise levels at this location ranges from 71 dBA to 77 dBA and the predicted future noise level for these receptors would be 72-79 dBA. Soundwall 05.S557 would provide a 5-dBA noise reduction to grassy backyard outdoor use areas for 10 multi-family residences represented by Receptors R4.22A through R4.24. The soundwall would be 8 to 10 ft in height. Due to the lack of flat surface area (only 5 ft behind these residences), many large trees in the area would have to be removed for Soundwall S557 to be built. Soundwall 05.S557 is not reasonable due to the estimated construction cost ($555,812) with all easements exceeding the total reasonable cost allowance ($430,000). This soundwall is not constructible either. Therefore, construction of Soundwall 05.S557 is not recommended. Since R4.23 and R4.23A, are severely impacted, abatement must be considered. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement (Table 3.16-11b).

Soundwall 05.S561 (R5.1 and R.5.2: Residences in Bella Del Mar Apartment Homes)

Soundwall 05.S561 would be 8 ft in height and would be located along the southbound side of I-5. The existing noise levels at these receptors ranges from 71 dBA to 75 dBA and the predicted future noise level for these receptors would be 75 dBA. Soundwall 05.S561 would provide feasible abatement for the outdoor use areas for six multi-family residences, represented by Receptors R5.1 and R5.2. The outdoor use areas for the multi-family residences are patios. It is not feasible to abate for highway traffic noise from within the right-of-way in this area due to the right-of-way elevation compared to the residence elevation; however, a soundwall on private property would provide feasible noise abatement for the outdoor use areas for the multi-family residences, represented by Receptors R5.1 and R5.2. Permission would be needed from the property owners of the multi-family complex to place Soundwall 05.S561 at this location. Soundwall 05.S561 is not reasonable due to the estimated construction cost ($372,049) with all easements exceeding the total reasonable cost allowance ($246,000). Since R5.1 and R5.2 are severely impacted abatement must be considered. It is recommended that Soundwall 05.S561 be constructed with FHWA approval under unusual and extraordinary abatement (Table 3.16-10a and location shown on Figure 2-6b).

Soundwall 05.S563 (R5.5A and R5.6A: Del Mar Hills Academy of Arts & Sciences)

Soundwall 05.S563 would be located along the southbound side of I-5 at a height of 8 ft. The existing noise levels at this location range from 63-65 dBA and the predicted future noise level for these receptors would be 66-69 dBA. It is not feasible to abate for highway traffic noise from within the right-of-way in this area due to the right-of-way elevation compared to the school elevation. A soundwall along the property line would provide feasible abatement for the outdoor use areas at Del Mar Hills Academy of Arts and Sciences (formerly Del Mar Hills Elementary School), represented by Receptors R5.5A and R5.6A. However, this soundwall would not provide noise abatement to any classroom. An existing wall located along southbound I-5 protects a second playground and the classrooms represented by Receptors R5.3 and R5.4, respectively. Receptors R5.3 and R5.4 would not be impacted. The noise levels outside the classroom are predicted to be 61 dBA. Referring to the indoor/outdoor noise measurements conducted at this school as part of the I-5 North Coast Corridor Widening Project Noise Study Report (Parsons 2007), the noise levels inside the classrooms would be reduced by 21 dBA to a noise level of 40 dBA, which is well below the indoor noise abatement criteria

of 52 dBA. Soundwall 05.S563 is not reasonable due to the estimated construction cost ($299,811) exceeding the total reasonable cost allowance ($188,000). Therefore, construction of Soundwall 05.S563 is not recommended. However, Soundwall 05.S563 may be recommended if negotiations with property owners could result in reducing or eliminating easement costs required for construction. If the estimated construction cost could not be reduced to less than or equal to the reasonable allowance, construction of soundwall 05.S563 would not be recommended (Table 3.16-11c).

Soundwall 05.S567 (R5.7A-R5.8B: Residences along Southbound I-5 North of Del Mar Heights Road)

Soundwall 05.S567 would be located on the right-of-way line and private property along the southbound side of I-5. The existing noise levels range from 66-72 dBA and the future predicted noise levels would be 66-74 dBA. The 8-ft high wall would provide feasible abatement for 13 single-family residences, represented by Receptors R5.7A to R5.8B from highway traffic noise. While the northern end of Soundwall 05.S567 and Soundwall 05.S569 both run along the right-of-way and are adjacent to each other, they are considered different walls because of an elevation drop between them that prevents the gap from being closed. Permission would be needed from the property owners of some of the single-family residences to place Soundwall 05.S567 at the southern end of this location. The estimated construction cost ($611,679) of soundwall 05.S567, including all easement costs, is less than the reasonable cost allowance ($637,000) and so is considered reasonable. Soundwall 05.S567 is preliminarily recommended (Table 3.16-11a and location shown on Figure 2-6c).

Soundwall 05.S569 (R5.9A and 5.9: Residences along Southbound I-5 North of Del Mar Heights Road)

Soundwall 05.S569, which would be 8 to 14 ft in height, is located along the southbound side of I-5, situated on the right-of-way line and private property. The existing noise level at these receptors is 67 dBA and the predicted future noise level for these receptors would be 66-67 dBA. The wall would provide feasible abatement and achieve the minimum 5-dBA noise reduction for three single-family residences, represented by Receptors R5.9A and R5.9, from highway traffic noise. While both soundwalls 05.S567 and 05.S569 run along the right-of-way and are adjacent to each other, they are considered different walls because of an elevation drop between them that prevents the gap from being closed. Soundwall 05.S569 is not reasonable due to the estimated construction cost ($260,366) exceeding the total reasonable cost allowance ($129,000). Therefore, construction of Soundwall 05.S569 is not recommended (Table 3.16-11b).

Table 3.16-11a. Summary of Preliminarily Recommended Noise Barriers – Hybrid Alternative

Barrier No.	Receptor No.	Type[1] and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height Total Length	Reasonable Cost per Residence[2]	Reasonable Allowance Cost per Barrier(s)	Estimated Construction Cost per Barrier(s)[3]
56.S35	R17 to R21A	31 SFR	ROW / Private Property WB SR-56	8 ft to 12 ft 1,214 ft	$33,000	$1,023,000	$968,930
5.S541[4]	R4.2 to R4.4	1 SFR & 1 REC (4 Frontage Units)	Private Property SB I-5	8 ft, 12 ft, & 14 ft 600 ft	$45,000	$225,000	$587,446 *($388,142)*
5.S561[4]	R5.1 and R5.2	6 MFR	Private Property SB I-5	8 ft 512 ft	$41,000	$246,000	$372,049 *($233,465)*
5.S567	R5.7A to R5.8B	13 SFR	ROW / Private Property SB I-5	8 ft 991 ft	$49,000	$637,000	$611,679

[1] Land Use: SFR - single-family residence; MFR - multi-family residence; SCH - school; REC - recreational facility.
[2] Based on the base reasonable allowance of $31,000 per residence.
[3] Estimated total cost with all easements is provided for each barrier. Estimated total cost without easements is provided in italics.
[4] The receptors are severely impacted. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement.
Source: Dokken 2010a

Table 3.16-11b. Summary of Preliminarily Not Recommended Noise Barriers – Hybrid Alternative

Barrier No.	Receptor No.	Type[1] and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height Total Length	Reasonable Cost per Residence[2]	Reasonable Allowance Cost per Barrier(s)	Estimated Construction Cost per Barrier(s)[3]
56.S27	R6A to R9	11 SFR	ROW WB SR-56	12 ft to 16 ft 1,188 ft	$37,000	$407,000	$1,125,567
56.S31	R14 and R15	1 SCH (2 Frontage Units)	Private Property WB SR-56	8 ft 253 ft	$41,000	$82,000	$176,733
56.S41	R30A and R30	4 SFR	ROW WB SR-56	12 ft 345 ft	$33,000	$132,000	$271,281
56.S47	R32 to R35A	10 SFR	ROW WB SR-56	12 ft to 14 ft 1,060 ft	$35,000	$350,000	$865,458
56.S20	R42 to R45	1 SCH (7 Frontage Units)	Inside ROW EB SR-56	12 ft to 16 ft 1,703 ft	$37,000	$259,000	$1,317,618
56.S34	R46	1 SFR	Inside ROW EB SR-56	8 ft) to 10 ft 846 ft	$47,000	$47,000	$422,462
56.S34 (Option)	R46	1 SFR	Private Property EB SR-56	12 ft to 14 ft 292 ft	$49,000	$49,000	$238,235
5.S539	R4.1	1 SFR	Private Property SB I-5	8 ft 138 ft	$37,000	$37,000	$100,127
5.S551	R4.12 to 4.21A	23 SFR	Private Property SB I-5	14 ft to 16 ft 3,537 ft	$47,000	$1,081,000	$4,118,220
5.S557[4]	R4.22A to R4.24	10 MFR	Private Property SB I-5	8 ft to 10 ft 719 ft	$43,000	$430,000	$555,812 *($350,009)*
5.S569	R5.9A and R5.9	3 SFR	ROW / Private Property SB I-5	8 ft to 14 ft 348 ft	$43,000	$129,000	$260,366

[1] Land Use: SFR - single-family residence; MFR - multi-family residence; SCH - school; REC - recreational facility.
[2] Based on the base reasonable allowance of $31,000 per residence.
[3] Estimated total cost with all easements is provided for each barrier. Estimated total cost without easements is provided in italics.
[4] S557 is neither constructible nor reasonable to construct. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement.
Source: Dokken 2010a

Table 3.16-11c. Summary of Conditionally Recommended Noise Barriers – Hybrid Alternative

Barrier No.	Receptor No.	Type[1] and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height Total Length	Reasonable Cost per Residence[2]	Reasonable Allowance Cost per Barrier(s)	Estimated Construction Cost per Barrier(s)[3]
5.S563[4]	R5.5A to R5.6A	1 SCH (4 Frontage Units)	Private Property SB I-5	8 ft 427 ft	$47,000	$188,000	$299,811 *($184,571)*
5.S568[4]	R5.22 to R5.23A	9 SFR	ROW / Private Property NB I-5	8 ft 705 ft	$37,000	$333,000	$505,048 *($305,048)*

[1] Land Use: SFR - single-family residence; MFR - multi-family residence; SCH - school; REC - recreational facility.
[2] Based on the base reasonable allowance of $31,000 per residence.
[3] Estimated total cost with all easements is provided for each barrier. Estimated total cost without easements is provided in italics.
[4] These soundwalls were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided.
Source: Dokken 2010a

Soundwall 05.S568 (R: 5.22-R5.23A: Residences along northbound I-5 North of Del Mar Heights Road)

Soundwall 05.S568 would be located on the right-of-way and on private property along the northbound side of I-5. The 8-ft high wall would provide feasible abatement and achieve the minimum 5-dBA noise reduction for nine single family residences, represented by Receptors R5.22 through R5.23A, from highway traffic noise. The existing noise level at these receptors is 68-69 dBA and the predicted future noise level for these receptors would be 67-69 dBA. Receptor R5.21 is not predicted to be impacted; however, Soundwall 05.S568 would begin at the property of Receptor R5.21 to provide a minimum 5-dBA noise reduction for Receptor R5.22. Soundwall 05.S568 is not reasonable due to the estimated construction cost ($505,048) exceeding the total reasonable cost allowance ($333,000). Therefore, construction of Soundwall 05.S568 is not recommended. However, Soundwall 05.S568 may be recommended if negotiations with property owners could result in reducing or eliminating easement costs required for construction. If the estimated construction cost could not be reduced to less than or equal to the reasonable allowance, construction of 05.S568 would not be recommended (Table 3.16-11c).

Receptors without Proposed Noise Abatement:

Receptors R4.5 and R4.9: Receptors R4.5 and R4.9 represent two groups of multi-family residences on the southbound side of I-5, north of Carmel Valley Road. Receptor R4.5 is protected by an existing 8-ft high soundwall. The existing soundwall decreases in height from 14 to 8 ft in front of Receptor R4.9 The results show that raising the height of the existing soundwall to 16 ft would not provide a 5-dBA benefit to any of the residences; therefore, it would not be feasible. Figure 2-6a shows the location of the receptors.

Receptor R5.16: Receptor R5.16 was chosen for noise measurement purposes only and does not represent an area of outdoor use. However, this receptor does represent multi-family residential units. Therefore, the interior criteria would be used. Assuming a 20-dBA noise reduction due to the building with windows closed, the interior noise level of Receptor R5.16 is predicted to be 46 dBA, which is below the indoor noise criteria of 52 dBA. However, with the windows open, the indoor noise level is predicted to be as high as 56 dBA. Figure 2-6b shows the location of Receptor R5.16.

Receptor R5.9B: Receptor R5.9B is located between Soundwalls S567 and S569 on the southbound side of I-5 along Minorca Cove. Due to the sharp decrease in elevation along the ROW, it would not be practical to build a soundwall at the ROW and the shoulder would not be effective due to the difference in elevation. Furthermore, because Soundwalls S567 and S569, which are located at the ROW, are feasible for the other single-family residences in this area, it would not be practical to locate a soundwall on private property for this single residence to close the gap between Soundwalls S567 and S569. Figure 2-6c shows the location of Receptor R5.9B.

Hybrid with Flyover Alternative (Alternative 5)

Under the Hybrid with Flyover Alternative, impacts were identified for 81 Category B receptor locations. The abatement measures considered for specific receptor locations are summarized below. With the Hybrid with Flyover Alternative, four soundwalls are preliminarily recommended and two more are conditionally recommended, which were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. Seventeen soundwalls have been considered for the Hybrid Alternative. One of the 17 recommended soundwalls is optional (Soundwall S34) and proposed along SR-56. The abatement measures for specific receptor locations are summarized below. Table 3.16-12a provides a summary of the preliminarily recommended noise barriers, including the number of benefited residences, reasonable allowance cost per noise barrier, and estimated construction cost per barrier. Table 3.16-12b provides a summary of the preliminarily not recommended noise barriers that were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided. Table

3.16-12c provides a summary of the conditionally recommended noise barriers. Figures 2-7a through 2-7f show the locations of the receptors and preliminarily recommended barriers for the Hybrid with Flyover Alternative.

Soundwall 56.S27 (R5-R9A: Residences along Westbound SR-56 near Carmel Creek Road)

Soundwall 56.S27 would be located along westbound of SR-56 east of Carmel Creek Road and would provide a 5-dBA noise reduction for 13 single-family residences represented by Receptors R5 through R9A. Existing noise levels at this location vary from 61 dBA to 64 dBA; predicted future noise levels range from 66 dBA to 69 dBA. Soundwall 56.S27 would be 14 to 16 ft in height and it would replace an existing 8-ft high glass/block soundwall located on the right of way and private property. However, Soundwall 56.S27 is not reasonable to construct due to the estimated construction cost ($1,530,294) exceeding the total reasonable cost allowance ($481,000). Therefore, construction of Soundwall 56.S27 is not recommended (Table 3.16-12b).

Soundwall 56.S31 (R14 and R15: Notre Dame Academy)

Soundwall 56.S31 is located adjacent to westbound SR-56 inside the Notre Dame Academy property along the playground, which is represented by Receptors R14 and R15 located westbound of SR-56. Existing noise levels at this location range from 62 dBA to 64 dBA; predicted future noise levels would be 70-71 dBA. There is an existing earthen berm between the playground and the highway; however, the berm does not provide enough protection for the receptors to prevent an impact. The soundwall, which would be 8 ft in height, would provide a 5-dBA noise reduction for the Notre Dame Academy playground. Soundwall 56.S31 is not reasonable due to the estimated construction cost ($176,733) exceeding the total reasonable cost allowance ($82,000). Therefore, construction of Soundwall 56.S31 is not recommended (Table 3.16-12b).

Soundwall 56.S35 (R16-R21A: Residences along Westbound SR-56 near Carmel Country Road)

The soundwall would be 10 to 12 ft high and would provide a 5-dBA noise reduction for 36 attached single-family residences represented by Receptors R16 through R21A. Existing noise levels at this location range from 63-66 dBA; predicted future noise levels would be 66-68 dBA. Soundwall 56.S35 would be located on the westbound side of SR-56 on the right-of-way line and private property. This soundwall would replace an existing 6-ft high block property wall. Receptor R19, located behind the proposed soundwall, would be extended to provide feasible abatement to Receptor R18A. However, Receptor R19 is not anticipated to be impacted and would not receive any benefits from Soundwall 56.S35. Soundwall 56.S35 is reasonable due to the estimated construction cost ($1,035,256) not exceeding the total reasonable cost allowance ($1,332,000). Therefore, construction of Soundwall 56.S35 is preliminarily recommended (Table 3.16-12a and Figure 2-7e).

Soundwall 56.S41 (R29-R30: Residences along Westbound SR-56 near Carmel Country Road)

The soundwall would provide a 5-dBA noise reduction for seven single-family residences represented by Receptors R29 through R30. The existing noise level at this location is 63-64 dBA and predicted future noise levels would be 66 dBA. Soundwall 56.S41 would be 10 to 12 ft in height located on the westbound side of the highway on the right-of-way line. It would replace an existing 6-ft high block property wall. Soundwall 56.S41 is not reasonable due to the estimated construction cost ($411,632) exceeding the total reasonable cost allowance ($245,000). Therefore, construction of Soundwall 56.S41 is not recommended (Table 3.16-12b).

Soundwall 56.S47 (R32-R36: Residences along Westbound SR-56 near SR-56 Bike Trail)

Soundwall 56.S47 would provide a 5-dBA noise reduction for 11 single-family residences represented by Receptors R32 through R36. Existing noise levels at this location range from 65-67 dBA and future predicted noise levels would range from 66-68 dBA. The 10- to 14-ft high soundwall, which would be located on the westbound side of SR-56, would replace an existing 6-ft high block property wall and would connect to an existing soundwall. Soundwall 56.S47 is not reasonable due to the estimated construction cost ($909,036) exceeding the total reasonable cost allowance ($385,000). Therefore, construction of Soundwall S47 is not recommended (Table 3.16-12b).

Soundwall 56.S20 (R42 and R43: San Diego Jewish Academy)

The soundwall would provide a 5-dBA noise reduction for the sports field and playground of the San Diego Jewish Academy represented by Receptors R42 and R43. Soundwall 56.S20 would be 12 to 16 ft in height and would be located inside the eastbound right-of-way of SR-56 on top of an existing earthen berm. Existing noise levels at this location range from 63-65 dBA and future predicted noise levels would range from 66-68 dBA. Soundwall 56.S20 is not reasonable due to the estimated construction cost ($1,748,163) exceeding the total reasonable cost allowance ($140,000). Therefore, construction of Soundwall 56.S20 is not recommended (Table 3.16-12b).

Soundwall 56.S34 (R46 and R47: Residence along Eastbound SR-56 near SR-56 Bike Trail)

Soundwall 56.S34 would be located along the eastbound side of SR-56 inside the right-of-way on top of an existing earthen berm. The 8- to 10-ft high soundwall would provide a 5-dBA noise reduction for two single-family residence represented by Receptors R46 to R47. The existing noise level at this location 61-66 dBA and predicted future noise levels would be 67-71 dBA. Soundwall 56.S34 is not reasonable due to the estimated construction cost ($518,354) exceeding the total reasonable cost allowance ($94,000). Therefore, construction of Soundwall 56.S34 is not recommended (Table 3.16-12b).

Soundwall 56.S34 (Option): Soundwall 56.S34 would be located along the eastbound side of SR-56 on private property. The 12- to 14-ft high soundwall would provide a 5-dBA noise reduction for one single-family residence represented by Receptors R46 and R47. Soundwall S34 (Option) is not reasonable due to the estimated construction cost ($465,908) exceeding the total reasonable cost allowance ($98,000). Therefore, construction of Soundwall S34 (Option) is not recommended (Table 3.16-12b).

Soundwall 05.S539 (R4.1: Residence along Southbound I-5 near Carmel Valley Road)

Soundwall 05.S539 would provide a 5-dBA noise reduction for one single-family residence represented by Receptor R4.1. The existing noise level at this receptor is 70 dBA and the future predicted noise level is 72 dBA. The soundwall would be 8 ft in height and located on private property. Due to the higher elevation of the property, a soundwall would not be feasible at any other location. Soundwall 05.S539 is not reasonable due to the estimated construction cost ($100,127) exceeding the total reasonable cost allowance ($37,000). Therefore, construction of Soundwall 05.S539 is not recommended (Table 3.16-12b).

Soundwall 05.S541 (R4.2-R4.4: Residences along Southbound I-5 near/on Caminito Pointe Del Mar)

Soundwall 05.S541, located on the southbound side of I-5, would provide a 5-dBA noise reduction for the recreational area of a gated housing community, composed of a pool, patio and tennis courts, represented by Receptors R4.2, 4.2A, and R4.4 as well as a single-family residence represented by Receptor R4.3. Existing noise levels at these receptors range from 70-72 dBA and predicted future noise levels would range from 70-76 dBA. Currently, an existing 6- to 7-ft high property wall is located on the property line. Soundwall 05.S541 has been raised higher than otherwise required at Receptor

R4.4 to provide the required noise reduction and to break the truck stack line-of-sight at Receptor R4.3. However, Soundwall 05.S541 would not provide a 5-dBA noise reduction to the residence represented by Receptor R4.4A because the soundwall would not completely block the line-of-sight to the highway due to the higher elevation of the house. Soundwall 05.S541 is not reasonable due to the estimated construction cost ($587,446) exceeding the total reasonable cost allowance ($225,000). Since R4.3 and R4.4 are severely impacted (i.e., predicted noise levels with the project would be 75 dBA or greater), abatement must be considered. Therefore, construction of soundwall 05.S541 is preliminarily recommended under unusual and extraordinary abatement (Table 3.16-12a).

Soundwall 05.S551(R4.11A-R4.21A: Residences along Southbound I-5 on Portofino Drive)

Soundwall 05.S551 would be 14 to 16 ft in height and would be located on the southbound side of I-5 on private property. Existing noise levels at these receptors range from 66-72 dBA and predicted future noise levels would range from 66-70 dBA. Soundwall 05.S551 would provide a 5-dBA noise reduction to 21 single-family residences represented by Receptors R4.11A through R4.21A. Currently, an existing 8-ft high glass/block soundwall is located on private property in this location that would not be demolished as part of this project. Soundwall 05.S551 has been raised higher than otherwise required at R4.12 to provide a 5-dBA noise reduction at Receptor R4.12A. Soundwall 05.S551 would not provide feasible abatement to every residence located behind the wall. However, the wall would provide at least a 3 to 4-dBA noise reduction to all residences. Soundwall 05.S551 is not reasonable due to the estimated construction cost ($4,031,164) exceeding the total reasonable cost allowance ($987,000). Therefore, construction of Soundwall 05.S551 is not recommended (Table 3.16-12b).

Soundwall 05.S557 (R4.22A-R4.24: Residences in Del Mar Village)

Soundwall 05.S557 would be located on the southbound side of I-5 on private property. The existing noise levels at these receptors ranges from 71 dBA to 77 dBA and the predicted future noise level for these receptors would be 72-79 dBA. Soundwall 05.S557 would provide a 5-dBA noise reduction to grassy backyard outdoor use areas for 10 multi-family residences represented by Receptors R4.22A through R4.24. The soundwall would be 8 to 10 ft in height. Due to the lack of flat surface area (only 5 ft behind these residences), many large trees in the area would have to be removed for Soundwall S557 to be built. Soundwall 05.S557 is not reasonable due to the estimated construction cost ($555,812) with all easements exceeding the total reasonable cost allowance ($430,000). This soundwall is not constructible either. Therefore, construction of Soundwall 05.S557 is not recommended. Since R4.23 and R4.23A, are severely impacted, abatement must be considered. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement (Table 3.16-12b).

Soundwall 05.S561 (R5.1 and R5.2: Residences in Bella Del Mar Apartment Homes)

Soundwall 05.S561 would be 8 ft in height and would be located along the southbound side of I-5. The existing noise levels at these receptors ranges from 71 dBA to 75 dBA and the predicted future noise level for these receptors would be 75 dBA. Soundwall 05.S561 would provide feasible abatement for the outdoor use areas for six multi-family residences, represented by Receptors R5.1 and R5.2. The outdoor use areas for the multi-family residences are patios. It is not feasible to abate for highway traffic noise from within the right-of-way in this area due to the right-of-way elevation compared to the residence elevation; however, a soundwall on private property would provide feasible noise abatement for the outdoor use areas for the multi-family residences, represented by Receptors R5.1 and R5.2. Permission would be needed from the property owners of the multi-family complex to place Soundwall 05.S561 at this location. Soundwall 05.S561 is not reasonable due to the estimated construction cost ($372,049) with all easements exceeding the total reasonable cost allowance ($246,000). Since R5.1 and R5.2 are severely impacted abatement must be considered. It is recommended that Soundwall

05.S561 be constructed with FHWA approval under unusual and extraordinary abatement (Table 3.16-12a and location shown on Figure 2-7b).

Soundwall 05.S563 (R5.5A and R5.6A: Del Mar Hills Academy of Arts & Sciences)

Soundwall 05.S563 would be located along the southbound side of I-5 at a height of 8 ft. The existing noise levels at this location range from 63-65 dBA and the predicted future noise level for these receptors would be 61-69 dBA. It is not feasible to abate for highway traffic noise from within the right-of-way in this area due to the right-of-way elevation compared to the school elevation. A soundwall along the property line would provide feasible abatement for the outdoor use areas at Del Mar Hills Academy of Arts and Sciences (formerly Del Mar Hills Elementary School), represented by Receptors R5.5A and R5.6A. However, this soundwall would not provide noise abatement to any classroom. An existing wall located along southbound I-5 protects a second playground and the classrooms represented by Receptors R5.3 and R5.4, respectively. Receptors R5.3 and R5.4 would not be impacted. The noise levels outside the classroom are predicted to be 61 dBA. Referring to the indoor/outdoor noise measurements conducted at this school as part of the I-5 North Coast Corridor Widening Project Noise Study Report (Parsons 2007), the noise levels inside the classrooms would be reduced by 21 dBA to a noise level of 40 dBA, which is well below the indoor noise abatement criteria of 52 dBA. Soundwall 05.S563 is not reasonable due to the estimated construction cost ($299,811) exceeding the total reasonable cost allowance ($188,000). Therefore, construction of Soundwall 05.S563 is not recommended. However, Soundwall 05.S563 may be recommended if negotiations with property owners could result in reducing or eliminating easement costs required for construction. If the estimated construction cost could not be reduced to less than or equal to the reasonable allowance, construction of soundwall 05.S563 would not be recommended (Table 3.16-12c).

Soundwall 05.S567 (R5.7A-R5.8B: Residences along Southbound I-5 North of Del Mar Heights Road)

Soundwall 05.S567 would be located on the right-of-way line and private property along the southbound side of I-5. The existing noise levels range from 60-72 dBA and the future predicted noise levels would be 66-74 dBA. The 8-ft high wall would provide feasible abatement for 13 single-family residences, represented by Receptors R5.7A to R5.8B from highway traffic noise. While the northern end of Soundwall 05.S567 and Soundwall 05.S569 both run along the right-of-way and are adjacent to each other, they are considered different walls because of an elevation drop between them that prevents the gap from being closed. Permission would be needed from the property owners of some of the single-family residences to place Soundwall 05.S567 at the southern end of this location. The estimated construction cost ($611,679) of soundwall 05.S567, including all easement costs, is less than the reasonable cost allowance ($637,000) and so is considered reasonable. Soundwall 05.S567 is preliminarily recommended (Table 3.16-12a and location shown on Figure 2-7c).

Soundwall 05.S569 (R53.9A and R5.9: Residences along Southbound I-5 North of Del Mar Heights Road)

Soundwall 05.S569, which would be 8 to 14 ft in height, is located along the southbound side of I-5, situated on the right-of-way line and private property. The existing noise level at these receptors is 67 dBA and the predicted future noise level for these receptors would be 66-67 dBA. The wall would provide feasible abatement and achieve the minimum 5-dBA noise reduction for three single-family residences, represented by Receptors R5.9A and R5.9, from highway traffic noise. While both soundwalls 05.S567 and 05.S569 run along the right-of-way and are adjacent to each other, they are considered different walls because of an elevation drop between them that prevents the gap from being closed. Soundwall 05.S569 is not reasonable due to the estimated construction cost ($260,366) exceeding the total reasonable cost allowance ($129,000). Therefore, construction of Soundwall 05.S569 is not recommended (Table 3.16-12b).

Soundwall 05.S568 (R5.22-R5.23A: Residences along northbound I-5 North of Del Mar Heights Road)

Soundwall 05.S568 would be located on the right-of-way and on private property along the northbound side of I-5. The 8-ft high wall would provide feasible abatement and achieve the minimum 5-dBA noise reduction for nine single family residences, represented by Receptors R5.22 through R5.23A, from highway traffic noise. The existing noise level at these receptors is 68-69 dBA and the predicted future noise level for these receptors would be 67-69 dBA. Receptor R5.21 is not predicted to be impacted; however, Soundwall 05.S568 would begin at the property of Receptor R5.21 to provide a minimum 5-dBA noise reduction for Receptor R5.22. Soundwall 05.S568 is not reasonable due to the estimated construction cost ($505,048) exceeding the total reasonable cost allowance ($333,000). Therefore, construction of Soundwall 05.S568 is not recommended. However, Soundwall 05.S568 may be recommended if negotiations with property owners could result in reducing or eliminating easement costs required for construction. If the estimated construction cost could not be reduced to less than or equal to the reasonable allowance, construction of 05.S568 would not be recommended (Table 3.16-12c).

Table 3.16-12a. Summary of Preliminarily Recommended Noise Barriers – Hybrid with Flyover Alternative

Barrier No.	Receptor No.	Type[1] and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height Total Length	Reasonable Cost per Residence[2]	Reasonable Allowance Cost per Barrier(s)	Estimated Construction Cost per Barrier(s)[3]
56.S35	R16 to R21A	36 SFR	ROW / Private Property WB SR-56	10 ft to 12 ft 1,286 ft	$37,000	$1,332,000	$1,035,256
5.S541[4]	R4.2 to R4.4	1 SFR & 1 REC (4 Frontage Units)	Private Property SB I-5	8 ft, 12 ft, & 14 ft 600 ft	$45,000	$225,000	$587,446 *($388,142)*
5.S561[4]	R5.1 & R5.2	6 MFR	Private Property SB I-5	8 ft 512 ft	$41,000	$246,000	$372,049 *($233,465)*
5.S567	R5.7A to R5.8B	13 SFR	ROW / Private Property SB I-5	8 ft 991 ft	$49,000	$637,000	$611,679

[1] Land Use: SFR - single-family residence; MFR - multi-family residence; SCH - school; REC - recreational facility.
[2] Based on the base reasonable allowance of $31,000 per residence.
[3] Estimated total cost with all easements is provided for each barrier. Estimated total cost without easements is provided in italics.
[4] The receptors are severely impacted. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement.
Source: Dokken 2010a

Table 3.16-12b. Summary of Preliminarily Not Recommended Noise Barriers – Hybrid with Flyover Alternative

Barrier No.	Receptor No.	Type[1] and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height Total Length	Reasonable Cost per Residence[2]	Reasonable Allowance Cost per Barrier(s)	Estimated Construction Cost per Barrier(s)[3]
56.S27	R5 to R9A	13 SFR	ROW / Private Property WB SR-56	14 ft to 16 ft 1,614 ft	$37,000	$481,000	$1,530,294
56.S31	R14 & R15	1 SCH (2 Frontage Units)	Private Property WB SR-56	8 ft 253 ft	$41,000	$82,000	$176,733
56.S41	R29 to R30	7 SFR	ROW WB SR-56	10 ft to 12 ft 538 ft	$35,000	$245,000	$411,632
56.S47	R32 to R36	11 SFR	ROW WB SR-56	10 ft to 14 ft 1,112 ft	$35,000	$385,000	$909,036
56.S20	R42 & R43	1 SCH (4 Frontage Units)	Inside ROW EB SR-56	12 ft to 16 ft 2,198 ft	$35,000	$140,000	$1,748,163
56.S34	R46 & R47	2 SFR	Inside ROW EB SR-56	8 ft to 10 ft 1,043 ft	$47,000	$94,000	$518,354
56.S34 (Option)	R46 & R47	2 SFR	Private Property EB SR-56	12 ft to 14 ft 561 ft	$49,000	$98,000	$465,908
5.S539	R4.1	1 SFR	Private Property SB I-5	8 ft 138 ft	$37,000	$37,000	$100,127
5.S551	R4.11A to 4.21A	21 SFR	Private Property SB I-5	14 ft to 16 ft 3,537 ft	$47,000	$987,000	$4,031,164
5.S557[4]	R4.22A to R4.24	10 MFR	Private Property SB I-5	8 ft to 10 ft 719 ft	$43,000	$430,000	$555,812 *($350,009)*
5.S569	R5.9A & R5.9	3 SFR	ROW / Private Property SB I-5	8 ft, 12 ft, and 14 ft 348 ft	$43,000	$129,000	$260,366

[1] Land Use: SFR - single-family residence; MFR - multi-family residence; SCH - school; REC - recreational facility.
[2] Based on the base reasonable allowance of $31,000 per residence.
[3] Estimated total cost with all easements is provided for each barrier. Estimated total cost without easements is provided in italics.
[4] S557 is neither constructible nor reasonable to construct. It is recommended that severely impacted receptors receive individual abatement with FHWA approval under unusual and extraordinary abatement.
Source: Dokken 2010a

Table 3.16-12c. Summary of Conditionally Recommended Noise Barriers – Hybrid with Flyover Alternative

Barrier No.	Receptor No.	Type[1] and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height Total Length	Reasonable Cost per Residence[2]	Reasonable Allowance Cost per Barrier(s)	Estimated Construction Cost per Barrier(s)[3]
5.S563[4]	R5.5A & R5.6A	1 SCH (4 Frontage Units)	Private Property SB I-5	8 ft 427 ft	$47,000	$188,000	$299,811 *($184,571)*
5.S568[4]	R5.22 to R5.23A	9 SFR	ROW / Private Property NB I-5	8 ft 705 ft	$37,000	$333,000	$505,048 *($305,924)*

[1] Land Use: SFR - single-family residence; MFR - multi-family residence; SCH - school; REC - recreational facility.
[2] Based on the base reasonable allowance of $31,000 per residence.
[3] Estimated total cost with all easements is provided for each barrier. Estimated total cost without easements is provided in italics.
[4] These soundwalls were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided.
Source: Dokken 2010a

Receptors without Proposed Noise Abatement:

Receptors R4.5 and R4.9: Receptors R4.5 and R4.9 represent two groups of multi-family residences on the southbound side of I-5, north of Carmel Valley Road. Receptor R4.5 is protected by an existing 8-ft high soundwall. The existing soundwall decreases in height from 14 to 8 ft in front of Receptor R4.9. The results show that raising the height of the existing soundwall to 16 ft would not provide a 5-dBA benefit to any of the residences; therefore, it would not be feasible. Figure 2-7a shows the location of the receptors.

Receptor R5.16: Receptor R5.16 was chosen for noise measurement purposes only and does not represent an area of outdoor use. However, this receptor does represent multi-family residential units. Therefore, the interior criteria would be used. Using a 20-dBA FHWA noise reduction factor due to the building with windows closed, the interior noise level of Receptor R5.16 is predicted to be 47 dBA, which is below the indoor noise criteria of 52 dBA. Figure 2-7b shows the location of Receptor R5.16.

Receptor R5.9B: Receptor R5.9B is located between Soundwalls S567 and S569 on the southbound side of I-5 along Minorca Cove. Due to the sharp decrease in elevation along the ROW, it would not be practical to build a soundwall at the ROW and the shoulder would not be effective due to the difference in elevation. Furthermore, because Soundwalls S567 and S569, which are located at the ROW, are feasible for the other single-family residences in this area, it would not be practical to locate a soundwall on private property for this single residence between Soundwalls S567 and S569. Figure 2-7c shows the location of Receptor R5.9B.

Noise Abatement Summary

Table 3.16-13 provides a summary of the recommendations for soundwalls for each of the build alternatives. If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision of the noise abatement would be made upon completion of the project design and the public involvement processes.

Table 3.16-13. Summary of Proposed Soundwalls

Barrier No.	Barrier Location/ Hwy. Side	Direct Connector Alternative	Auxiliary Lane Alternative	Hybrid Alternative	Hybrid with Flyover Alternative
56.S35	ROW / Private Property WB SR-56	Recommended	Conditional[1]	Recommended	Recommended
5.S541	Private Property SB I-5	Recommended	Recommended	Recommended	Recommended
5.S545	ROW / Retaining Wall / Private Property SB I-5	Recommended	--	--	--
5.S555	Private Property SB I-5	Recommended	--	--	--
5.S561	Private Property SB I-5	Recommended	Recommended	Conditional[1]	Recommended
5.S563	Private Property SB I-5	Conditional[1]	Conditional[1]	Conditional[1]	Conditional[1]
5.S567	ROW/Private Property SB I-5	Recommended	Recommended	Recommended	Recommended
5.S568	ROW / Private Property NB I-5	Conditional[1]	Conditional[1]	Conditional[1]	Conditional[1]

[1] These soundwalls were not reasonable due to cost of acquiring right-of-way when compared to the benefit provided.
Source: Dokken 2010a Source: Dokken 2010a

3.17 ENERGY

3.17.1 REGULATORY SETTING

The State CEQA Guidelines (Title 14, Section 15000 and subsequent sections of the California Code of Regulations [14 CCR Section 15000 et seq.]), Appendix G, Energy Conservation, state that EIRs are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

NEPA (42 USC Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

3.17.2 AFFECTED ENVIRONMENT

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

DIRECT ENERGY CONSUMPTION

The majority of existing energy consumption is traffic-related. Existing traffic LOS levels during peak periods in the proposed project area are discussed in Section 3.7, Traffic and Transportation/Pedestrian and Bicycle Facilities. Stop-and-go traffic conditions experienced during poor LOS levels decrease fuel efficiency, thus increasing fuel consumption. As vehicles require more fuel, an increase in fuel shipments (via tanker trucks) occurs on I-5 to the many gas stations along the corridor. Some of the existing energy consumption, albeit a small amount, may be attributed to the facility itself. At several interchanges, the existing under and overcrossings lack sidewalks and bike lanes for pedestrian and bicycle use. Because motorized has become more popular over the years since the interstate was constructed, it is conceivable that some people feel constrained to walk or ride, influenced by the perception that perhaps sidewalks and bike lanes do not provide the element of safety. As a result, people may divert away from a nonmotorized mode to a motorized mode of travel, adding to traffic and, in turn, increasing fuel consumption.

INDIRECT ENERGY CONSUMPTION

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

Another competing energy use involves maintenance. I-5 within the proposed project area is over 40 years old and continues to be heavily used. To maintain safe and efficient traffic operations, the pavement requires periodic maintenance. Pavement grinding operations, for example, include the use of water to grind the old pavement, and the grindings must be taken to an approved facility, such as a slurry pit, to be properly disposed. Heavy equipment is needed to perform this work, which also involves setting up lane closures and detours that can negatively affect traffic conditions. Caltrans

Maintenance Division also performs routine litter cleanup and graffiti abatement. These activities expose highway workers to dangerous conditions when work is next to live traffic. Such work often requires lane closures for worker safety, and this also can negatively affect traffic conditions.

3.17.3 ENVIRONMENTAL CONSEQUENCES

The use of energy in Caltrans highway improvement projects generally can be divided between construction activities and operational energy uses. When considering the improvement of existing highway facilities, energy used during construction and operation can be weighed against the energy saved by relieving congestion and other transportation efficiencies that come with improved roadway facilities.

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

The No Build Alternative would not require any energy consumption for construction as none would occur. However, long-term energy consumption related to fuel use would be greater for the No Build Alternative as compared to the build alternatives because congestion and traffic flow conditions would continue to worsen.

BUILD ALTERNATIVES (ALTERNATIVES 2 THROUGH 5)

Proposed project construction activities, such as the use of heavy machinery, detours, lane closures, the import and export of materials and equipment, could substantially increase energy consumption and would be an unavoidable impact. However, post-construction and operational requirements of the facility would be less with the proposed project build alternatives as opposed to the No Build Alternative. The savings in operation energy requirements would offset construction energy requirements and thus, in the long term, would result in a net savings in energy usage.

The four build alternatives would all require the use of energy for proposed project construction in a generally similar nature, but they would vary in degree depending on the amount of work required to complete each task. The energy expenditure for construction of each build alternative would be greater for those options that would require the most substantial structures, earthwork, amount of construction material, and length of time to complete. Overall energy use throughout the operational life of the proposed project also would be similar for the build alternatives.

The post-construction energy consumption for the build alternatives would result in energy savings in the long term. The improved connectivity and reduced congestion on the freeway mainlines, ramps, and surrounding local streets and intersections would decrease travel times for motorists and support less vehicle operating time, thus reducing fuel consumption. These savings would be compounded by the increased level of service at area intersections and on the links between the intersections currently utilized by motorists attempting to bypass congestion. Additional savings would result from fewer vehicle stops and starts along proposed project roadways and nearby local streets, one of the biggest energy wasters in terms of fuel use.

The short-term use of energy to improve roadways would result in long-term energy savings through the more efficient flow of traffic. As described above, the savings in operational energy requirements would offset the energy used for construction and would result in a net savings in energy use in the long term. Typically a correlation exists between the amount of energy consumed in the construction of a project and the resulting long-term energy savings that result. For example, the Auxiliary Lanes Alternative would require less energy to construct than the other alternatives because it has less substantial features and an overall smaller amount of construction would be required for this alternative. However, it would not provide as substantial traffic operation improvements in the future as the other build alternatives, thus resulting in relatively less energy savings.

3.17.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Because no energy impacts were identified in implementation of any of the proposed build alternatives, no associated avoidance, minimization, or mitigation measures are necessary. However, Caltrans is incorporating energy saving measures into the proposed project in the following efforts to minimize energy consumption during construction:

- Public awareness campaigns to encourage carpooling and commuting during non-peak traffic hours
- Recycling of materials
- Use of recycled materials
- Use of energy-efficient or alternative fuel construction vehicles

Caltrans proposes to reuse and incorporate existing materials (those that can be) into the final product. Such opportunities likely would include the use of the existing materials in roadway base and the incorporation of solid rock into the proposed erosion/slope protection measures. To ensure the maximum use of this concept, the processing of materials on-site would be allowed. Any pavement and construction debris that was removed would be hauled back to the materials plant for recycling or reuse, or it would be broken into smaller pieces and buried in the deep fill. This recycling would save the fuel and materials that would otherwise be required to create new materials. Burying the material would avoid the need to have additional material trucked both on and off the proposed project site.

The overall design goal would be to balance the proposed project's cut and fill to negate either a shortage or excess of material. This would eliminate unnecessary trucking. If excess material was generated, Caltrans would allow that material to be absorbed by local materials processors, if feasible, to avoid the need to have it hauled away from the project and disposed in an appropriate location.

BIOLOGICAL ENVIRONMENT

3.18 NATURAL COMMUNITIES

This section discusses natural communities of concern, with a focus on biological communities, not individual plant or animal species. The emphasis of this section is on the ecological function of natural communities within the proposed project area. The discussion includes information on wildlife corridors and habitat fragmentation.

Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act (FESA) are discussed in Section 3.22, Threatened and Endangered Species. Wetlands and other waters are discussed in Section 3.19.Affected Environment

Caltrans completed the *I-5/SR-56 Interchange Project Natural Environment Study* (NES) in February 2011. The NES supports of the Biological Environment sections of this document and is incorporated by reference.

The biological study area (BSA) analyzed in the NES covers approximately 830 acres and includes the proposed construction limits of the four build alternatives and a 500-foot buffer around these construction limits (Figure 3.18-1).

As stated in Section 3.1, Land Use, the proposed project is situated within the boundaries of the Multiple Species Conservation Program (MSCP) Subarea Plan. The BSA is entirely within the MSCP planning area; however, it does not overlap with the San Diego multiple habitat planning area (Figure 3.18-1). Although Caltrans is not a signatory to the MSCP, Caltrans is considered a cooperating agency and would consider the goals of the plan when designing and implementing the proposed project, to the extent feasible.

Generally, the BSA runs along I-5, beginning approximately 0.3 mile south of the interchange with SR-56, and extends northward for approximately 2.3 miles. In addition, the BSA includes a stretch that begins approximately 0.2 mile west of the I-5/SR-56 interchange and continues eastward for approximately 2.8 miles. Lateral extensions of the BSA occur at Del Mar Heights Road, Carmel Creek Road, and Carmel Country Road, all of which extend off I-5 or SR-56 for an average distance of 0.1 mile.

The BSA encompasses some native vegetation communities; however, the majority of the BSA is either landscaped or developed (residential/commercial land uses). Within the BSA, native upland vegetation types include southern maritime chaparral and coastal sage scrub. The only native riparian habitat within the BSA is southern willow scrub. Southern willow scrub exists in the southern portion of the BSA but is separated from the proposed construction area by a large earthen berm with dimensions of approximately 20 feet wide by 10 feet tall.

Biological resource surveys, including vegetation community mapping, for the proposed project were conducted in the BSA between 2003 and 2005. Updated surveys were conducted in 2007 and 2008. During the 2007–2008 surveys, seven vegetation communities and three other land cover types were detected within the BSA (Figures 3.18-2a and 2b). Native vegetation types that were observed in the BSA included southern maritime chaparral, southern willow scrub, and coastal sage scrub. Nonnative grassland, areas landscaped with ornamental species, disturbed areas, and developed areas also were

identified in the BSA. Descriptions of the individual vegetation communities and cover types observed in the BSA are provided next.

SOUTHERN MARITIME CHAPARRAL

Southern maritime chaparral is a low, open chaparral community that is restricted to Torrey Pines State Reserve and a few other nearby localities in San Diego County. Dominant plant species observed in southern maritime chaparral within the BSA include chamise (*Adenostoma fasciculatum*), Del Mar manzanita (*Arctostaphylos glandulosa,* ssp. *crassifolia*), black sage (*Salvia mellifera*), and scrub oak (*Quercus berberidifolia*). Southern maritime chaparral occurs near the northern end of the BSA, east and west of I-5, as well as in small isolated patches north and south of SR-56.

DISTURBED SOUTHERN MARITIME CHAPARRAL

Disturbed southern maritime chaparral has been altered in structure and function, mainly by human activities. Approximately 17 percent of the southern maritime chaparral in the BSA is classified as disturbed and is characterized by large amounts of bare ground as well as a greater frequency and cover of nonnative plant species, including black mustard (*Brassica nigra*), foxtail chess (*Bromus madritensis* ssp. *rubens*), hottentot fig (*Carpobrotus edulis*), and fennel (*Foeniculum vulgare*). This vegetation community is located in the northern portion of the BSA, adjacent to I-5 and in isolated locations along the north and south side of SR-56.

COASTAL SAGE SCRUB

Coastal sage scrub can be dominated by a variety of different species, depending on site-specific topographic, geographic, and edaphic conditions. Dominant plant species occurring in coastal sage scrub in the BSA include California sagebrush (*Artemisia californica)*, California buckwheat (*Eriogonum fasciculatum*), California broom (*Lotus scoparius*), white sage (*Salvia apiana*), San Diego County viguiera (*Viguiera laciniata*), and black sage. In the BSA, coastal sage scrub is found on slopes adjacent to I-5 and SR-56.

DISTURBED COASTAL SAGE SCRUB

Disturbed coastal sage scrub has been altered in structure and function, mainly because of human activities and also from revegetation mitigation resulting from a previous Caltrans project. Dominant plant species in disturbed coastal sage scrub in the BSA include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), ripgut grass (*Bromus diandrus*), and perennial veldt grass (*Ehrharta calycina*). Disturbed coastal sage scrub is secondary growth, found in the northern portion of the BSA adjacent to I-5 and in isolated locations north and south of SR-56.

SOUTHERN WILLOW SCRUB

Southern willow scrub is a dense, broad-leaved, winter-deciduous riparian thicket, dominated by several species of willows (*Salix* spp.). The southern willow scrub community in the BSA is dominated by narrow-leaf willow (*Salix exigua*), Goodding's black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and red willow (*Salix laevigata*). Stands of cattail (*Typha* sp.) and southwestern spiny rush (*Juncus acutus*) also were detected within southern willow scrub areas. Southern willow scrub occurs in the BSA along the southern side of SR-56, and surrounding Carmel Valley Creek from I-5 to Carmel Country Road. It also occurs southwest of the I-5/SR-56 interchange.

DISTURBED SOUTHERN WILLOW SCRUB

Disturbed southern willow scrub is similar to southern willow scrub, but it has been subjected to human-made disturbances that change the hydrologic regime or directly affect species composition. Disturbed southern willow scrub in the BSA is dominated by narrow-leaf willow, arroyo willow, mulefat (*Baccharis salicifolia*), pampas grass (*Cortaderia selloana*), fountain grass (*Pennisetum setaceum*), and a variety of nonnative grasses. Disturbed southern willow scrub occurs in small areas to the south and north of SR-56.

NONNATIVE GRASSLAND

Nonnative grassland occurs in a small portion of the BSA, south of Carmel Valley Creek and SR-56. Dominant species in nonnative grassland in the BSA include wild oat (*Avena fatua*), soft chess (*Bromus hordeaceus*), foxtail chess, ripgut grass, and storksbill (*Erodium cicutarium*).

ORNAMENTAL

Areas designated as ornamental in the BSA represent those areas planted with ornamental trees, shrubs, and ground cover. Dominant species within areas mapped as ornamental include eucalyptus (*Eucalyptus* spp.), Torrey pine (*Pinus torreyana*), Afghan pine (*Pinus eldarica*), acacia (*Acacia* sp.), and hottentot fig. Native species such as Torrey's hybrid oak (*Quercus X acutidens*) and toyon (*Heteromeles arbutifolia*) were detected within some landscaped areas. Ornamental vegetation occurs along many of the shoulders and ramps of I-5 and SR-56 in the BSA.

DISTURBED

Areas designated as disturbed have little to no habitat value because of previous development activities. Soils are generally compacted and fail to support many plant species. Consequently, few animal species utilize disturbed areas. Where vegetation exists within this community, it is dominated by nonnative plant species such as mustards (*Brassica* spp.) and brome grasses (*Bromus* spp.). Disturbed areas were detected in various locations throughout the BSA, most of which were in the vicinity of the I-5/SR-56 interchange.

DEVELOPED

Developed land is composed of areas of intensive use, with much of the land covered by structures and impervious surfaces. Included in this category are cities; transportation, power, and communications facilities; and areas occupied by shopping centers, industrial and commercial complexes, and institutions. No attempt has been made to distinguish between the various forms of developed land because the focus of this analysis is on native biodiversity. Approximately 63 percent of the BSA can be categorized as developed.

WILDLIFE CORRIDORS

Connectivity, or the ability of wildlife to move through a landscape, is essential in naturally diverse environments, especially in increasingly urban settings, for the persistence of healthy and genetically diverse animal communities. Isolation of populations can have harmful effects on both characteristics and interactions. Increased exposure to inhospitable environments caused by reductions in connectivity between suitable habitats can increase wildlife mortality. These factors can contribute substantially to local species extinctions.

Wildlife corridors are linear landscape features that allow for species movement between patches of habitat that would otherwise be disconnected. Because many wildlife species have specific habitat

requirements for survival and dispersal, corridors may be species-specific. Corridors can promote +colonization or recolonization of distinct habitat patches and potentially increase genetic variability within and between populations. Thus, corridors help species populations that are distributed in and among habitat patches to persist over time.

Currently, the I-5/SR-56 interchange is surrounded by commercial and residential communities to the north and east. However, an important choke point of a regional wildlife movement corridor is located just outside the BSA, in the area directly south of the I-5/SR-56 interchange (Figure 3.18-3). This corridor connects Los Peñasquitos Lagoon and Torrey Pines State Reserve through a narrow strip of habitat to several canyons and open space preserves to the east. The corridor bottlenecks under I-5 at Carmel Valley Creek, then extends eastward on the south side of SR-56 to a canyon in Sorrento Hills. From this canyon, wildlife can access Deer Canyon, McGonigle Canyon, Lopez Canyon Open Space, and Los Peñasquitos Canyon Preserve.

3.18.1 ENVIRONMENTAL CONSEQUENCES

Impacts refer to the detrimental effects of a project. Impacts can be direct or indirect, permanent or temporary. Anticipated impacts to vegetation communities and land cover types are depicted graphically in Figures 3.18-4a/b (Direct Connector Alternative), 3.18-5a/b (Auxiliary Lane Alternative), 3.18-6a/b (Hybrid Alternative), and 3.18-7a/b (Hybrid with Flyover Alternative). A summary of the proposed project's anticipated temporary and permanent impacts to vegetation communities and land cover types is provided in Table 3.18-1.

Table 3.18-1. Anticipated Impacts to Vegetation Communities and Land Cover Types

Vegetation Communities and Land Cover Types	Impacts (Acres)									
	No Build Alternative		Direct Connector Alternative		Auxiliary Lane Alternative		Hybrid Alternative		Hybrid with Flyover Alternative	
	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.
Vegetation Communities										
Southern Maritime Chaparral	0.0	0.0	0.07	0	0	0	0	0	0	0
Disturbed Southern Maritime Chaparral	0.0	0.0	0.39	0.03	0	0	0.07	0	0.07	0
Coastal Sage Scrub	0.0	0.0	0.31	0.56	0.24	0.09	0.28	0.56	0.29	0.56
Disturbed Coastal Sage Scrub	0.0	0.0	5.41	7.62	0.45	1.19	3.85	2.73	3.84	2.72
Subtotal:	0.0	0.0	6.2	8.2	0.7	1.3	4.2	3.3	4.2	3.3
Other Cover Types										
Ornamental	0.0	0.0	19.89	26.26	10.57	7.67	14.94	16.44	22.7	20.53
Disturbed	0.0	0.0	0.71	1.15	0.29	0.23	0.42	0.87	0.67	0.87
Developed	0.0	0.0	10.37	99.91	8.39	31.55	11.97	51.65	14.13	72.17
Subtotal:	0.0	0.0	31.0	127.3	19.2	39.5	27.3	69.0	37.5	93.6
Total Acreage:	0.0	0.0	37.1	135.5	19.9	40.7	31.5	72.3	41.7	96.8

Source: AECOM 2011a

IMPACTS TO SENSITIVE VEGETATION COMMUNITIES

The proposed project is located in a region known to contain several environmentally sensitive habitat areas (ESHAs). ESHAs most commonly observed within this area include coastal lagoons and waterways, some of which have the potential to support sensitive plant and animal species and provide critical habitat for special-status species and wildlife corridors. Endangered Species Habitat Area (ESHA) containing California Coastal Sage (CSS) for the proposed project is within the Coastal Zone but the CSS is within previously and currently disturbed areas of the project for all alternatives.

Refer to Section 3.1, page 3.1-19 for further discussion on ESHAs in the coastal zone. Biologically, the vegetation types that provide the highest habitat values in the BSA are native upland and riparian habitats. Sensitive vegetation communities that would be impacted by the proposed project include southern maritime chaparral (as well as disturbed southern maritime chaparral) and coastal sage scrub (as well as disturbed coastal sage scrub). As previously mentioned, the disturbed coastal sage scrub impacted by the proposed project was planted by Caltrans as revegetation mitigation for a previous project. Subsequently, this secondary growth would be replaced and replanted with coastal sage scrub. *Specific impacts for each of the four build alternatives are discussed next.*

No Build Alternative (Alternative 1)

There would be no impacts to sensitive habitats with the No Build Alternative.

Direct Connector Alternative (Alternative 2)

Construction under this alternative would permanently impact 0.56 acre of coastal sage scrub, 7.62 acres of disturbed coastal sage scrub, and 0.03 acre of disturbed southern mixed chaparral. Construction would temporarily impact 0.07 acre of southern maritime chaparral, 0.39 acre of disturbed southern maritime chaparral, 0.31 acre of coastal sage scrub, and 5.41 acres of disturbed coastal sage scrub.

Auxiliary Lane Alternative (Alternative 3)

Construction under the Auxiliary Lane Alternative would permanently impact 0.09 acre of coastal sage scrub and 1.19 acres of disturbed coastal sage scrub. Construction would be anticipated to temporarily impact 0.24 acre of coastal sage scrub and 0.45 acre of disturbed coastal sage scrub.

Hybrid Alternative (Alternative 4)

Construction under the Hybrid Alternative would permanently impact 0.56 acre of coastal sage scrub and 2.73 acres of disturbed coastal sage scrub. Construction would be anticipated to temporarily impact 0.07 acre of disturbed southern maritime chaparral, 0.28 acre of coastal sage scrub, and 3.85 acres of disturbed coastal sage scrub.

Hybrid with Flyover Alternative (Alternative 5)

Construction under the Hybrid with Flyover Alternative would permanently impact 0.56 acre of coastal sage scrub and 2.72 acres of disturbed coastal sage scrub. Construction would be anticipated to temporarily impact 0.07 acre of disturbed southern maritime chaparral, 0.29 acre of coastal sage scrub, and 3.84 acres of disturbed coastal sage scrub.

IMPACTS TO WILDLIFE CORRIDORS

The No Build Alternative would not result in impacts to regional or local wildlife corridors above the existing baseline.

Wildlife sensitivity to and avoidance of roads is caused by increased noise from traffic, increased artificial light, and increased human presence. Wildlife movement south of SR-56 (along the regional corridor) would not be anticipated to be negatively affected during construction under any of the four build alternatives because of the presence of a pre-existing, 10-foot-tall earthen berm. This berm provides a physical barrier that significantly reduces the levels of noise, light, and human activity within the adjacent riparian corridor to the south of the proposed project area. The proposed project would not overlap with the regional corridor choke point (see Figure 3.18-3). In addition, proposed project

construction activities are not expected to cause additional impacts to wildlife movement at the regional corridor choke point that would exceed those impacts currently caused by existing ambient freeway noise, light, and traffic.

3.18.2 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

With community input from the Steering Committee, the proposed project build alternatives have been designed to avoid or minimize direct effects to sensitive habitats and maximize use of nonnative, disturbed, and developed land cover types. Final avoidance and minimization measures would be determined in consultation with the resource agencies.

The following are general avoidance and minimization measures that would be implemented to reduce unavoidable impacts to natural communities:

- Limits of construction (including construction staging areas and access routes) would be clearly marked on project maps provided to the contractor(s) to indicate “no construction” zones. Natural vegetation communities outside of or adjacent to impact areas would be designated as Environmentally Sensitive Areas (ESAs) and be delineated with ESA fencing (orange snow fencing) to prevent work from occurring in these areas. Temporary construction fencing would be removed on project completion. A biological monitor would be present during vegetation clearing to ensure that work stayed within designated construction limits.

- Vegetation clearing would occur outside of the breeding season (February 15 through August 31) so that impacts to nesting birds could be avoided. In addition, nest clearance surveys would be completed by a qualified biologist, immediately before vegetation clearing to verify that no birds were nesting in the area.

- All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or related activities would occur in designated areas and within the fenced project impact limits. These designated areas would be located in previously compacted and disturbed areas to the maximum extent practicable, in a manner to prevent runoff from entering wetlands or waters, and would be shown on the construction plans. Fueling of equipment would take place within existing paved areas greater than 100 feet from wetlands or waters. Contractor equipment would be checked for leaks before operation and would be repaired as necessary. “No-fueling” zones would be designated on construction plans.

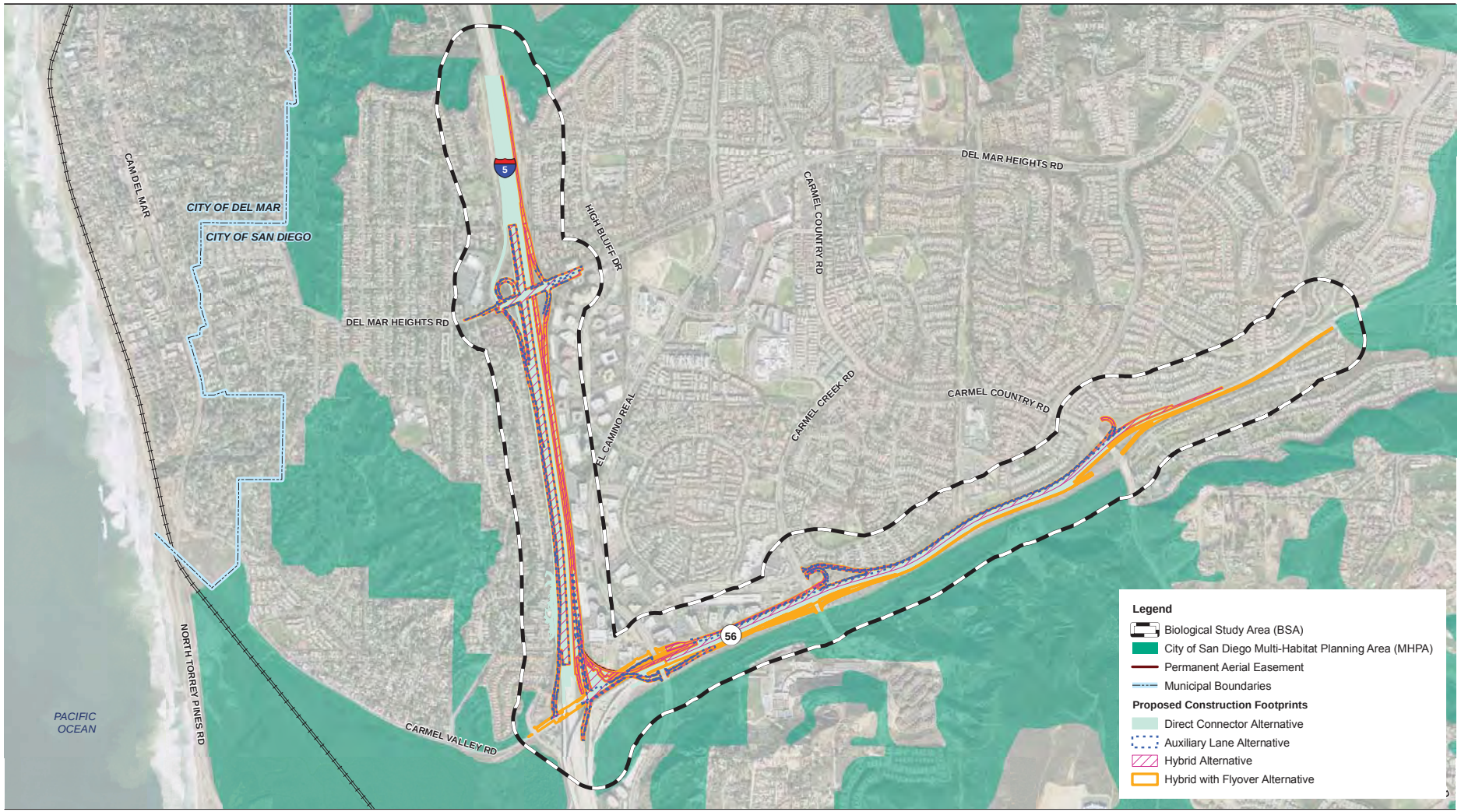
- In areas not requiring excavation or grading, vegetation would be trampled instead of completely removed.

- The proposed project site would be kept as clean of debris as possible to avoid attracting predators of sensitive wildlife. All food-related trash items would be enclosed in sealed containers and regularly removed from the site.

- Pets would not be allowed on the proposed project site.

- A majority of construction is expected to be undertaken during daylight; however, when nighttime construction is necessary, lighting would be of the lowest illumination necessary for human safety, would be diverted away from any native vegetation communities, and would consist of lighting equipped with shields to focus light downward onto the appropriate subject area.

As discussed in the TREP/PWP, compensatory mitigation for impacts to sensitive upland habitats would be completed at the Dean Mitigation Parcel on the slopes of San Dieguito Lagoon immediately east of I-5 in a former tomato field. Specifically, permanent impacts to coastal sage scrub and southern maritime chaparral would be completed on Caltrans mitigation property on the slopes of San Dieguito Lagoon, at a proposed 2:1 ratio, subject to discussions with the California Coastal Commission and other resource agencies.

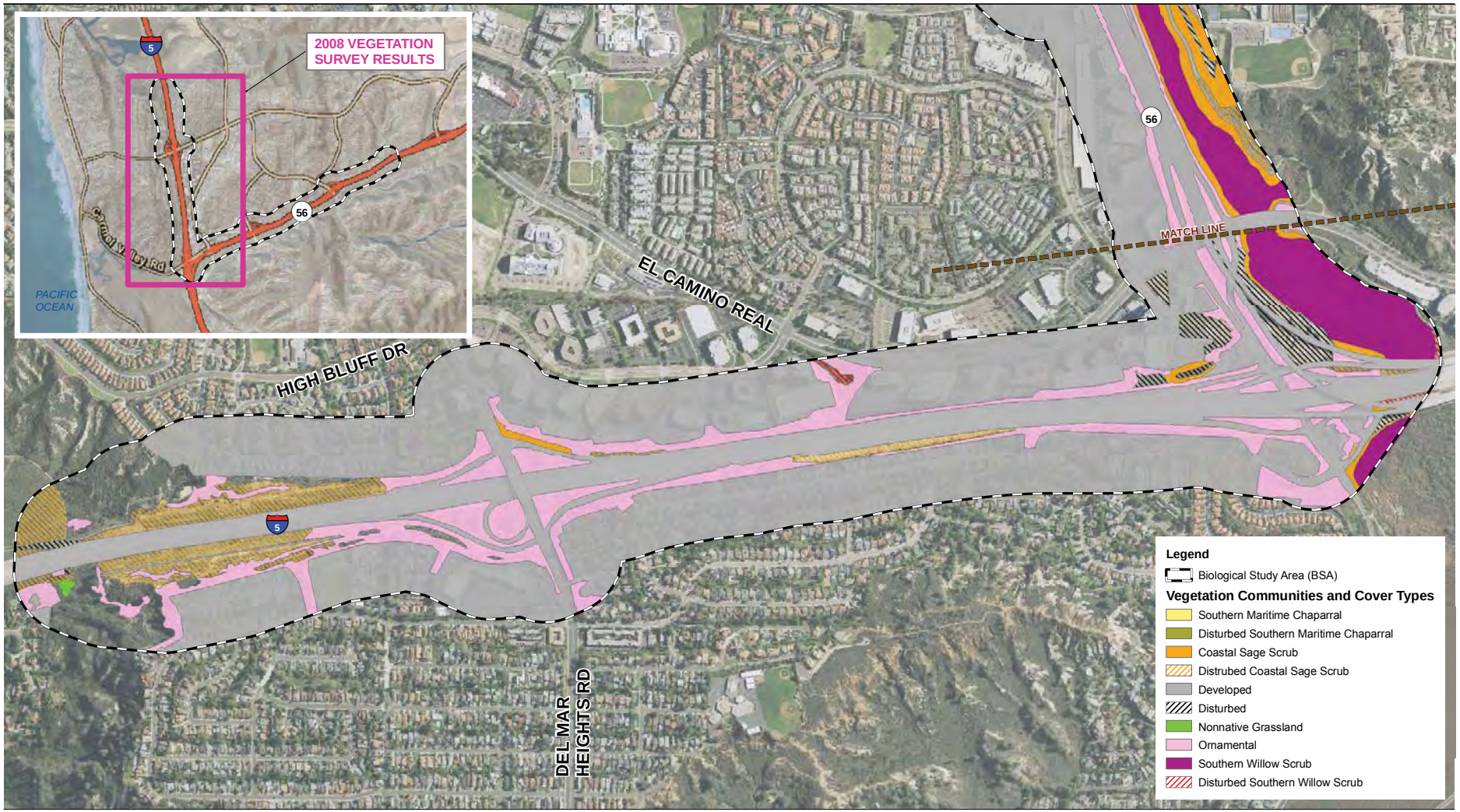


Source: DigitalGlobe 2008; EDAW 2008; Dokken 2008

0.3 0.15 0 0.3 Miles

Figure 3.18-1

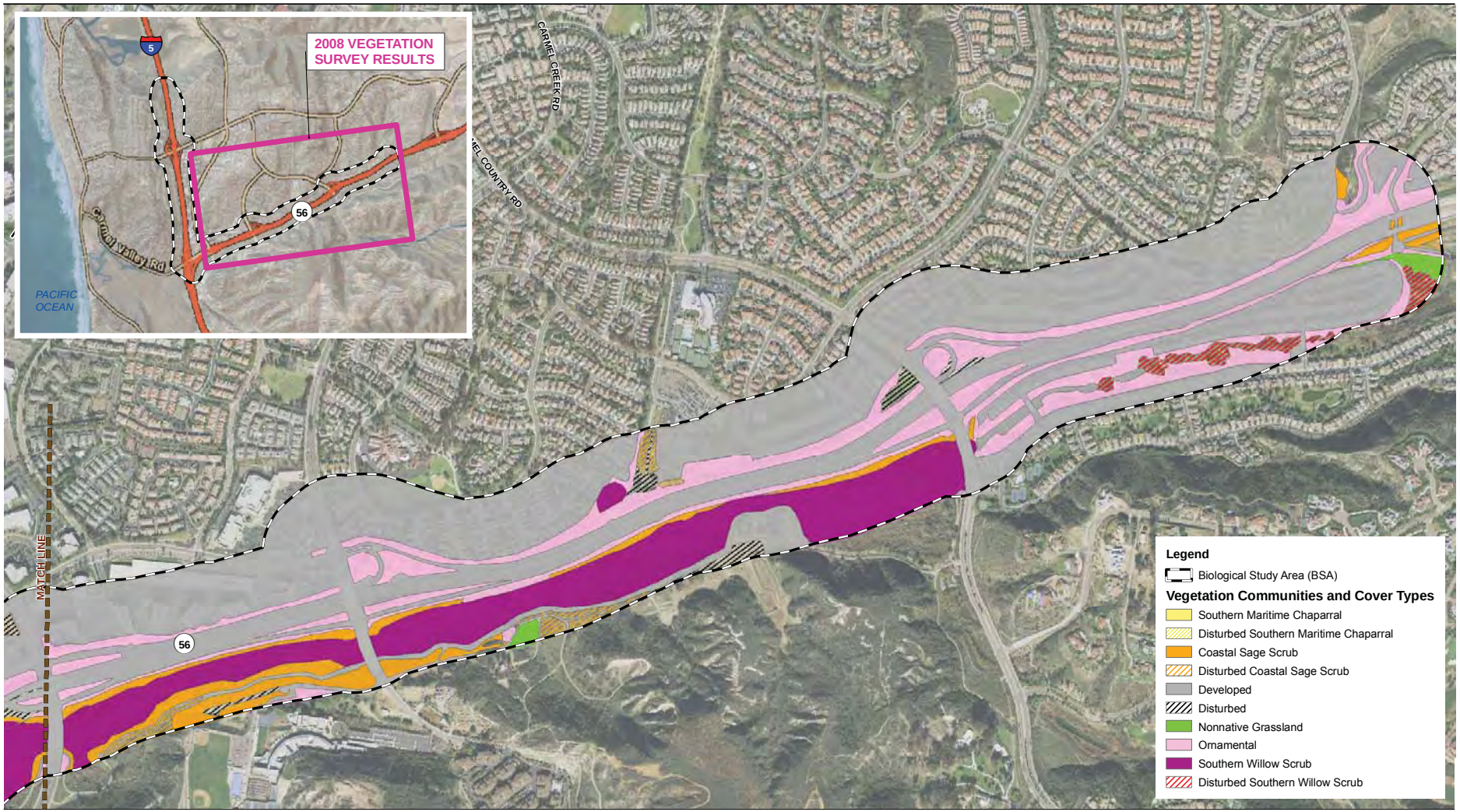
Biological Study Area and Conservation Boundaries



Source: DigitalGlobe 2008; EDAW 2008

800 400 0 800 Feet

Figure 3.18-2a
Biological Study Area and Vegetation Communities
I-5 Portion



Source: DigitalGlobe 2008; EDAW 2008

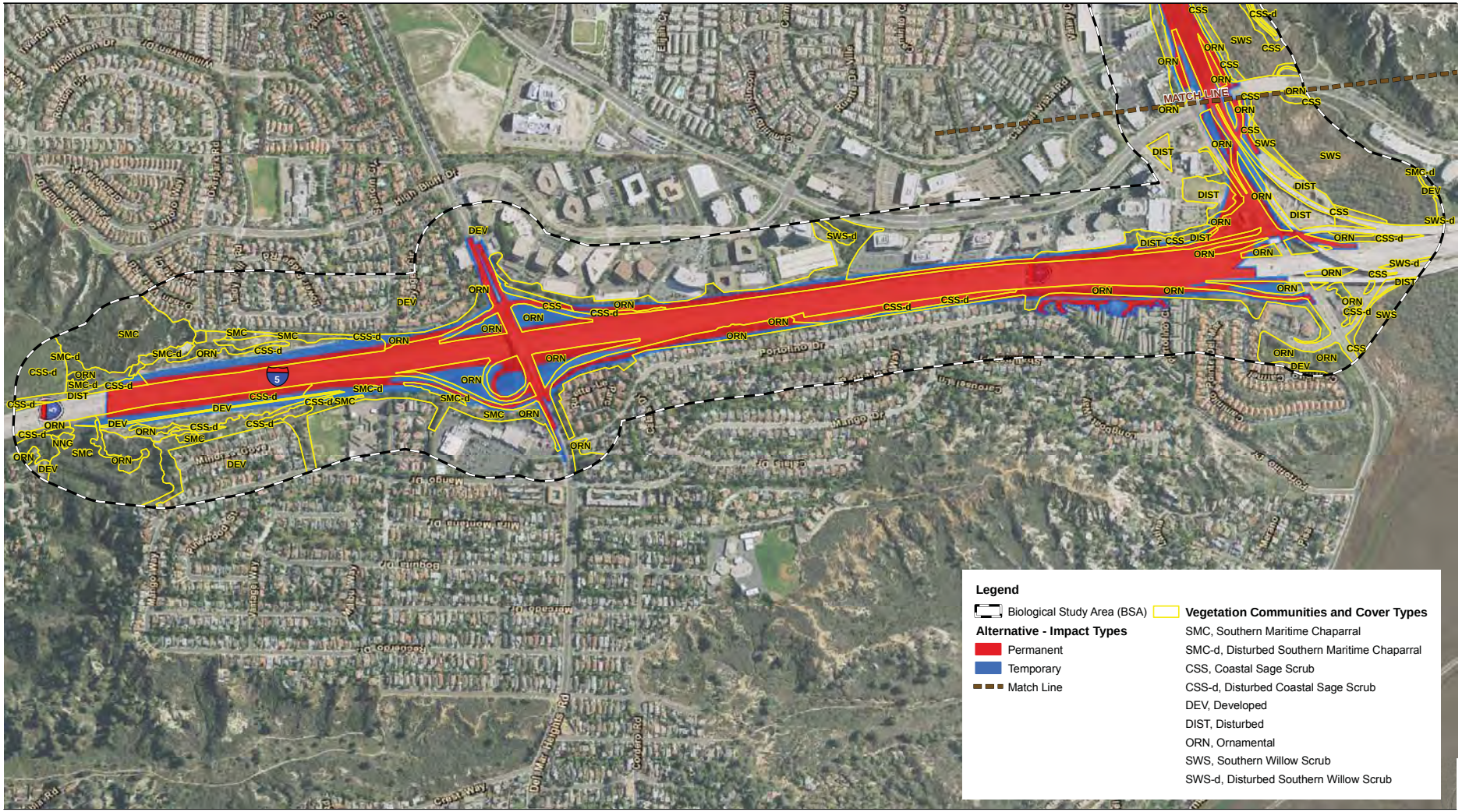
800 400 0 800 Feet

3.18a-2b
Biological Study Area and Vegetation Communities
SR-56 Portion

Source: DigitalGlobe 2008; EDAW 2008; SanGIS 2009

1 0.5 0 1 Miles

Figure 3.18-3
Migration Corridors



Source: DigitalGlobe 2008; EDAW 2008

800 400 0 800 Feet

Figure 3.18-4a

Impacts to Vegetation Communities - Direct Connector Alternative

I-5 Portion

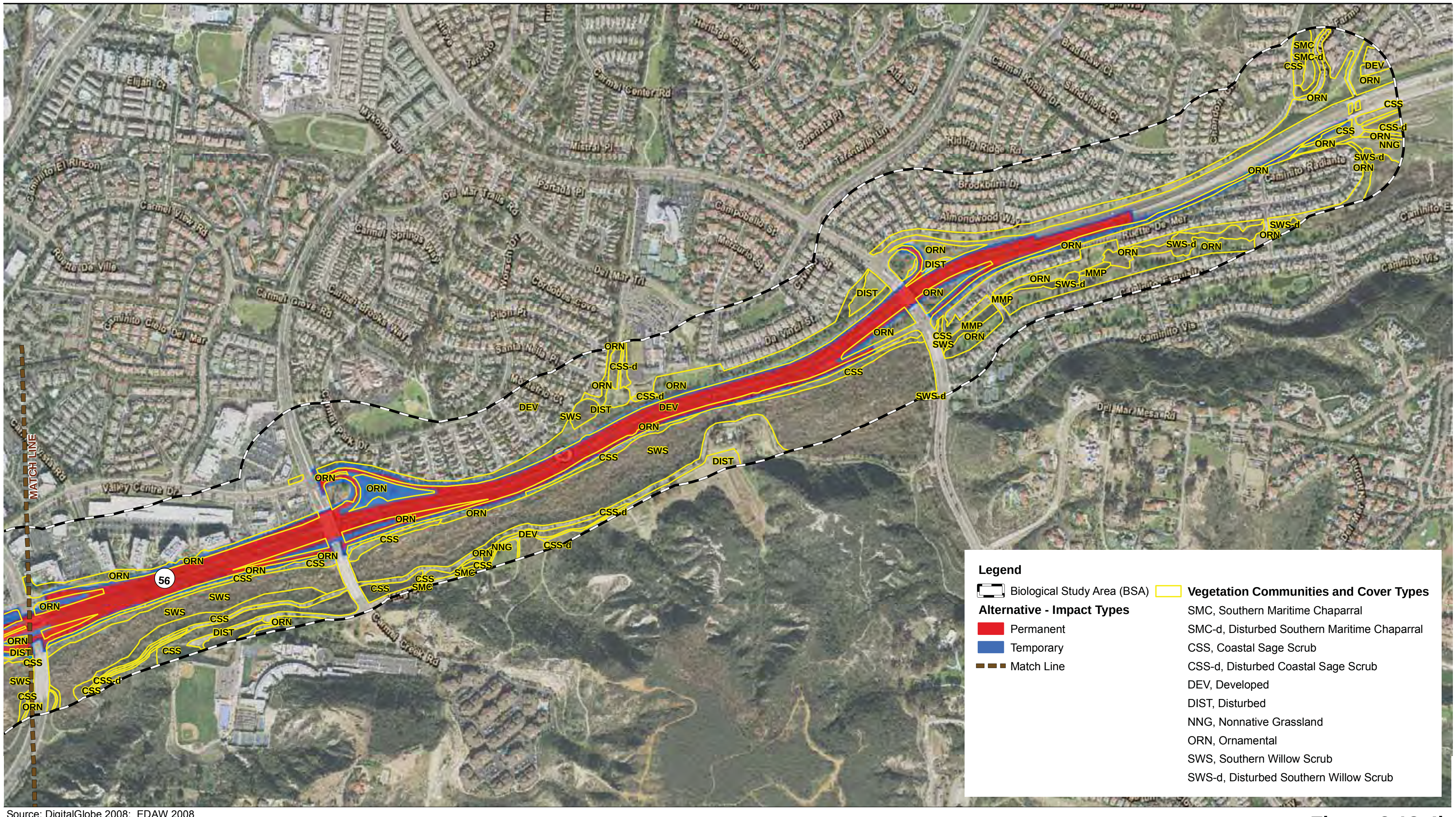
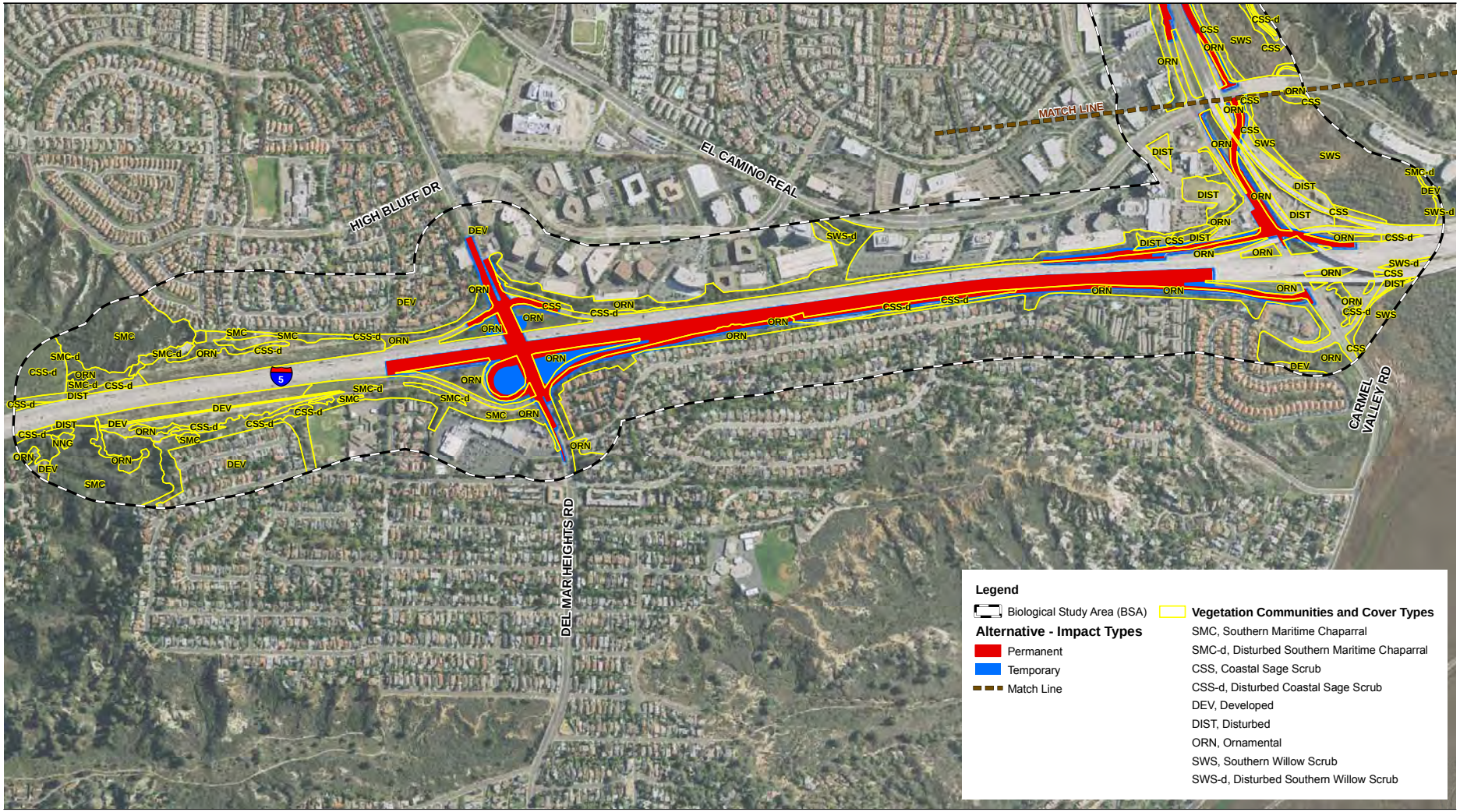


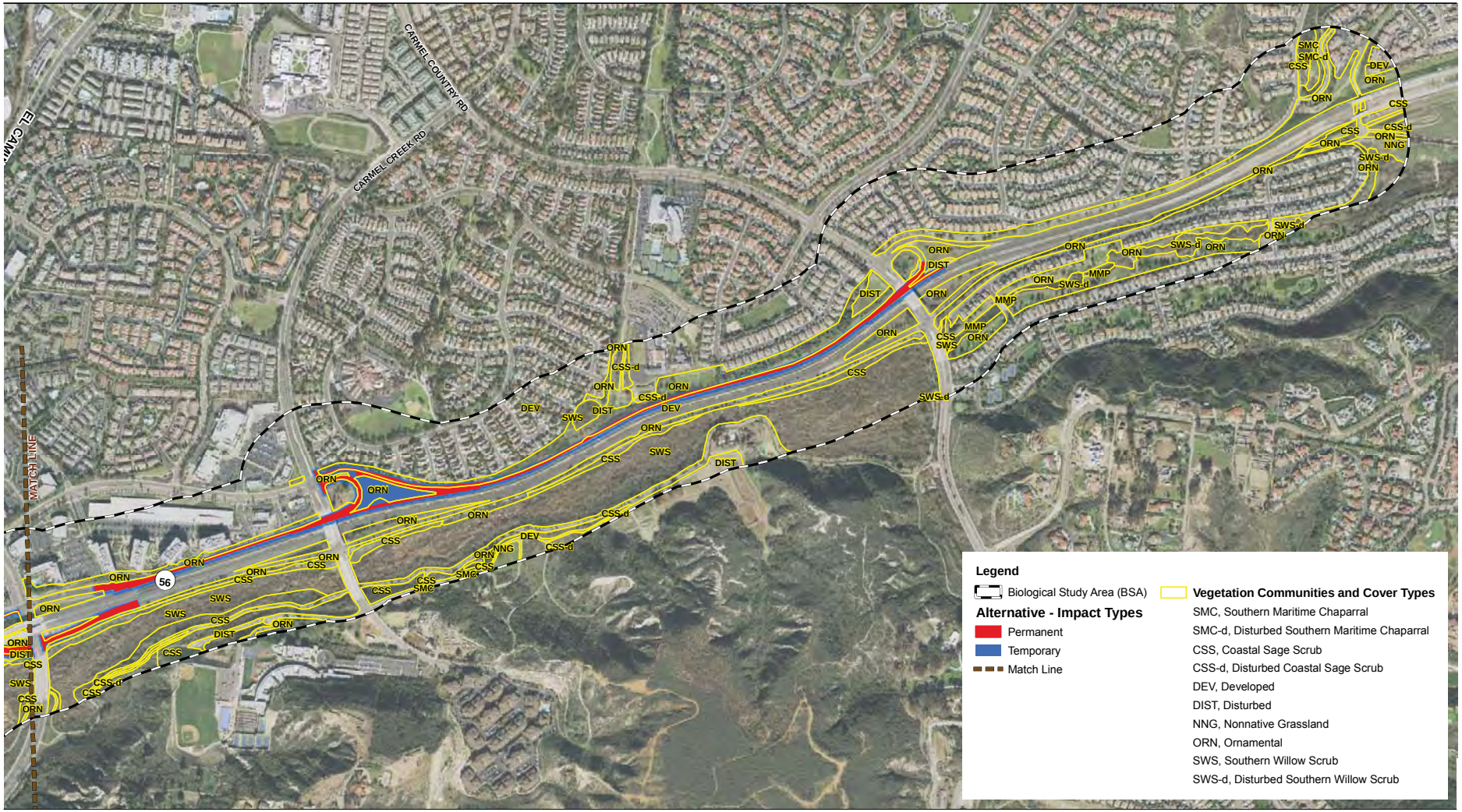
Figure 3.18-4b
Impacts to Vegetation Communities - Direct Connector Alternative
SR-56 Portion



Source: DigitalGlobe 2008; EDAW 2008

800 400 0 800 Feet

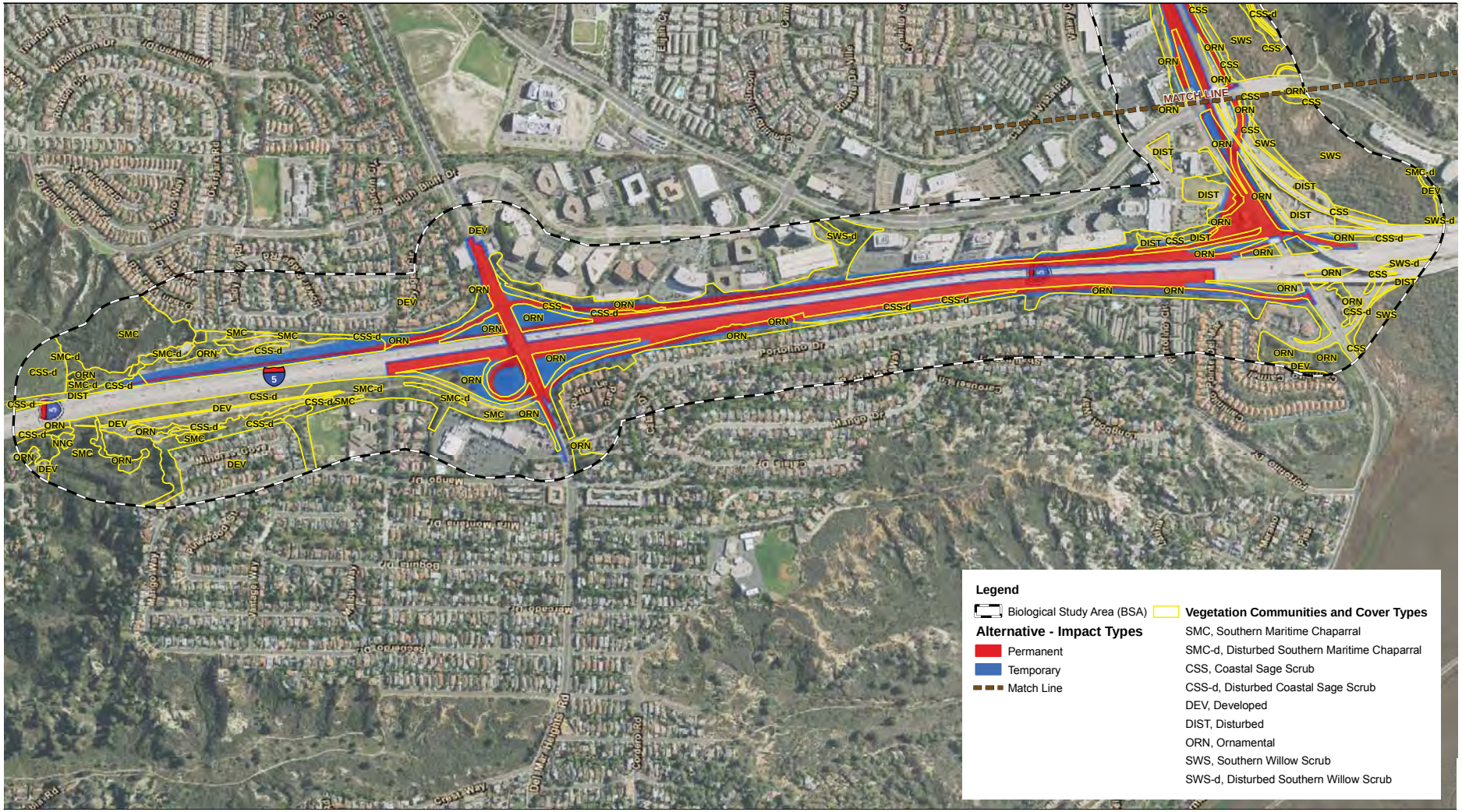
Figure 3.18-5a
Impacts to Vegetation Communities - Auxiliary Lane Alternative
I-5 Portion



Source: DigitalGlobe 2008; EDAW 2008

800 400 0 800 Feet

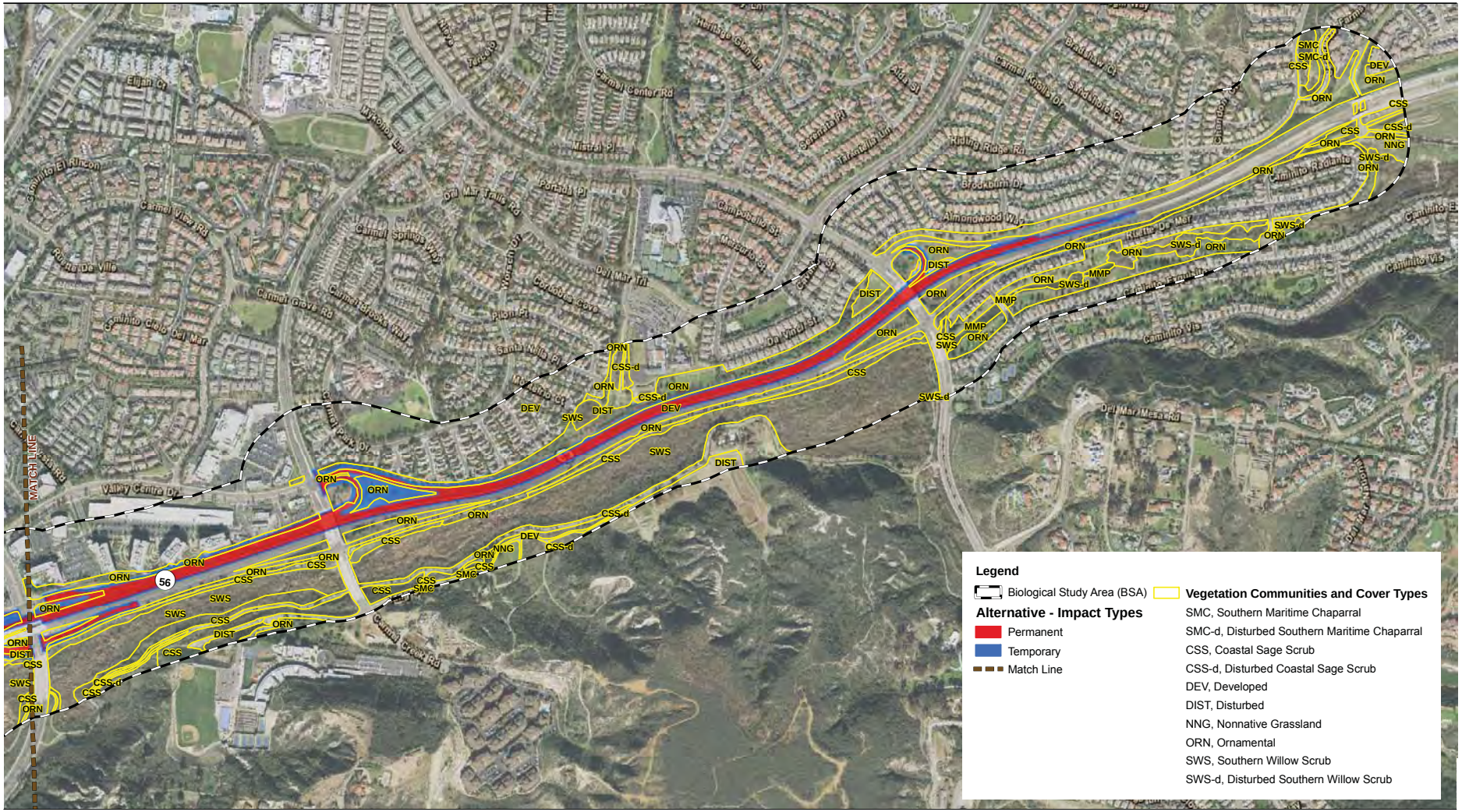
Figure 3.18-5b
Impacts to Vegetation Communities - Auxiliary Lane Alternative
SR-56 Portion



Source: DigitalGlobe 2008; EDAW 2008

800 400 0 800 Feet

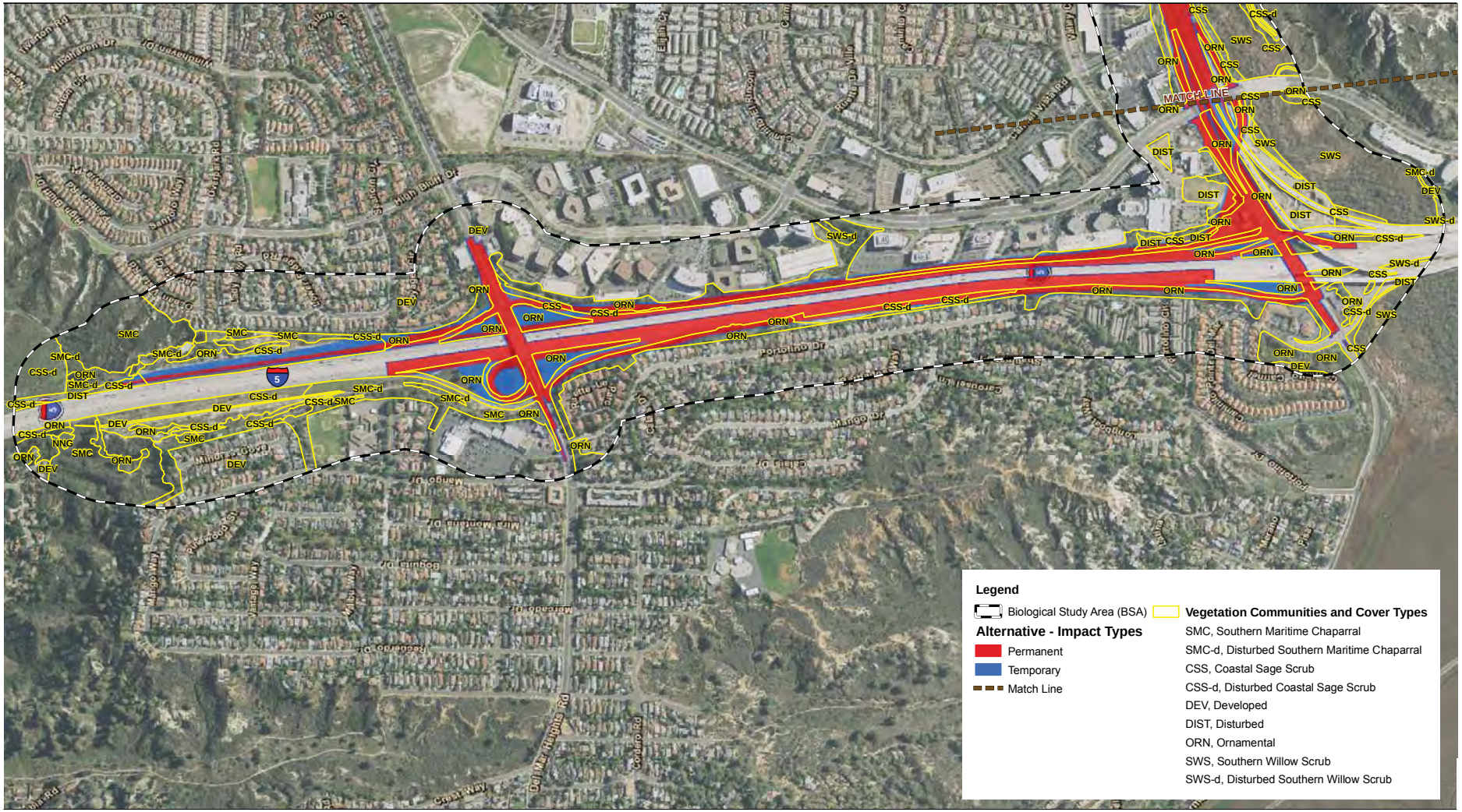
Figure 3.18-6a
Impacts to Vegetation Communities - Hybrid Alternative
I-5 Portion



Source: DigitalGlobe 2008; EDAW 2008

800 400 0 800 Feet

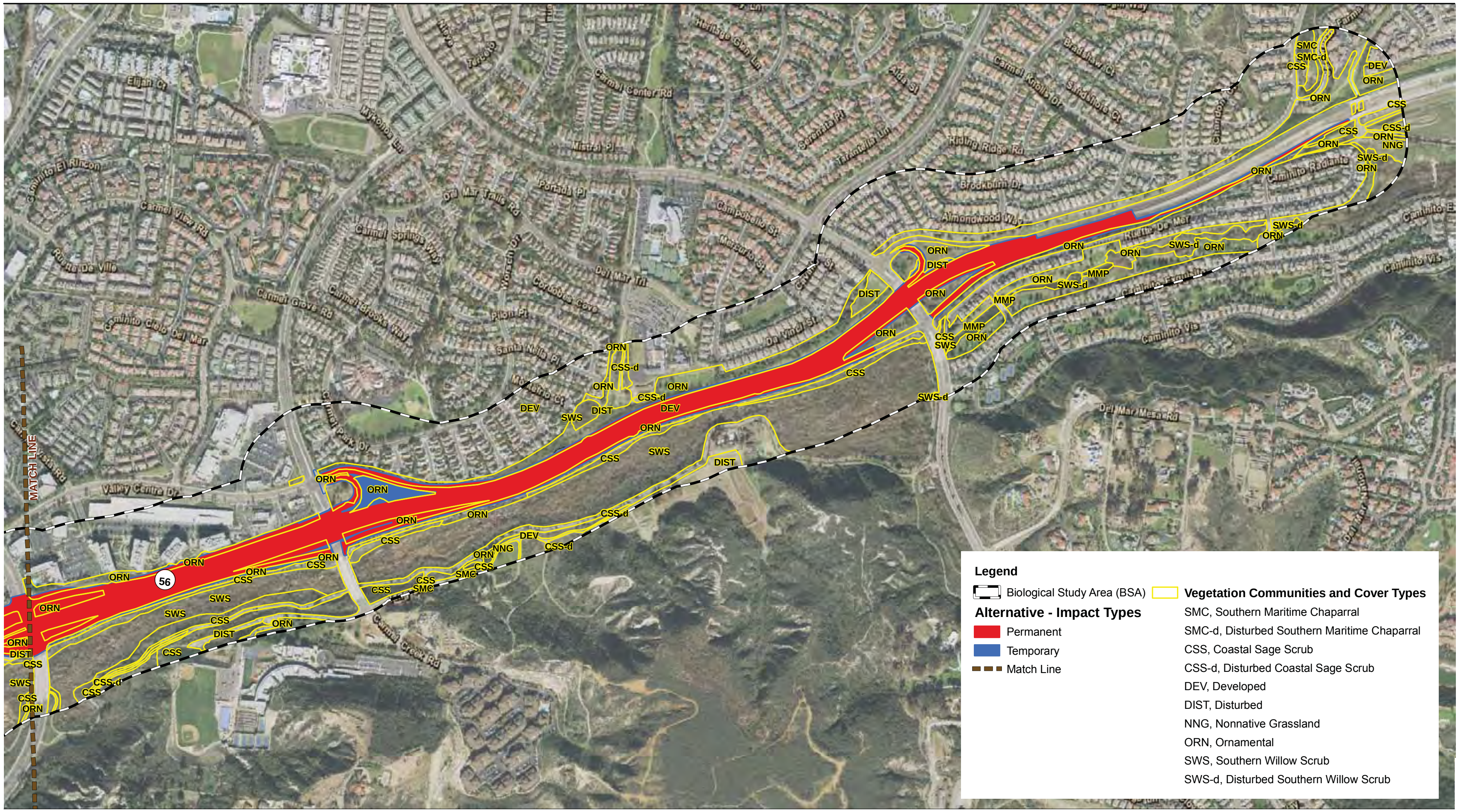
Figure 3.18-6b
Impacts to Vegetation Communities - Hybrid Alternative
SR-56 Portion



Source: DigitalGlobe 2008; EDAW 2008

800 400 0 800 Feet

Figure 3.18-7a
Impacts to Vegetation Communities - Hybrid with Flyover Alternative
I-5 Portion



Source: DigitalGlobe 2008; EDAW 2008

800 400 0 800 Feet

Figure 3.18-7b
Impacts to Vegetation Communities - Hybrid with Flyover Alternative
SR-56 Portion

3.19 WETLANDS AND OTHER WATERS

3.19.1 REGULATORY SETTING

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 USC 1344) is the primary law regulating wetlands and surface waters. The CWA regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, 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 CWA.

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

USACE issues two types of 404 permits: Standard and General permits. Nationwide permits, a type of General permit, are issued to authorize a variety of minor project activities with no more than minimal effects. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted by one of USACE's Standard permits. For Standard permits, the USACE decision to approve is based on compliance with USEPA's Section 404(b)(1) Guidelines (40 CFR Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by USEPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a Least Environmentally Damaging Practicable Alternative (LEDPA) to the proposed discharge that would have less effects on waters of the U.S., and not have any other significant adverse environmental consequences.

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

At the state level, wetlands and waters are primarily regulated by the California Department of Fish and Game (CDFG), State Water Resources Control Board (SWRCB), and Regional Water Quality Control Board (RWQCB). In certain circumstances, the California Coastal Commission (CCC) 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 CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement would be required. CDFG 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 USACE jurisdiction may or may not be included in the area covered by a Streambed Alteration Agreement obtained from CDFG.

RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. RWQCB also issues water quality certifications in compliance with Section 401 of the CWA. See Section 3.11, Water Quality and Stormwater Runoff, for additional details.

3.19.2 AFFECTED ENVIRONMENT

Pre-survey investigations of Web-based information systems (e.g., National Wetlands Inventory), soil survey data, and U.S. Geological Survey (USGS) topographic quadrangles were conducted to collect pertinent information about the BSA, such as previously mapped riparian areas, wetlands, waters, and/or hydric soils that suggest the potential or show the presence of wetlands. The proposed project alternatives have been designed to avoid the riparian corridor along the south side of SR-56, as well as other water features designated as waters of the U.S. or waters of the state. Caltrans received the I-5 NCC Project Jurisdictional Determination Verification for the same area from USACE on October 20, 2009; this verification was used as part of the analysis for the proposed project.

3.19.3 ENVIRONMENTAL CONSEQUENCES

Wetlands or other water features designated as waters of the U.S. or waters of the state are not present in the BSA. Consequently, the four proposed build alternatives or the No Build Alternative would not have impacts on wetlands or waters. Additionally, the proposed avoidance measure, discussed in Section 3.19.4, would reduce any potential impacts to wetlands or waters. Wetlands under the Coastal Act receive very protected status and since they are adjacent to the project, although not impacted, like Environmentally Sensitive Habitat Area (ESHA) discussed in the previous section of this document, there will still need to be a federal consistency determination for the project.

3.19.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Avoidance and mitigation measures for water quality and storm water runoff have been included in Section 3.11.4.

3.20 PLANT SPECIES

3.20.1 REGULATORY SETTING

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. “Special-status” is a general term applied to species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or California Endangered Species Act (CESA). See Section 3.22, Threatened and Endangered Species, for detailed information regarding these species.

This section of the document discusses all the other special-status plant species, including CDFG species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at USC 16, Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900–1913, and CEQA, Public Resources Code, Sections 21000–21177.

3.20.2 AFFECTED ENVIRONMENT

This section is based on the February 2011 *I-5/SR-56 Interchange Project Natural Environment Study* (NES) that was prepared by Caltrans for the proposed project and is incorporated by reference.

The NES identifies 24 sensitive plant species known to occur within 2 miles of the biological study area (BSA). However, because of factors such as lack of suitable habitat and known range restrictions, most of these plants are not expected to occur in the BSA. Only four sensitive plant species were detected in the BSA during surveys: Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), wart-stem-lilac (*Ceanothus verrucosus*), sea dahlia (*Coreopsis maritima*), and Del Mar Mesa sand aster (*Corethrogyne filaginifolia,* var. *linifolia*) (Figure 3.20-1). The Del Mar manzanita is federally listed as threatened and is discussed in Section 3.22, Threatened and Endangered Species. The other three sensitive plants detected in the BSA are discussed next.

WART-STEM LILAC

Wart-stem lilac is included by CNPS on List 2.2 (rare, threatened, or endangered in California but more common elsewhere). Wart-stem lilac is native to California and Baja California, Mexico. Within California, this species is found in San Diego and Riverside counties. The preferred habitat of wart-stem lilac is southern maritime chaparral below 1,250 feet. This species is a perennial shrub in the buckthorn family (*Rhamnaceae*) and blooms December through April. Wart-stem lilac was observed in the BSA during the spring 2008 rare plant surveys; 259 individuals were observed in the northern portion of the BSA.

SEA DAHLIA

Sea dahlia is included by CNPS on List 2.2 (rare, threatened, or endangered in California but more common elsewhere). Sea dahlia is native to California and Baja California, Mexico. Within California, this species is found in San Diego and Los Angeles counties. The preferred habitat of sea dahlia is coastal bluff scrub and coastal scrub below 500 feet. This species is a perennial herb in the sunflower

family (*Asteraceae*) and blooms March through May. Sea dahlia was observed in the BSA during the spring 2008 rare plant surveys; 150 individuals were observed.

DEL MAR MESA SAND ASTER

Del Mar Mesa sand aster is included by CNPS on List 1B.1 (rare, threatened, or endangered in California). This species is native to California and endemic (limited) to California alone, and is found throughout the state from San Diego to Del Norte County. The preferred habitat of Del Mar Mesa sand aster is chaparral below 500 feet. This species is a perennial herb in the sunflower family (*Asteraceae*) and blooms May through September. Del Mar Mesa sand aster was observed in the BSA during the spring 2008 rare plant surveys; 198 individuals were observed.

3.20.3 ENVIRONMENTAL CONSEQUENCES

The proposed project has been designed to avoid impacts to sensitive plant species to the extent practicable. Temporary impacts to Del Mar Mesa sand aster, a CNPS-listed rare plant species, are anticipated to occur as a result of the proposed project. Impacts to wart-stem lilac and sea dahlia are not anticipated to occur with selection of any of the proposed project build alternatives. Impacts to sensitive plant species by the proposed project alternatives are shown in Table 3.20-1 and depicted graphically in Figure 3.20-1.

Table 3.20-1. Anticipated Impacts to Sensitive Plant Species in the Biological Study Area

Sensitive Species	Impacts (# of individuals)									
	No Build Alternative		Direct Connector Alternative		Auxiliary Lane Alternative		Hybrid Alternative		Hybrid with Flyover Alternative	
	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.
Wart-stem lilac (Ceanothus verrucosus)	0	0	0	0	0	0	0	0	0	0
Sea dahlia (Coreopsis maritime)	0	0	0	0	0	0	0	0	0	0
Del Mar Mesa sand aster (Corethrogyne filaginifolia, var. linifolia)	0	0	10	0	0	0	0	0	0	0

Source: AECOM 2011a

NO BUILD ALTERNATIVE (ALTERNATIVE 1)

No impacts to any sensitive plant species would occur under the No Build Alternative.

DIRECT CONNECTOR ALTERNATIVE (ALTERNATIVE 2)

Construction under the Direct Connector Alternative would temporarily impact 10 Del Mar Mesa sand asters.

AUXILIARY LANE ALTERNATIVE (ALTERNATIVE 3)

Construction under the Auxiliary Lane Alternative would not impact any sensitive plant species.

HYBRID ALTERNATIVE (ALTERNATIVE 4)

Construction under the Hybrid Alternative would not impact any sensitive plant species.

HYBRID WITH FLYOVER ALTERNATIVE (ALTERNATIVE 5)

Construction under the Hybrid with Flyover Alternative would not impact any sensitive plant species.

3.20.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

With community input from the Steering Committee, the build alternatives have been designed to avoid or minimize direct effects to sensitive habitats and maximize use of nonnative, disturbed, and developed land cover types. General measures to avoid and minimize impacts to sensitive plant species and their habitats are described in Section 3.18.4 of Chapter 3.18, Natural Communities. Seed would be collected from any Del Mar sand aster plants that would be temporarily impacted by the proposed project. The seed would be sown in the temporary impact areas on completion of the proposed project.

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Source: DigitalGlobe 2008; EDAW 2008

500 250 0 500 Feet

Figure 3.20-1

Impacts to Sensitive Plants

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3.21 ANIMAL SPECIES

3.21.1 REGULATORY SETTING

Many state and federal laws regulate impacts to wildlife. USFWS, the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service, and the California Department of Fish and Game (CDFG) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 3.22, Threatened and Endangered Species. All other special-status animal species are discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations pertaining to wildlife include:

- National Environmental Policy Act (NEPA)
- Migratory Bird Treaty Act (MBTA)
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include:

- California Environmental Quality Act (CEQA)
- Sections 1600–1603 of the Fish and Game Code
- Sections 4150 and 4152 of the Fish and Game Code

3.21.2 AFFECTED ENVIRONMENT

This section is based on the February 2011 *I-5/SR-56 Interchange Project Natural Environment Study* (NES) that was prepared by Caltrans for the proposed project and is incorporated by reference.

The NES identifies 31 sensitive animal species known to occur within 2 miles of the biological study area (BSA). However, because of factors such as lack of suitable habitat and known range restrictions, most of these species are not expected to occur in the BSA. Six sensitive animal species were detected in the BSA during project surveys conducted between 2003 and 2008: San Diego coast horned lizard (*Phrynosoma coronatum blainvillii*), white-tailed kite (*Elanus leucurus*), yellow warbler (*Dendroica petechia brewsteri*), yellow-breasted chat (*Icteria virens*), San Diego pocket mouse (*Chaetodipus fallax fallax*), and San Diego desert woodrat (*Neotoma lepida intermedia*) (Figure 3.21-1). Five of the six species detected are CDFG species of special concern; the white-tailed kite is a CDFG fully protected species. Threatened and endangered species are discussed in Section 3.22. Each of the six sensitive animal species is discussed next.

SAN DIEGO COAST HORNED LIZARD

The San Diego coast horned lizard is a state species of special concern. It prefers friable, rocky, or shallow sandy soils in coastal sage scrub and chaparral, in arid and semiarid climates with open areas for sunning and bushes for cover, from sea level to elevations of higher than 8,000 feet. In San Diego County, it is relatively widespread and locally common from the coast to the western edge of the desert. San Diego coast horned lizard was detected by biologists in 2003, in the northeastern portion of the BSA. This species was not detected during proposed project surveys in 2007. Approximately 82 acres of suitable (or marginally suitable) habitat for the San Diego coast horned lizard occur in the BSA and include southern maritime chaparral, disturbed southern maritime chaparral, coastal sage scrub, disturbed coastal sage scrub, and nonnative grasslands.

WHITE-TAILED KITE

The white-tailed kite is a state fully protected species within its breeding range. In North America, it occurs along the Pacific Coast from Washington to Baja California, Mexico. This species inhabits riparian or oak woodland adjacent to grassland or open fields, where it hunts its primary prey species, the California vole (*Microtus californicus*). The white-tailed kite is a common resident in San Diego County. This species was detected in the BSA during 2007 surveys. Although the white-tailed kite was detected in the BSA, this species is not expected to breed or nest within the BSA. The BSA has 2.4 acres of suitable (or marginally suitable) nonnative grasslands foraging habitat for the white-tailed kite.

YELLOW WARBLER

The yellow warbler (*brewsteri* subspecies) is designated as a state species of special concern. It remains a fairly common species in mature riparian woodland on the California coastal slope. In coastal San Diego County, breeding yellow warblers are most widespread from Carlsbad northward and more localized farther south. This species occurs most commonly in riparian woodlands dominated by willows. The yellow warbler was detected several times during 2007 surveys, foraging in southern willow scrub habitat in the southern portion of the BSA. Approximately 80 acres of suitable (or marginally suitable) foraging and nesting/breeding habitat is available to the yellow warbler in the BSA, featuring southern willow scrub and disturbed southern willow scrub.

YELLOW-BREASTED CHAT

The yellow-breasted chat is designated as a state species of special concern. In San Diego County, this species occurs in the coastal lowlands and is strongly concentrated in the county's northwest, along the Santa Margarita and San Luis Rey rivers and smaller creeks. The yellow-breasted chat was detected several times during 2007 surveys, foraging in southern willow scrub habitat in the southern portion of the BSA. Approximately 80 acres of suitable foraging as well as nesting/breeding habitat is available to the yellow-breasted chat in the BSA, featuring southern willow scrub and disturbed southern willow scrub.

SAN DIEGO POCKET MOUSE

The San Diego pocket mouse is a state species of special concern. Its habitat preferences include coastal sage scrub, chaparral, and grasslands with sandy substrate and/or gravelly areas. San Diego pocket mouse was detected in 2003, in the northeastern portion of the BSA. Marginal habitat for this species exists on the fringes of the BSA; however, increased development in the area and the proximity of the BSA to the freeway has decreased the potential for the presence of this species. Approximately 82 acres of suitable (or marginally suitable) habitat for the San Diego pocket mouse occur in the BSA, featuring open sandy areas of southern maritime chaparral, disturbed southern maritime chaparral, coastal sage scrub, disturbed coastal sage scrub, and nonnative grasslands.

SAN DIEGO DESERT WOODRAT

The San Diego desert woodrat is considered a state species of special concern. It occupies rocky habitats associated with chaparral and coastal sage scrub. This subspecies is restricted to southern California, from San Luis Obispo southward to northwestern Baja California, Mexico. San Diego desert woodrat was detected in 2003, in the northeastern portion of the BSA; however, this species was not detected during project surveys in 2007. Marginal habitat for this species exists on the fringes of the BSA; however, increased development in the area and the proximity of the BSA to the freeway has decreased the potential for the presence of this species. Approximately 82 acres of suitable (or marginally suitable) habitat for the San Diego desert woodrat occur in the BSA, featuring southern

maritime chaparral, disturbed southern maritime chaparral, coastal sage scrub, disturbed coastal sage scrub, and nonnative grasslands.

3.21.3 ENVIRONMENTAL CONSEQUENCES

The proposed project has been designed to avoid impacts to sensitive animal species to the greatest extent possible. Anticipated impacts to sensitive animals detected in the BSA are listed in Table 3.21-1. Temporary and permanent impacts are anticipated in the form of loss of suitable habitat for three CDFG species of special concern (San Diego coast horned lizard, San Diego pocket mouse, and San Diego desert woodrat). Impacts to sensitive animal species are shown in Figure 3.21-1 as the overlap of the impact areas for the four build alternatives and recorded special-status species occurrences.

Table 3.21-1. Anticipated Impacts to Sensitive Animal Species in the Biological Study Area

Sensitive Species	Impacts (acreage of habitat potentially used by species)									
	No Build Alternative		Direct Connector Alternative		Auxiliary Lane Alternative		Hybrid Alternative		Hybrid with Flyover Alternative	
	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.
San Diego coast horned lizard (Phrynosoma coronatum blainvillii)	0.0	0.0	6.2	8.2	0.7	1.3	4.2	3.3	4.2	3.3
San Diego pocket mouse (Chaetodipus fallax fallax)	0.0	0.0	6.2	8.2	0.7	1.3	4.2	3.3	4.2	3.3
San Diego desert woodrat (*Neotoma lepida intermedia)*	0.0	0.0	6.2	8.2	0.7	1.3	4.2	3.3	4.2	3.3

Source: AECOM 2011a

SAN DIEGO COAST HORNED LIZARD, SAN DIEGO POCKET MOUSE, AND SAN DIEGO DESERT WOODRAT

Anticipated impacts to habitat that could be used by San Diego coast horned lizard, San Diego pocket mouse, and San Diego desert woodrat, associated with the No Build Alternative and the proposed project build alternatives are summarized in Table 3.21-1 and discussed next. For the impact analysis, southern maritime chaparral, disturbed southern maritime chaparral, coastal sage scrub, and disturbed coastal sage scrub are considered suitable habitat.

No Build Alternative (Alternative 1)

No impacts to suitable, or marginally suitable, habitat for any of the sensitive animal species would occur under the No Build Alternative.

Direct Connector Alternative (Alternative 2)

Construction under the Direct Connector Alternative would temporarily impact 6.2 acres and permanently impact 8.2 acres of suitable to marginally suitable habitat for the San Diego coast horned lizard, San Diego pocket mouse, and San Diego desert woodrat. No impacts would occur to suitable habitat for sensitive bird species.

Auxiliary Lane Alternative (Alternative 3)

Construction under the Auxiliary Lane Alternative is anticipated to temporarily impact 0.7 acre and permanently impact 1.3 acres of suitable to marginally suitable habitat for the San Diego coast horned

lizard, San Diego pocket mouse, and San Diego desert woodrat. No impacts would occur to suitable habitat for sensitive bird species.

Hybrid Alternative (Alternative 4)

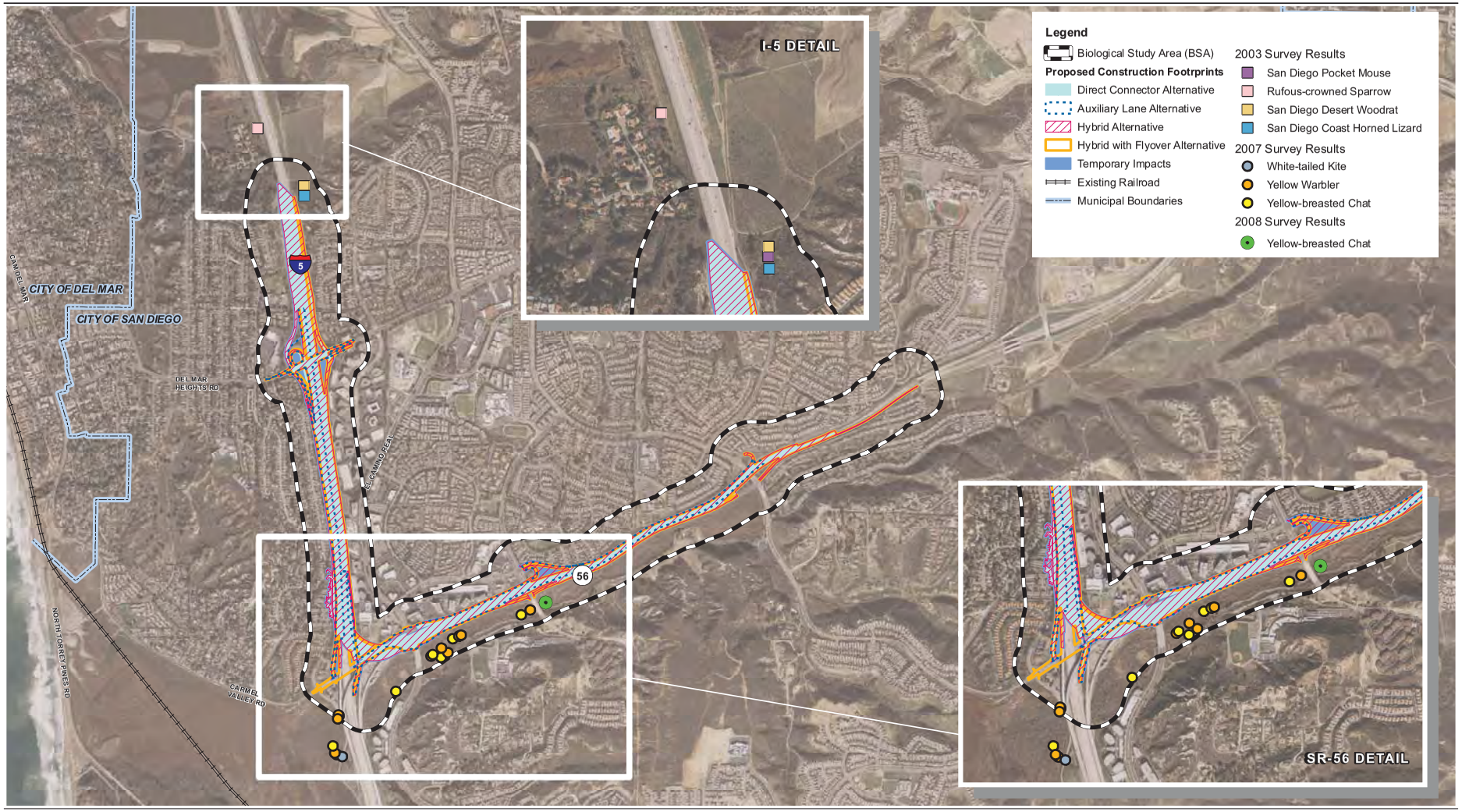
Construction under the Hybrid Alternative is anticipated to temporarily impact 4.2 acres and permanently impact 3.3 acres of suitable to marginally suitable habitat for the San Diego coast horned lizard, San Diego pocket mouse, and San Diego desert woodrat. No impacts would occur to suitable habitat for sensitive bird species.

Hybrid with Flyover Alternative (Alternative 5)

Construction under the Hybrid with Flyover Alternative is anticipated to temporarily impact 4.2 acres and permanently impact 3.3 acres of suitable to marginally suitable habitat for the San Diego coast horned lizard, San Diego pocket mouse, and San Diego desert woodrat. No impacts would occur to suitable habitat for sensitive bird species.

3.21.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

With community input from the Steering Committee, the proposed project build alternatives have been designed to avoid or minimize direct effects to sensitive habitats and maximize use of nonnative, disturbed, and developed land cover types. General measures to avoid and minimize impacts to special-status animal species and their habitats are described in Section 3.18.4 of Chapter 3.18, Natural Communities. Unavoidable impacts to special-status animals or their habitats (if any) would require mitigation. As discussed in the TREP/PWP, compensatory mitigation for impacts to upland habitats would be completed at the Dean Mitigation Parcel immediately east of I-5 on the slopes of San Dieguito Lagoon in the former tomato field. Specifically, permanent impacts to coastal sage scrub and southern maritime chaparral would be completed on Caltrans mitigation property on the slopes of San Dieguito Lagoon, at a proposed 2:1 ratio, subject to discussions to determine the type and extent of mitigation measures required with the resource agencies.



Source: DigitalGlobe 2008; EDAW 2008; EDAW 2007; URS, Caltrans 2003 - 2005

2,000 1,000 0 2,000 Feet

Figure 3.21-1
Impacts to Sensitive Animals

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3.22 THREATENED AND ENDANGERED SPECIES

3.22.1 REGULATORY SETTING

The primary federal law protecting threatened and endangered species is FESA: 16 USC, Section 1531, et seq. (see also 50 CFR Part 402). This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems on which they depend. Under Section 7 of this act, federal agencies, such as FHWA, are required to consult with USFWS and NOAA Fisheries to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an Incidental Take statement. Section 3 of the FESA defines “take” as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

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

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

3.22.2 AFFECTED ENVIRONMENT

This section is based on the February 2011 *I-5/SR-56 Interchange Project Natural Environment Study* (NES) that was prepared by Caltrans for the proposed project and is incorporated by reference. A list of endangered, threatened and proposed species that may occur within or near the proposed project area was received from USFWS on February 4, 2009 and an updated USFWS letter was received October 5, 2011. Copies of both species lists are included at the end of Chapter 5. The distributions in the BSA of the threatened and endangered species discussed next are shown in Figure 3.22-1.

PLANT SPECIES

Two federally listed threatened or endangered plant species, Del Mar manzanita (*Arctostaphylos glandulosa*) and Encinitas baccharis (*Baccharis vanessae*), may occur in or near the BSA. Only one threatened or endangered plant species, the Del Mar manzanita, was detected in the BSA during project surveys. These two species are discussed next.

Del Mar Manzanita

Del Mar manzanita is federally endangered and included by CNPS on List 1B.1 (rare, threatened, or endangered in California and elsewhere). This species is native to California and Baja California, Mexico. Within California, this species is restricted to San Diego County. The preferred habitat of Del Mar manzanita is southern maritime chaparral below 1,200 feet. This species is a perennial shrub in the heath family (*Ericaceae*) and blooms December through April. Del Mar manzanita was observed in the BSA during the spring 2008 rare plant surveys; 40 individuals were observed in the northern portion of the BSA (Figure 3.22-1).

Encinitas Baccharis

Encinitas baccharis is federally threatened, state endangered, and included by the CNPS on List 1B.1 (rare, threatened, or endangered in California and elsewhere). Encinitas baccharis is restricted to San Diego and Los Angeles counties and Baja California, Mexico. It can be found in maritime chaparral on sandstone substrate below 2,400 feet. This species is a perennial shrub in the sunflower family (*Asteraceae*) and blooms August through November. The nearest known location of Encinitas baccharis documented in the California Natural Diversity Database (CNDDB) is approximately 0.2 mile south of the BSA. Encinitas baccharis was not observed during the April and June 2008 surveys. Because this species is a perennial shrub, it would have been seen, if present.

ANIMAL SPECIES

According to the USFWS species list, seven threatened or endangered species have the potential to occur in the BSA. These species are Pacific pocket mouse (*Perognathus longimembris pacificus*), western snowy plover (*Charadrius alexandinus nivosus*), California least tern (*Sternula antillarum browni*), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo belli pusillus*), light-footed clapper rail (*Rallus longirostris levipes*), and coastal California gnatcatcher (*Polioptila californica californica*). These species are discussed next.

Pacific Pocket Mouse

The Pacific pocket mouse is a federally listed endangered species. The Pacific pocket mouse occurs on fine, sandy soils within 2 to 4 miles of the Pacific Ocean. Although the Pacific pocket mouse is on the USFWS species list, it is not expected to occur in the BSA because of the extremely limited distribution of this species and lack of appreciable amounts of fine, sandy soils in the BSA. Although one occurrence is documented in the CNDDB within the local region, it occurred in 1999 and was recorded approximately 1,400 feet west of the northernmost reach of the BSA. This species was not detected or observed in the BSA during surveys.

Western Snowy Plover

The western snowy plover is a federally listed threatened species. The western snowy plover can be found on sandy beaches on marine and estuarine shores, salt pond levees, and the shores of large alkali lakes. Additionally, this species requires sandy or gravelly soils for nesting. Occurrences of this species in vicinity of the BSA have not been recorded for over two decades. This species was not detected or observed during surveys.

California Least Tern

The California least tern is a federally listed endangered species. The California least tern is migratory in California and breeds on bare or sparsely vegetated flat sandy beaches, alkali flats, landfills, or paved areas. Occurrences of this species in vicinity of the BSA have not been recorded for over two

decades. This species was not detected or observed during surveys, and it is not expected to occur because no sandy beaches or other suitable nesting habitat is present in the BSA.

Southwestern Willow Flycatcher

The southwestern willow flycatcher is a federally and state listed endangered species. The willow flycatcher breeds across southern Canada, through the midwestern United States, and in isolated locations in California. It winters in Central and South America. Three willow flycatcher subspecies are known in California, including the southwestern subspecies. The southwestern willow flycatcher breeds in California, from the Mexican border northward to Independence in the Owens Valley, the South Fork Kern River, and the Santa Ynez River in Santa Barbara County, and it winters from Guatemala to Costa Rica (Craig and Williams 1998). In San Diego County, this species is known to regularly breed only along the Santa Margarita River and the San Luis Rey River between Lake Henshaw and the La Jolla Indian Reservation. The southwestern willow flycatcher occurs in riparian woodland; specifically, the southwestern willow flycatcher breeds only in dense riparian vegetation near surface water or saturated soil. Although its breeding habitat is fairly restricted, habitat characteristics such as dominant plant species, patch size, and canopy structure may vary.

Two willow flycatchers (*E. trailii*) were detected during the 2007 surveys. The individuals were heard approximately 235 feet east of Carmel Creek Road (outside of the BSA) on May 21, 2007. Another individual was heard in Peñasquitos Lagoon. The three individuals were assumed to be using the area as a temporary stopover because detections occurred during a period of active migration. The type of riparian habitat that occurs in the BSA is not the preferred habitat for nesting and breeding activities of southwestern willow flycatcher; however, the habitat may be suitable for temporary use during migratory activities. The nearest record of southwestern willow flycatcher is from approximately 13.5 miles inland, just east of Lake Hodges, recorded in 2003 (USFWS 2008), further supporting the conclusion that the riparian areas in the BSA are not suitable habitat for this species.

Least Bell's Vireo

The least Bell's vireo is a federal and state listed endangered species within its breeding range. The least Bell's vireo is the westernmost subspecies of the Bell's vireo (*V. belli*). The subspecies breeds entirely within California and northern Baja California and winters in southern Baja California, Mexico. During the breeding season, the least Bell's vireo is restricted to semi-open riparian woodland and riparian scrub, dominated by willows and mulefat with a dense shrub understory. In San Diego County, the least Bell's vireo occurs mainly in coastal lowland, rarely up to an elevation of 3,000 feet. This species was not detected during the project surveys in 2007; however, an incidental detection of least Bell's vireo occurred in the BSA in 2002. One or two singing males was heard by Caltrans biologist, and several detections were made of least Bell's vireo from 2000–2006, approximately 1.7 miles south of the BSA and just west of the I-5/I-805 merge (USFWS 2008). The type of riparian habitat that occurs in the BSA is not preferred habitat for nesting and breeding activities of this species; however, portions of the BSA may be suitable for temporary use during migratory activities.

Coastal California Gnatcatcher

The coastal California gnatcatcher is federally listed as threatened and is a state species of special concern. This subspecies is usually found in association with coastal sage scrub communities, particularly Diegan coastal sage scrub, occurring on gentle slopes within the maritime and coastal climate zones, generally lower than 1,000 feet in elevation. Often, California sagebrush and California buckwheat are the dominant plant species. Species decline is attributed to regional loss of coastal sage scrub habitat. This species was not detected within the BSA during project surveys in 2007. Although coastal sage scrub does occur within the project limits, the habitat is disturbed and it located on the freeway cut slopes that are noisy and provide low quality habitat for the California gnatcatcher. There

are historical sightings in the project vicinity by the USFWS, but not in the impact area. California gnatcatchers were identified during protocol surveys for the I-5 North Coast Corridor project in 2003, 2005, and 2007 on the fill slopes of the freeway near the San Dieguito Lagoon, which is north of the project area.

Light-footed Clapper Rail

The light-footed clapper rail is federally and state listed as endangered and is a state fully protected species. It is restricted to coastal salt marshes in southern California, where cord grass (*Spartina* spp.) and pickleweed (*Salicornia* spp.) are the dominant vegetation. This species forages in higher marsh vegetation and along tidal creeks, and it requires dense vegetation for nesting and escape cover. The light-footed clapper rail ranges in disjunct populations from Santa Barbara County to San Diego County and into Baja California, Mexico. This species was detected outside of the BSA during the 2007 surveys. Suitable habitat for light-footed clapper rail is not present in the BSA.

3.22.3 Environmental Consequences

Plant Species

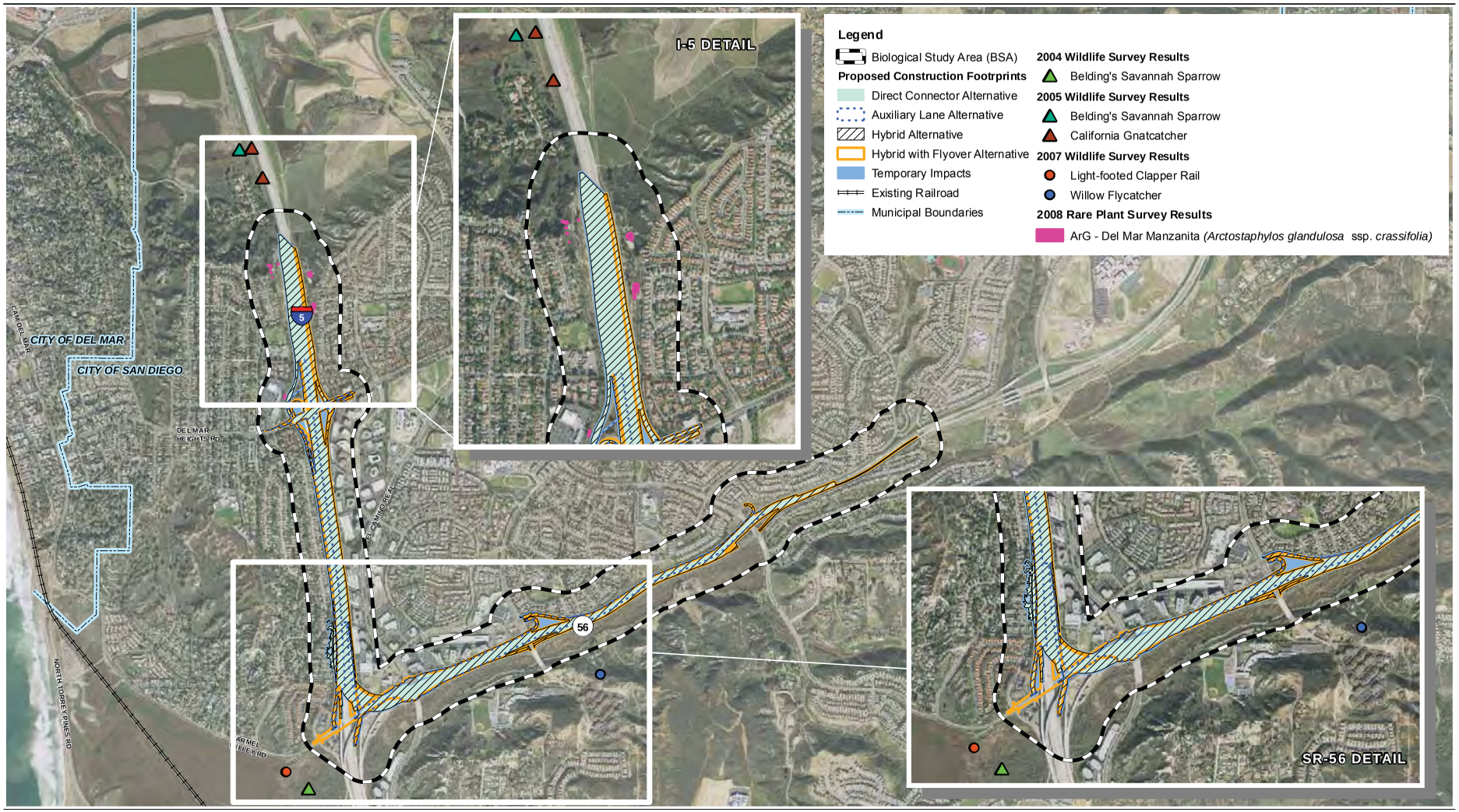
All of the proposed project build alternatives have been designed to avoid impacts to threatened and endangered plant species. Current engineering designs will avoid impacts to Del Mar manzanita or Encinitas baccharis; neither of the species occurs within the impact area of any of the build alternatives (Figure 3.22-1). Alternative 2 is anticipated to impact ten individual Del Mar Mesa sand aster (Corethrognyne filaginifolia var.linifolia) temporarily Furthermore, no impacts to Del Mar manzanita or Encinitas baccharis would occur under the No Build Alternative. Therefore, there will be no effect to threatened and endangered plant species.

Animal Species

All of the proposed project build alternatives have been designed to avoid impacts to threatened and endangered animal species. Although sightings of some of the species have occurred outside the BSA, no federally or state listed threatened or endangered animals have been recorded in the BSA. No impacts to federally or state listed animal species are anticipated as a result of the proposed project (Figure 3.22-1). Furthermore, no impacts to listed animal species would occur under the No Build Alternative. Therefore, there will be no effect to threatened and endangered animal species.

3.22.4 Avoidance, Minimization, and/or Mitigation Measures

Threatened or endangered plant or animal species as described in Sect. 3.22.3, including gnatcatcher (*Polioptila californica californica*) did not occur in the BSA. In addition, the proposed project is designed to avoid habitat or potential habitat to the extent practicable.



Source: DigitalGlobe 2008; EDAW 2008; EDAW 2007; URS, Caltrans 2003 - 2005

2,000 1,000 0 2,000 Feet

Figure 3.22-1
Impacts to Threatened and Endangered Species

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3.23 INVASIVE SPECIES

3.23.1 REGULATORY SETTING

On February 3, 1999, President Clinton signed EO 13112, requiring federal agencies to combat the introduction or spread of invasive species in the U.S. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." FHWA guidance issued August 10, 1999, directs the use of the state's invasive species list, currently maintained by the California Invasive Species Council, to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

3.23.2 AFFECTED ENVIRONMENT

This section is based on the February 2011 *I-5/SR-56 Interchange Project Natural Environment Study* (NES) that was prepared by Caltrans for the proposed project and is incorporated by reference.

A list of invasive species observed in the BSA is provided in Table 3.23-1. To provide an indication of the threat posed by the species, the table includes rankings from the California Invasive Plant Council's (Cal-IPC) Invasive Plant Inventory Database (Cal-IPC 2006). The Cal-IPC database assigns invasive plant species an overall score of Limited, Moderate, or High, based on the species' ecological impacts, invasive potential, and ecological distribution.

Table 3.23-1. Invasive Species in the Biological Study Area

Scientific Name	Common Name	Cal-IPC Score	Areas Impacted
Avena fatua	wild oat	Moderate	Disturbed areas, coastal scrub
Brassica nigra	black mustard	Moderate	Disturbed areas, coastal scrub, riparian areas
Bromus spp.	brome grasses	B. diandrus: Moderate B. hordeaceus: Limited B. madritensis rubens: High	Disturbed areas, riparian areas
Carpobrotus edulis	hottentot fig	High	Coastal habitats, especially dunes
Centaurea melitensis	Tocalote	Moderate	Disturbed areas, grassland, oak woodland
Cortaderia selloana	pampas grass	High	Coastal, riparian, wetland, and grassland areas
Ehrharta calycina	perennial veldt grass	High	Sandy soils, especially dunes
Erodium cicutarium	filaree	Limited	Disturbed areas
Eucalyptus camuldulensis	red gum	Limited	Developed areas
Foeniculum vulgare	fennel	High	Grasslands, scrub
Hirschfeldia incana	short-pod mustard	Moderate	Riparian scrub, grassland
Nicotiana glauca	tree tobacco	Moderate	Disturbed areas, riparian forest
Pennisetum setaceum	fountain grass	Moderate	Coastal dunes and scrub, chaparral, grasslands
Raphanus sativus	wild radish	Limited	Disturbed areas

Source: AECOM 2011a

3.23.3 ENVIRONMENTAL CONSEQUENCES

All four build alternatives could result in increased invasive species intrusions. Little change in invasive species present in the BSA is expected under the No Build Alternative. Short-term impacts from construction under the proposed project build alternatives would include ground disturbance and removal of native species that could facilitate the establishment of invasive plant species. Invasive plant propagules (e.g., seeds, bulbs, rhizomes) may be inadvertently introduced via construction equipment or workers. Construction activities also may increase the risk of fires, which could cause disturbance to native vegetation and assist the spread of invasive species.

3.23.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

In compliance with the Executive Order on Invasive Species, EO 13112, and subsequent guidance from FHWA, the landscaping and erosion control included in the proposed project would not use species listed as invasive. In areas of particular sensitivity, extra precautions would be taken if invasive species were found in or adjacent to construction areas. These would include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

Special care would be taken when transporting, using, and disposing soils with invasive weed seeds. All heavy equipment would be washed and cleaned of debris before entering sensitive areas, to minimize the possible spread of invasive weeds. Special care would be taken when transporting, use, and disposing of soils containing invasive weed seeds. Species listed by the Cal-IPC would not be planted onsite.

3.24 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE HUMAN ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Proposed project implementation would result in attainment of long-term transportation objectives at the expense of some short-term social, economic, aesthetic, biological, noise, water quality, and other land use impacts. The need for these long-term transportation improvements is based on existing operating conditions of the southbound I-5 to eastbound SR-56 and westbound SR-56 to northbound I-5 interchange, and is necessary to ensure continued efficient local and regional movement of people and goods. The projected population growth throughout the proposed project area is substantial and the planned expansion of residential and commercial development within the proposed project vicinity underscores the continued need for efficient, reliable regional mobility.

3.24.1 NO BUILD ALTERNATIVE (ALTERNATIVE 1)

This alternative would offer none of the gains or experience the losses listed above. It would, however, do nothing to resolve worsening congestion on local streets and highways or meet the goal of continued safe and efficient local and regional movement of people and goods.

3.24.2 BUILD ALTERNATIVES (ALTERNATIVES 2 THROUGH 5)

The four build alternatives would have similar short-term impacts. These impacts would vary in degree and severity for each alternative but generally would be similar in nature.

Short-term impacts would include economic loss experienced by local businesses because of detoured traffic, inconvenient access, and/or business relocation; construction-related effects such as motorized and nonmotorized traffic delays and detours; limited access by bicyclists and pedestrians; construction impacts to biological resources, visual quality, and water quality, and increased noise levels; and general access and travel inconveniences. Long-term effects would impact visual resources, biological resources, energy and fuel use, and irrevocable use of construction materials including concrete, steel, and asphalt.

Short-term benefits would include increased job creation and increased local revenue, generated during construction activities. Long-term benefits would include improvement to the transportation network in the area, reduction of congestion and better intersection circulation resulting in shorter travel times, improved bicycle and pedestrian access, and ability of transportation facilities to support future planned development through efficient and reliable local and regional movement of people and goods.

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3.25 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES THAT WOULD BE INVOLVED IN THE PROPOSED PROJECT

Some irreversible and irretrievable effects would curtail the range of potential future uses of the environment under either the No Build Alternative or any of the four build alternatives.

Implementation of the proposed I-5/SR-56 interchange project would involve the commitment of a range of natural, physical, human, and fiscal resources. Land used for the construction of the proposed project is considered an irreversible commitment during the time period that the land would be used for a highway facility. However, if a greater need arose for the land use or if the highway facility was no longer needed, the land could be converted to another use. At present, no reason exists to believe that such a conversion would ever be necessary or desirable.

Considerable amounts of fossil fuels, labor, and highway construction materials (such as cement, aggregate, and bituminous material) would be used during the proposed project construction. Additionally, large amounts of labor and natural resources would be used in the fabrication and preparation of construction materials. These materials generally would not be retrievable. However, they are not in short supply and their use would have no adverse effect on their continued availability. Any construction also would require a substantial one-time expenditure of both state and federal funds, which would not be retrievable. Savings in energy and time, a reduction in accidents, and a reduction in idling during traffic delays would offset the commitment of fiscal resources.

The commitment of these environmental resources would be based on the concept that residents in the immediate area, region, and state would benefit from the improved quality of the transportation system. These benefits would include improved accessibility and safety, which are expected to outweigh the commitment of these resources. Other benefits would include improved accessibility, improved travel times, and improved regional mobility for people and goods, which could outweigh the commitment of these resources.

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3.26 CUMULATIVE IMPACTS

3.26.1 REGULATORY SETTING

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of a 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 proposed 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, and disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They also can contribute to potential community impacts identified for the proposed project, such as changes in community character, traffic patterns, housing availability, and employment.

The State CEQA 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 CEQA, can be found in Section 15355 of the State CEQA Guidelines. A definition of cumulative impacts, under NEPA, can be found in 40 CFR, Section 1508.7 of the CEQ regulations.

3.26.2 AFFECTED ENVIRONMENT

Information on past, present, and reasonably foreseeable future projects was gathered in September 2010, at the City of San Diego Development Services Department, by a review of available environmental documentation and consultation with City of San Diego Planning Department staff. Caltrans also has included the I-5 North Coast Corridor Project in the cumulative analysis, which is a separate Caltrans freeway improvement project that extends northward from La Jolla to Oceanside. Table 3.26-1 lists present and reasonably foreseeable future projects and summarizes their potential impact and approval status. The locations of the cumulative projects are shown in Figure 3.26-1.

Table 3.26-1. Cumulative Projects

Project/Location/Description	Identified Cumulative Impacts	Status
I-5 North Coast Corridor HOV/Managed Lanes Project (SCH # 2004101076) I-5 from La Jolla to Oceanside Widening of the existing I-5 freeway to 12 or 14 lanes	**Visual/Aesthetics** – Of the 17 "key views" identified in the visual impact assessment, nine have been assessed to have High visual impact, five have been assessed to have Moderately High visual impact, two have Moderate visual impact, and one has been determined to have No Impact. Implementation of mitigation measures would partially mitigate adverse effects of the project. Visual impacts would not be fully mitigated. **Cultural Resources** – Adverse effects at two archaeological sites due to soundwall construction. Proposed wall locations would only impact a very small portion of each site, and those impacts would occur at site peripheries where previous disturbances at both locations have occurred, and have somewhat compromised the integrity of the deposits present there. These two sites are not Section 4(f) resources because they have been deemed eligible only for their potential to provide information important in prehistory. **Paleontology** – Direct impacts to paleontological resources	Draft EIR/EIS circulated June 2010; Final EIR/EIS anticipated in early 2013

Project/Location/Description	Identified Cumulative Impacts	Status
	would occur when earthwork activities, such as mass grading operations or cuts into geological deposits containing fossils. The mitigation program would consist of: Monitoring, fossil salvage, macrofossil and microfossil analysis, fossil preparation, report preparation, and curation. **Noise** – The predicted 2030 peak hour Leq(h) at the representative receptors range from 57 to 82 dBA, which would exceed the NAC at most locations. Approximately 531 receptor locations would exceed the NAC under the Build conditions prior to consideration of any noise abatement measures. In instances where the predicted exterior noise levels equal or exceed 75 dBA, abatement measures were provided to reduce traffic noise levels. **Natural Communities** – This project would permanently impact up to 13.10 ha (32.35 ac) of wetland habitats and several sensitive species associated with that habitat. This project would also impact up to 33.7 ha (83.2 ac) of sensitive upland habitats and associated species, Impacts to natural communities would be fully mitigated using non-standard mitigation ratios. Mitigation for impacts to native upland communities would be fully mitigated using standard ratios and would reduce the cumulative impacts to less than considerable.	
Pacific Highlands Ranch Development Units 17-22A (SCH #2004081007) North of the intersection of Carmel Valley Road and SR-56 The master plan for Pacific Highlands Ranch includes development of a 2,652-acre area that has 1,274 acres of open space; 15 miles of pedestrian, bicycle, and equestrian trails; 5,182 homes; five schools; parks; and commercial areas.	**Visual Resources -** The development of the project site would incrementally contribute to the change of the aesthetic character of the subregion in conjunction with the existing and planned development in Carmel Valley and Subareas IV and V. This change represents an adverse direct and cumulative impact from on- and off-site locations. Mitigation would not reduce the impacts to less than considerable. **Cultural Resources** - Twenty-four sites have been found not considerable, six sites are in open space areas and should be indexed prior to recording tentative maps for future projects, two sites are in open space and may be potentially adverse and require additional evaluation, and one site is located outside of the project boundaries and will require some evaluation when a project is proposed for this property. The resulting loss of all of the sites on this project is considered a cumulative loss of cultural resource information. The destruction of a number of these sites prior to indexing or testing of any kind constitutes an adverse effect as important information, which may have been present in these sites, has been lost without record. There are four sites which have been found to be important resource areas; therefore, impacts to these sites would be considered substantial. As presently designed, all of these sites will be destroyed by construction grading. **Paleontology -** The potential for fossils to occur in the formations of the plan is moderate to high in all areas planned for development of the plan; therefore, the grading necessary to implement the plan could result in substantial impacts to paleontological resources. Mitigation would reduce impacts to less than considerable. **Noise** - Noise levels are anticipated to exceed applicable standards for all residential uses immediately adjacent to SR-56 and the major roadways, as well as to proposed school and park uses. Noise levels could exceed 70 CNEL for professional and office building land uses depending on their placement relative to the roadways. Noise levels for commercial retail land uses are not expected to be exceeded unless they are located immediately adjacent to SR-56. Mitigations would be accomplished through noise barriers. **Natural Communities -** Impacts include loss of MSCP Tier I	MEIR approved July 20, 1999. Subsequent phases have and will tier off the MEIR.

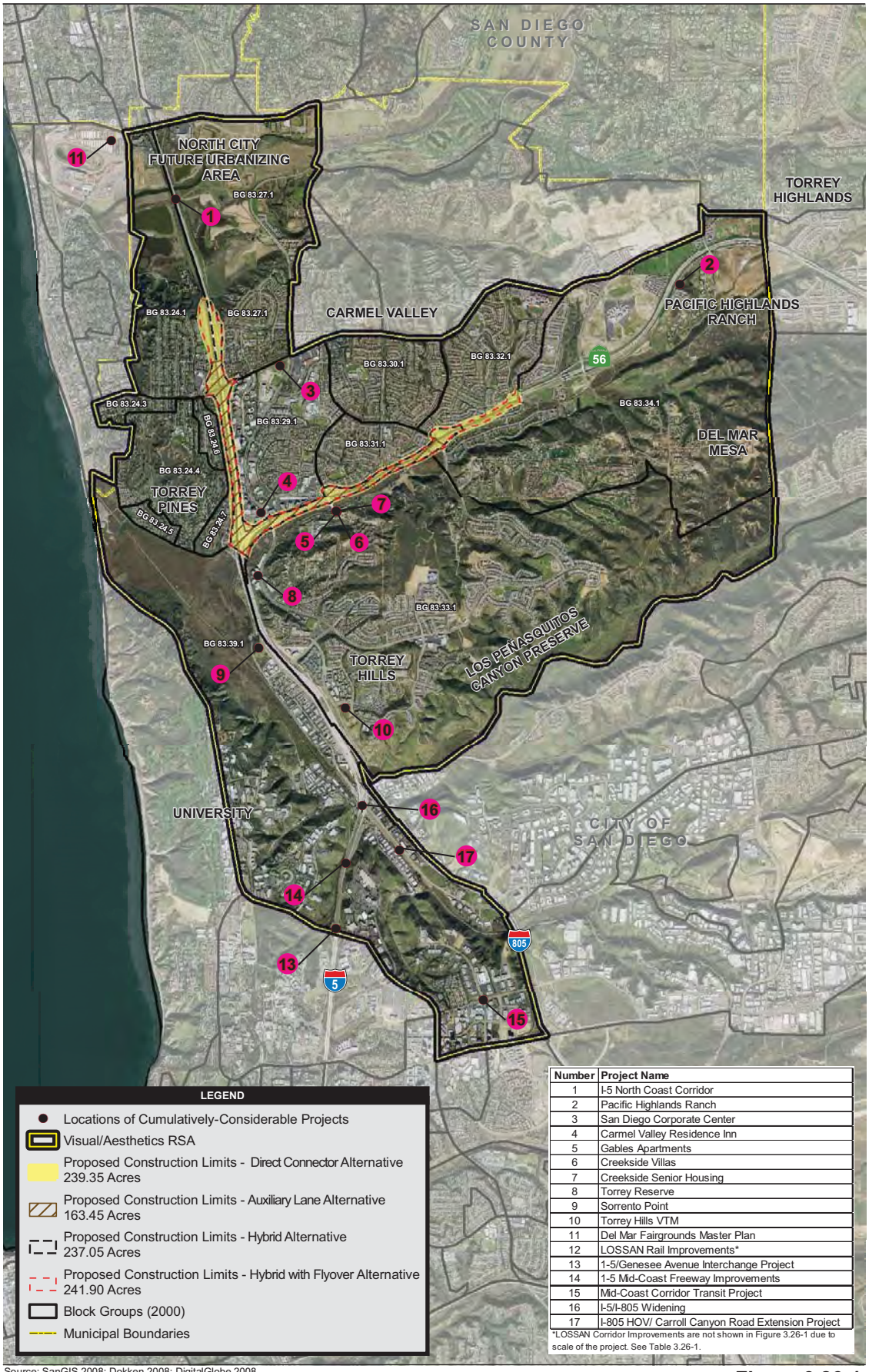
Project/Location/Description	Identified Cumulative Impacts	Status
	(13.2 acres of southern maritime chaparral and 0.6 acre of native grasslands) and Tier II (10.4 acres of coastal sage scrub and 0.1 acre of coyote bush scrub) habitats, direct and cumulative loss of riparian scrub wetland habitats (approximately 0.4 acre), and impacts to sensitive plant and animal species. The direct and indirect impacts to upland biological resources would be mitigated to less than substantial through conformance and implementation of the MSCP.	
San Diego Corporate Center (SCH #2010051073) 12910 Del Mar Heights Place Construction of a mixed use development with a maximum of 2,044,200 square feet of building area	The proposed project in conjunction with this project may have cumulative impacts related to visual/aesthetics; cultural resources; paleontology; noise; and natural communities. However, the EIR is currently being prepared. At the time of this evaluation, the level of information available regarding this project was insufficient to determine the project's potential cumulative impacts. As such, a cumulative impact analysis for this issue area could not be conducted.	The NOP was released in May 2010. The EIR is currently being prepared.
Carmel Valley Residence Inn 3525 Valley Center Drive Construction of a 117-room hotel on a 0.87-acre site	The level of information available regarding this project was insufficient to determine the project's potential impacts at the time this evaluation was prepared.	Approved but not constructed
Gables Apartments Intersection of Tang Drive and Carmel Creek Drive Construction of 92 apartments on 5.22-acre site	The proposed project in conjunction with this project may have cumulative impacts related to visual/aesthetics; cultural resources; paleontology; noise; and natural communities. However, this project is currently in the planning stages. At the time of this evaluation, the level of information available regarding this project was insufficient to determine the project's potential cumulative impacts. As such, a cumulative impact analysis for this issue area could not be conducted.	Planning stages
Creekside Villas (SCH # 2006051015) 11921 Carmel Creek Road Involves the removal of a water tank and the construction of a 130,995-square foot condominium complex on a 12.25-acre site.	The proposed project, in conjunction with this project, may have cumulative impacts related to visual/aesthetics; cultural resources; paleontology; noise; and natural communities.	MND approved and NOD issued May 2006. Project has not begun construction.
Creekside Senior Housing 11921 Carmel Creek Road Construction of 128 senior housing units	The proposed project, in conjunction with this project, may have cumulative impacts related to visual/aesthetics; cultural resources; paleontology; noise; and natural communities. However, this project is currently in the planning stages. At the time of this evaluation, the level of information available regarding this project was insufficient to determine the project's potential cumulative impacts. As such, a cumulative impact analysis for this issue area could not be conducted.	Planning stages
Torrey Reserve Phase IV (SCH # 2009031011) 11502 El Camino Real Construction of 2 commercial buildings and associated site improvements. The previously developed 11.65 acre project site is located at 11502 El Camino Real in the CO-1-2 Zone within the Torrey Hills Community Plan area.	The proposed project in conjunction with this project may have cumulative impacts related to cultural resources; paleontology; noise; and natural communities.	The NOD was released on August 2009. Approved but not constructed.
Sorrento Pointe (SCH # 1999121031) 12025 Sorrento Valley Road The project proposes to grade 6.7 acres (areas zoned M-1A and designated for industrial use) of the site in order to construct 3 two-	The proposed project, in conjunction with this project, may have cumulative impacts related to visual/aesthetics; cultural resources; paleontology; noise; and natural communities. However, this project is currently in the planning stages. At the time of this evaluation, the level of information available regarding this project was insufficient to determine the project's potential cumulative impacts. As such, a cumulative	The NOP was released in December 1999. It is currently in the planning stages.

Project/Location/Description	Identified Cumulative Impacts	Status
story, 40,000 square-foot office buildings, with associated parking, traffic improvements, and landscaping.	impact analysis for this issue area could not be conducted.	
Torrey Hills Vesting Tentative Map Intersection of Vista Sorrento Parkway and West Ocean Air Drive Construction of 484 condominiums and 5,000 square feet of commercial/office	The level of information required to determine the project's potential impacts at the time of this evaluation was not available.	Approved but not constructed.
Del Mar Fairgrounds Master Plan Intersections of Via de la Valle and Jimmy Durante Drive; Jimmy Durante Drive and San Dieguito Drive; and Via de la Valle and El Camino Real Immediate and long-term projects for the maintenance and improvement of current fairground facilities, renovation of structures and parking areas, demolition and construction of new structures, and relocation of a maintenance yard and fire station	**Visual/Aesthetics** – Implementation of mitigation measures would reduce the impacts to less than significant. **Cultural Resources –** Implementation of mitigation measures would reduce the impacts to less than significant. **Paleontology** – Implementation of mitigation measures would reduce the impacts to less than significant. **Noise** – The proposed relocation of the Fire Station may result in a significant operational noise impact to nearby sensitive receptors for emergency vehicle sirens. Implementation of mitigation measures would reduce the impact to less than significant. **Natural Communities** – This project would have potentially significant impacts to Diegan coastal sage scrub, southern coastal salt marsh, native and non-native vegetation communities, and associated wildlife species. Potentially significant impacts to riparian habitat, sensitive natural communities, federally protected wetlands, as well as to potential CDFG and CCC jurisdictional areas. Implementation of mitigation measures would reduce the impacts to less than significant.	Draft EIR for the Del Mar Fairgrounds was circulated in late 2009. The 22nd District Agricultural Association approved the Final EIR in April 2011.
LOSSAN Rail Improvements[1] Existing Rail line between Los Angles Union Station and San Diego Santa Fe Depot Incremental implementation of improvements along the existing 125-mile LOSSAN Corridor. In San Diego, improvements include at-grade double tracking, trenching, tunneling below grade, curve realignment (straightening), new stations, and other safety and operational improvements	**Visual/Aesthetics** –Although mitigation strategies and context-sensitive structure design would substantially avoid and lessen impacts to aesthetics and visual resources, it is uncertain without site-specific information that visual impacts can be mitigated to a less-than-significant level over the entire LOSSAN corridor. **Cultural Resources –** The Rail Improvements Alternative could impact prehistoric or historic archaeological resources and traditional cultural properties, as well as historic properties and resources, by causing physical destruction or damage during construction. While mitigation strategies have been identified that will substantially lessen or avoid these impacts, sufficient information is not available at the program level to conclude with certainty that mitigation will reduce this impact to a less than significant level in all circumstances. **Paleontology** – The Rail Improvements Alternative could also impact paleontological resources as a result of construction, including grading, cutting, tunneling, erecting pylons for elevated track, and due to station construction. While mitigation strategies have been identified that will substantially lessen or avoid these impacts, sufficient information is not available at the program level to conclude with certainty that mitigation will reduce this impact to a less than significant level in all circumstances. **Noise** – Although both the construction and operational noise impacts are considered significant at the program level, mitigation strategies have been identified have been identified that would reduce these impacts. However, sufficient information is not available at the program level to conclude with certainty that mitigation will reduce this impact to a less than significant level in all circumstances.	The Draft Program EIR/EIS was released in August 2004 and was available for public review and comment through October 27, 2004. The Final Program EIR/EIS was released in September, 2007. The Record of Decision was issued March 18, 2009. Priority projects have been identified and funded.

Project/Location/Description	Identified Cumulative Impacts	Status
	Natural Communities – At the program level, within the 200-foot-wide corridor evaluated for potential temporary and permanent impacts, it was estimated that up to 28 acres of sensitive vegetation could be impacted. Non-wetland waters in the potential impact zone range from 12,564 to 15,541 linear feet, and wetlands potentially affected range between 20 and 27 acres. At the program level, it is not possible to know precisely the location, extent, and particular characteristics of all potential adverse impacts to these resources. Mitigation strategies have been identified to reduce these impacts. However, sufficient information is not available at the program level to conclude with certainty that mitigation will reduce this impact to a less than significant level in all circumstances.	
I-5/Genesee Avenue Interchange Project I-5/Genesee Avenue Interchange Replacing existing overcrossings at Genesee Avenue and Voigt Drive with wider structures; widening ramps at Genesee Avenue and Sorrento Valley Road; constructing auxiliary lanes between Genesee Avenue and La Jolla Village Drive and between Genesee Avenue and Sorrento Valley Road, and; realigning Gilman Drive.	**Visual/Aesthetics** – Retaining walls proposed along I-5 and Genesee Avenue generally would introduce new visual elements within the I-5 corridor visual environment, resulting in an impact to visual/aesthetics resources. Implementation of mitigation measures would reduce impacts to less than significant. **Cultural Resources -** Construction may result in discovery of cultural resources or human remains. Implementation of avoidance and minimization measures would reduce impacts to less than significant. **Paleontology** – This project could result in potential impacts to paleontological resources associated with short-term (construction) activities, such as excavation and grading, although such impacts are considered long term because the associated loss of resource values would be permanent. Implementation of mitigation measures would reduce impacts to less than significant. **Noise** – Temporary construction noise would result. Implementation of mitigation measures would reduce impacts to less than significant. **Natural Communities** – Permanent impacts to 1.9 ha (4.7 ac) of Diegan coastal sage scrub (including disturbed), 0.3 ha (0.7 ac) of coyote brush scrub, and 3.5 ha (8.7 ac) of non-native grassland (including disturbed) would occur. In addition, temporary impacts to 0.4 ha (1.1 ac) of Diegan coastal sage scrub (including disturbed), 0.1 ha (0.2 ac) of coyote brush scrub, and 0.9 ha (2.2 ac) of non-native grassland (including disturbed) would occur. Direct impacts to natural communities within the Multi-Habitat Planning Area (MHPA) would include 0.2 ha (0.6 ac) of temporary impacts and 1.1 ha (2.8 ac) of permanent impacts. Implementation of the MSCP, conformance with BMPs for jurisdictional areas, and compliance with regulatory controls would result in less than significant impacts.	Initial Study with Proposed Mitigated Negative Declaration/ Environmental Assessment was approved by Caltrans on June 29, 2011.
I-5 Mid-Coast Freeway Improvements I-5 from I-805 to I-8 10 main lanes and 2 HOV lanes would be built by Caltrans in the median of I-5 between I-805 and I-8. The project would connect with HOV lanes south of this segment.	The proposed project in conjunction with this project may have cumulative impacts related to visual/aesthetics; cultural resources; paleontology; noise; and natural communities. However, this project is currently in the environmental scoping phase. At the time of this evaluation, the level of information available regarding this project was insufficient to determine the project's potential cumulative impacts. As such, a cumulative impact analysis for this issue area could not be conducted.	Planning stages.
Mid-Coast Corridor Transit Project Old town Transit Center to UTC 11-mile extension of the San Diego trolley system from the Old Town	The proposed project in conjunction with this project may have cumulative impacts related to visual/aesthetics; cultural resources; paleontology; noise; and natural communities. This project is currently in undergoing preparation of a Draft Supplemental EIS/Subsequent EIR. At the time of this	Preparation of the Draft Supplemental EIS/Subsequent EIR continues with circulation for

Project/Location/Description	Identified Cumulative Impacts	Status
Transit Center to University City (ending with Light Rail Transit station near UTC along Genesee Avenue)	evaluation, the information available was insufficient to determine the project's potential cumulative impacts. A cumulative impact analysis for issue area could not be conducted.	public comment anticipated in early 2012.
I-805 HOV/ Carroll Canyon Road Extension Project Carroll Canyon Road under I-5 Extension of Carroll Canyon Road under I-805; construction of HOV lane in each direction along I-805 from I-5 to Carroll Canyon Road; and construction of a northbound DAR from the Carroll Canyon Road Extension to the HOV lanes	**Visual/Aesthetics** – Because of its location in the freeway median, impacts to local viewers would be low. This project would have no significant adverse effect related to visual impacts. **Cultural Resources -** This project would have no significant adverse effect related to cultural resources. **Paleontology** – This project would have no significant adverse effect related to paleontological resources. **Noise** – This project would have no significant adverse effect related to noise impacts. **Natural Communities** – This project would have no temporary impacts, but permanently disturb 23 square feet of San Diego fairy shrimp within road pools; 0.06 ac of Diegan Coastal Sage Scrub within the Caltrans right-of-way; temporarily disturb 0.40 ac and permanently disturb 0.43 ac of Diegan Coastal Sage Scrub within the City right-of-way; temporarily disturb 0.65 ac and permanently disturb 0.03 ac of Disturbed Diegan Coastal Sage Scrub within Caltrans right-of-way; temporarily and permanently disturb 0.12 ac of Disturbed Diegan Coastal Sage Scrub within the City right-of-way; and permanently disturb 0.02 ac of Disturbed Coastal Sage Scrub within private property. Further, this project would result the removal of four coast live oaks. These impacts are less than significant impacts with mitigation incorporated.	Environmental documentation was approved on April 2, 2009. Construction began in March 2011 and is anticipated to be completed by Summer 2013.
I-805 Managed Lanes North Project I-805 south of SR-52 to north of Mira Mesa Boulevard Undercrossing Widening to accommodate four express lanes from SR-52 to La Jolla Village Drive and two HOV lanes from La Jolla Village Drive to north of Mira Mesa Boulevard; construction of DAR at Nobel Drive and Carroll Canyon Road; construction of a Park and Ride lot off of Nobel Drive; and reconfiguration of the Governor Drive southbound on-ramp.	**Visual/Aesthetics** – This project would introduce new visual elements. Implementation of the proposed minimization measures would result in less than significant impacts. **Cultural Resources –** The project would have no effect on cultural resources. **Paleontology** –Implementation of mitigation measures would reduce the impacts to less than significant. **Noise** – With the construction of proposed soundwalls, impacts related to noise would be minimized. **Natural Communities** – The project would temporarily impact 132.2 ac and permanently impact 227.3 ac. Where possible, permanent impacts to sensitive habitats would be minimized by construction of retaining walls and by minimizing grading behind the walls. In addition, implementation of proposed minimization measures would avoid impacts to sensitive habitats and species.	The Initial Study with Mitigated Negative Declaration and Environmental Assessment was approved in February 2010.
SR-56 Widening East of Carmel Valley Road SR-56 from I-5 to I-15 Widening of SR-56 from four freeway lanes to six freeway lanes.	The level of information available regarding this project was insufficient to determine the project's potential impacts at the time this evaluation was prepared.	Planning stages.

[1] LOSSAN Corridor Improvements are not shown in Figure 3.26-1 because of the scale of the project.
Source: Compiled by AECOM in 2011



Number	Project Name
1	I-5 North Coast Corridor
2	Pacific Highlands Ranch
3	San Diego Corporate Center
4	Carmel Valley Residence Inn
5	Gables Apartments
6	Creekside Villas
7	Creekside Senior Housing
8	Torrey Reserve
9	Sorrento Point
10	Torrey Hills VTM
11	Del Mar Fairgrounds Master Plan
12	LOSSAN Rail Improvements*
13	1-5/Genesee Avenue Interchange Project
14	1-5 Mid-Coast Freeway Improvements
15	Mid-Coast Corridor Transit Project
16	I-5/I-805 Widening
17	I-805 HOV/ Carroll Canyon Road Extension Project

*LOSSAN Corridor Improvements are not shown in Figure 3.26-1 due to scale of the project. See Table 3.26-1.

Source: SanGIS 2008; Dokken 2008; DigitalGlobe 2008

Figure 3.26-1
Locations of Cumulatively-Considerable Projects and Resource Study Areas (RSA)

METHODOLOGY

Geographic Scope of the Cumulative Effects Analysis

For this analysis, a geographic scope for each cumulative effects issue was established. The resource study area (RSA) generally is based on the natural boundaries of the resource affected, rather than jurisdictional boundaries. The geographic scope is different for each cumulative effects issue. The geographic scope of cumulative effects often extends beyond the scope of the direct effects, but not beyond the scope of the direct and indirect effects of the proposed project and alternatives. However, if the proposed project and alternatives are determined to have no direct or indirect effects on a resource, no further cumulative effects analysis is necessary.

Time Frame of the Cumulative Effects Analysis

A time frame for each cumulative effects issue has been determined. The time frame is defined as the long-term and short-term duration of the effects anticipated. Long-term can be as long as the longest lasting effect. Time frames, like geographic scope, can vary by resource.

Each project in a region has its own implementation schedule, which may or may not coincide or overlap with the construction schedule for the proposed project. This is a consideration for short-term impacts from the proposed project. However, to be conservative, the cumulative analysis assumes that all projects in the cumulative scenario are built and operating during the operating lifetime of the proposed project.

Past actions are projects that have been approved and/or permitted, and that have either very recently completed construction or have yet to complete construction. Present actions are actions that are ongoing at the time of the analysis. Reasonably foreseeable future actions are those for which there are existing decisions, funding, or formal proposals, or which are highly probable based on known opportunities or trends; however, these are limited to within the designated geographic scope and time frame. Reasonably foreseeable future actions are not limited to those that are approved or funded. However, this analysis does not speculate about future actions that are merely possible but not highly probable based on information available at the time of this study.

For this cumulative effects analysis, the time frame considered for cumulative projects includes projects recently approved or completed that are not yet addressed as part of the existing conditions of the area, projects under construction, and projects that are in the environmental review or planning process and for which enough information is available to discern their potential impacts. Projects for which no or insufficient information is known or for which substantial uncertainty exists regarding the project are considered speculative and are not evaluated as part of this analysis.

Cumulative Effects Issues

Resources that would not be substantially impacted by the proposed project are land use (Section 3.1), growth (Section 3.2), community character and cohesion (Section 3.3), relocations and real property acquisition (Section 3.4), environmental justice (Section 3.5), utilities and emergency services (Section 3.6), traffic and transportation/pedestrian and bicycle facilities (Section 3.7), hydrology and floodplains (Section 3.10), water quality/stormwater runoff (Section 3.11), geology/soils/seismic/topography (Section 3.12), hazardous waste and materials (Section 3.14), air quality (Section 3.15), energy (Section 3.17), wetlands and other waters (Section 3.19), plant species (Section 3.20), animal species (Section 3.21), threatened and endangered species (Section 3.22), and invasive species (Section 3.23). Because the proposed project would not contribute any potential impact under these environmental resource topics, no cumulative impacts would occur. Thus, these resource topics are not considered further in this analysis.

This cumulative impact analysis focuses on those resources substantially impacted by the proposed project. The resources that meet these criteria are visual/aesthetics (Section 3.8), cultural resources (Section 3.9), paleontology (Section 3.13), noise (Section 3.16), and natural communities (Section 3.18).

3.26.3 ENVIRONMENTAL CONSEQUENCES

VISUAL/AESTHETICS

The proposed project area is predominantly characterized as developed. Since the 1970s, the hills surrounding the proposed project site to the north, east, and southeast have been developed with combinations of housing types, mid-rise office and commercial structures, hotels, gas stations, restaurants, and office buildings. This development spreads across the undulating upland topography. Landscaping and preserved open space is visible and perceptible as green spaces in the urban fabric. Visual elements consist of modern buildings, shopping centers, and a network of roadways, including three multi-lane and interstate highways, major connector roads, and congested surface streets. Residential development in the area primarily is suburban in form and mainly includes single-family residences.

The secondary RSA from the Community Impact Assessment (CIA), prepared for the proposed project, was chosen to analyze cumulative impacts to visual resources because this serves as the geographic area used to define community-wide impacts. Furthermore, the RSA encompasses views from the proposed project viewshed and from surrounding areas.

Seven key views were selected to illustrate the potential visual effects of the four proposed project build alternatives, included in the analysis presented in Section 3.8, Visual Aesthetics. These key views show the most critical visual changes that would affect the largest number of viewers. Based on the analysis, all build alternatives associated with the proposed project would result in a moderately high to high degree of visual change. Each build alternative would include construction of new structures, bridges, and walls that would affect existing views of the project area and result in a net reduction in the size of the landscape areas. Although the structures, bridges, and walls that would result from all build alternatives could be enhanced with extensive aesthetic treatments to improve the public perception of their visual impact, these visual improvement measures would not compensate for the change in visual character and quality resulting from the proposed project. This is because of the lack of space for installing and maintaining screen planting, landscape buffers, and vine planting on walls, and the proximity of the new traffic lanes to the surrounding homes and commercial structures. Mitigation measures discussed in Section 3.8.4 would be intended to establish a unique identity and character in keeping with the existing regional character and to help mitigate the visual impact of the proposed project improvements. The aesthetic quality of many locales could be restored similar to the existing condition through the proposed revegetation and visual mitigation measures.

Several projects are planned in or near the proposed project borders that could have visual impacts along the I-5 corridor, including the I-5/Genesee Avenue Bridge Widening and Interchange Improvement. The visual landscape also would be altered by implementation of the I-5 NCC Project, which would construct two large retaining walls near the Del Mar Heights Road and I-5 interchange; this project would result in a moderately high impact to visual resources. Furthermore, the LOSSAN project would contribute to the degradation of visual quality along the corridor because of new structures around the lagoons. The projects that are located within the I-5 viewshed would incrementally contribute to a cumulative change in visual character within the RSA from semi-urban to urban. Additionally, construction of other projects including the Pacific Highlands Ranch Development listed in Table 3.26-1 and shown in Figure 3.26-1 would increase the amount of urbanization and reduce the amount of landscaping and natural vegetation within the proposed project viewshed and secondary study area of the CIA. As discussed, mitigation measures would help mitigate the visual impact of the

proposed project improvements. Although these measures would not eliminate the visual impacts, they would provide visual enhancements that would improve the visual quality and help compensate for the proposed project impacts.

With inclusion of these measures and in combination with other past, present, and reasonably foreseeable projects, the proposed project would in the following cumulative visual impacts. The change to the visual resource of the proposed Auxiliary Lane Alternative would not result in significant adverse cumulative visual impacts. However, the changes to the visual resource with the proposed Direct Connector Alternative, Hybrid Alternative, and Hybrid with Flyover Alternative would be considered a cumulatively considerable contribution.

CULTURAL RESOURCES

Cultural resource studies conducted for the current proposed project indicate that the proposed project has potential to impact two cultural resources (CA-SDI-4617/H and -16653) located within or immediately adjacent to Caltrans right-of-way. The prehistoric component of CA-SDI-4617/H has been destroyed by development; however, the historic component of this site appears to be still intact. The historic component of CA-SDI-4617/H is situated outside of Caltrans right-of-way where no proposed project activities occur. Although no impact to the historic component of this site is expected, it will be protected by the establishment of an ESA since it is situated immediately adjacent to Caltrans right-of-way. One of the recommended soundwall is situated within Locus I of CA-SDI-16653, which has been destroyed by development. Cultural resource studies indicate that the construction of the recommended soundwall would be contained within the existing artificial fill material. Due to Native American concerns, the area east of the recommended soundwall will be protected by the establishment of an ESA. Construction activities within the ADI will be monitored by a qualified archaeologist and a Native American. As such, the proposed project will result in a finding of No Adverse Effect with Standard Conditions – ESA. Mitigation measures are detailed in Section 3.9.4 of this document.

Since CA-SDI-4617/H will be preserved, and the recommended soundwall will be constructed within the existing artificial fill at CA-SDI-16653, the current proposed project would not change the present conditions of these cultural resources. Various other projects listed in Table 3.26-1 may have potential to impact other cultural resources within the RSA. However, because the current proposed project would not cause any adverse impacts to any cultural resources, it would not contribute to adverse cumulative impacts in the reasonably foreseeable future within the RSA.

PALEONTOLOGY

The I-5 North Coast Corridor Project right-of-way extends in a northwest-southeast direction for approximately 27 miles along the coastal plain of central San Diego County. Geologically, this area consists of a layer cake sequence of Cenozoic sedimentary rock units that preserve portions of the last 50 million years of Earth history. Geologic formations that are designated as having high paleontological resource sensitivity that crop out within the proposed project area include: the Eocene-age Del Mar Formation, Ardath Shale, Scripps Formation, and Santiago Formation; the unmapped formation of Oligocene age; the Miocene-age San Mateo Formation; and the Pleistocene-age Bay Point Formation. The proposed improvements have the potential to impact paleontologically sensitive geologic units along most of the right-of-way.

The geographic scope for the analysis of cumulative impacts related to paleontological resources is the proposed project alignment between southbound I-5 to eastbound SR-56, and between westbound SR-56 to northbound I-5 in San Diego. The proposed project covers a distance of approximately 4.6 miles.

Based on the geologic information provided in the June 2009 Paleontological Resource Assessment, surficial materials and geologic units observed or expected to occur within the study area are: fill, topsoil, and landslide deposits; younger Quaternary alluvium of early Holocene to Late Pleistocene age (circa 10,000 years old); Lindavista Formation or older floodplain deposits dating to the early Pleistocene (circa 5 to 1.5 million years old); Old Paralic deposits of late to middle Pleistocene age (circa 50,000 to 800,000 years old); Torrey Sandstone Formation of middle Eocene age (circa 45 to 50 million years old); and Delmar Formation claystones and sandstones of a similar middle Eocene age. A review of paleontological site records housed in the Department of Paleontology at the San Diego Natural History Museum and the Museum of Paleontology at the University of California, Berkeley found 23 recorded localities within 0.5 mile of the proposed project study area. Fourteen of these localities were discovered in Old Paralic deposits just south of the I-5 and SR-56 interchange and produced a diverse fossil assemblage, dominated by species of marine mollusks.

Potential paleontological resource impacts from the proposed project would be associated with short-term (construction) activities such as excavation and grading, although such impacts would be considered long term because the associated loss of resource values would be permanent.

To avoid impacts to paleontological resources, the proposed project would comply with Caltrans guidelines related to paleontological resources. The guidelines recommend how to avoid the resource area by a project and implement mitigation measures during construction. Furthermore, mitigation measures have been provided (Section 3.13.4) that would include consultation and retention of a qualified paleontological monitor on a full-time basis during the original cutting of previously undisturbed deposits of high sensitivity formations (i.e., Old Paralic deposits, Torrey Sandstone Formation, and Delmar Formation) to inspect exposures for contained fossils. Additional measures have been provided regarding discovery of fossils during ground-disturbing activities. Compliance with Caltrans guidelines and implementation of these mitigation measures would result in less-than-significant impacts to paleontological resources.

Cumulatively, the various projects listed in Table 3.26-1 and shown in Figure 3.26-1 could potentially impact existing paleontological resources. However, each project would be required to comply with the regulatory requirements and professional monitoring. Thus, combined with past, present, and reasonably foreseeable projects, the proposed project would not result in significant adverse cumulative paleontological resources impacts.

NOISE

The study area is completely contained within the City of San Diego. Existing land uses in the study area are primarily residential, with some schools and churches, and commercial land uses including hotels, office buildings, and retail stores. The majority of the land surrounding the proposed project area is either developed or urban in nature or is preserved as open space. A significant amount of land surrounding the proposed project is designated for residential uses. Planning communities completely or partially within the study area include Torrey Pines, Carmel Valley, Pacific Highlands Ranch, Del Mar Mesa, Torrey Hills, the NCFUA, Torrey Highlands, Los Peñasquitos Canyon Preserve, and University. Sensitive receptors near the proposed project site include single-family residential, multi-family residential, schools, commercial, and recreation areas.

The 402 residences included in this study are represented by 144 noise receptors. With the exception of receptor 5.16 that was classified as Category E, all of the noise receptors were identified to be Activity Category B: 112 single-family residential buildings, 12 multi-family residential building, three schools, seven recreation facilities, and one hotel. The Direct Connector Alternative would result in the highest number of impacted receptors. With the Direct Connector Alternative, approximately 86 receptors (146 single-family residential buildings; 60 multi-family residential buildings; two recreational facilities; and three schools) were identified as either approaching or exceeding the NAC levels during

the peak noisiest hour. The dominant noise source in the proposed project area is traffic noise from I-5. SR-56 also represents a significant noise source in the southern portion of the proposed project area and is the dominant noise source in the vicinity of the I-5/SR-56 interchange. Several planned projects in or near the proposed project vicinity could have noise impacts along the I-5 corridor. These projects include the I-5/Genesee Avenue Bridge Widening and Interchange Improvement, I-5 North Coast Corridor Project, SR-56 Widening, the Pacific Highlands Ranch Development, Carmel Valley Residence Inn, Creekside Villas, Creekside Senior Housing, Torrey Reserve, Sorrento Pointe, and the LOSSAN project.

The geographic scope for the analysis of cumulative impacts related to noise includes the sensitive receptors located along both sides of I-5 and SR-56. Noise is a local rather than regional issue and, thus, the use of the cumulative project list is appropriate for the cumulative noise analysis.

The potential for cumulative noise effects may occur during construction. In general, construction noise would be generated by: diesel engine-driven construction equipment used for site preparation and grading; removal of existing pavement; loading, unloading, and placing materials; and paving. Diesel engine-driven trucks also would bring materials to the site and remove the spoils from excavation. For all the proposed build alternatives, no adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans' Standard Specifications.

Noise abatement was evaluated for receptor locations where predicted noise levels would approach (within 1 dBA), exceed the NAC (67 dBA for activity category B), or substantially increase (by 12 dBA) existing noise levels. Soundwall heights ranging from 8 to 16 feet were considered. See Section 3.16.4 regarding proposed soundwalls with each build alternative.

As discussed in Section 3.16, 57 receptors are impacted under existing conditions. While the proposed project would increase the future predicted noise levels, the proposed project also includes abatement that would result in the same or lower future noise levels for the majority of impacted receptors, including those that are currently impacted. In the areas where abatement would not be reasonable and feasible and/or no abatement is preliminarily or conditionally recommended, the difference in the future build versus future no build noise levels ranges from no difference to a maximum of eight dBA difference at just one location (R15 which represent the outdoor area of a school). On balance the proposed project would result in lower noise levels in most areas; the future noise levels with abatement would be lower than future no build and in many instances lower than existing noise levels; therefore, the proposed project would not result in significant adverse cumulative noise impacts.

NATURAL COMMUNITIES

Development over time throughout the coastal region has reduced the amount of native habitat and species in the region, limiting the ability to expand habitat around lagoons and large open space areas. Past development along the I-5 corridor has impacted each of the watersheds and lagoons in San Diego County. Construction of the railroad and Pacific Coast Highway has resulted in causeways across the coastal lagoons, limiting tidal influences and forcing flows through one area, in the late 1800s and early 1900s. Construction of I-5 in the 1960s further impacted the wetlands of the lagoons and constrained lagoon hydraulics with placement of fill and bridges over the lagoons, east of the railroad bridges.

The geographic scope for the analysis of cumulative impacts related to natural communities is the biological study area (BSA) analyzed for the proposed project, which covers approximately 830 acres and includes the proposed construction limits of the four build alternatives and a 500-foot buffer around these construction limits. Generally, the BSA runs along I-5, beginning approximately 0.3 mile south of the interchange with SR-56, and extends northward for approximately 2.3 miles. In addition, the BSA includes a stretch that begins approximately 0.2 mile west of the I-5/SR-56 interchange and continues eastward for approximately 2.8 miles. Lateral extensions of the BSA also occur at Del Mar Heights

Road, Carmel Creek Road, and Carmel Country Road, all of which extend off I-5 or SR-56 for an average distance of 0.1 mile. The proposed project is situated within the boundaries of the Multiple Species Conservation Program (MSCP) Subarea Plan. The BSA is entirely within the MSCP planning area; however, it does not overlap San Diego's Multiple Habitat Planning Area (MHPA). The BSA encompasses some native vegetation communities; however, the majority of the BSA includes landscaped or developed (residential/commercial) areas. Within the BSA, native upland vegetation types are southern maritime chaparral and coastal sage scrub. The only native riparian habitat within the BSA is southern willow scrub. Southern willow scrub exists in the southern portion of the BSA but is separated from the proposed construction area by a large earthen berm with dimensions of approximately 20 feet wide by 10 feet tall. Native vegetation types observed within the BSA include southern maritime chaparral, southern willow scrub, and coastal sage scrub. Nonnative grassland, areas landscaped with ornamental species, disturbed areas, and developed areas also were identified in the BSA as discussed in Section 3.18.1.

The following are the proposed project's anticipated temporary and permanent impacts to vegetation communities and land cover types:

- ***Direct Connector—***Construction would permanently impact 0.56 acre of coastal sage scrub, 7.62 acres of disturbed coastal sage scrub, and 0.03 acre of disturbed southern mixed chaparral. Construction under the Direct Connector Alternative would temporarily impact 0.07 acre of southern maritime chaparral, 0.39 acre of disturbed southern maritime chaparral, 0.31 acre of coastal sage scrub, and 5.41 acres of disturbed coastal sage scrub.

- ***Auxiliary Lane Alternative—***Construction would permanently impact 0.09 acre of coastal sage scrub and 1.19 acres of disturbed coastal sage scrub. Construction under this alternative is anticipated to temporarily impact 0.24 acre of coastal sage scrub and 0.45 acre of disturbed coastal sage scrub.

- ***Hybrid Alternative—***Construction would permanently impact 0.56 acre of coastal sage scrub and 2.73 acres of disturbed coastal sage scrub. Construction under this alternative is anticipated to temporarily impact 0.07 acre of disturbed southern maritime chaparral, 0.28 acre of coastal sage scrub, and 3.85 acres of disturbed coastal sage scrub.

- ***Hybrid with Flyover Alternative—***Construction of would permanently impact 0.56 acre of coastal sage scrub and 2.72 acres of disturbed coastal sage scrub. Construction under this alternative is anticipated to temporarily impact 0.07 acre of disturbed southern maritime chaparral, 0.29 acre of coastal sage scrub, and 3.84 acres of disturbed coastal sage scrub

None of the proposed build alternatives are anticipated to cause additional impacts to wildlife movement at the regional corridor choke point exceeding those impacts currently caused by existing ambient freeway noise, light, and traffic.

Four large foreseeable future projects are within the corridor that may result in cumulative impacts to natural communities. The Pacific Highlands Ranch (PHR) Development Units 17-22A primarily would impact abandoned agricultural fields, likely a mix of coastal sage scrub and southern maritime chaparral before they were transformed into farmland. On a north-facing slope just north of the planned PHR project site, several acres of coastal sage scrub and chaparral habitat exist and may support a variety of sensitive species including orange-throated whiptail (*Aspidoscelis hyperythra*), coastal California gnatcatcher, western burrowing owl (*Athene cunicularia*), wart-stemmed ceanothus, and summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*).

The I-5 North Coast Corridor Project would have an incremental contribution of up to 13.1 hectares (32.35 acres) of wetland loss and 33.7 hectares (83.2 acres) of sensitive upland loss. This project also

would impact territories of the California gnatcatcher, light-footed clapper rail, and Belding's savannah sparrow within the already constrained habitats in the corridor.

The I-5/Genesee Avenue Interchange Project would result in permanent impacts to 1.9 hectares (4.7 acres) of Diegan coastal sage scrub (including disturbed), 0.3 hectare (0.7 acre) of coyote brush scrub, and 3.5 hectares (8.7 acres) of non-native grassland (including disturbed) would occur. In addition, temporary impacts to 0.4 hectare (1.1 acres) of Diegan coastal sage scrub (including disturbed), 0.1 hectare (0.2 acre) of coyote brush scrub, and 0.9 hectare (2.2 acres) of non-native grassland (including disturbed) would occur.

Direct impacts to natural communities within the MHPA would include 0.2 hectare (0.6 acre) of temporary impacts and 1.1 hectares (2.8 acres) of permanent impacts. The LOSSAN Rail Improvements Project includes double tracking of the railroad, and building the missing connector ramps at I-5 and SR-78 near Buena Vista Lagoon. This project has the potential to incrementally impact additional wetland habitats and sensitive species.

When considered with other projects that have been completed, are in progress, or are planned, such as the PHR Development, I-5 North Coast Corridor Project, the I-5/Genesee Avenue Interchange Project, and the LOSSAN Rail Improvements Project, implementation of the proposed project would have incremental impacts on natural communities in this area on a regional level. However, with community input from the Steering Committee, the four build alternatives for the proposed project have been designed to avoid or minimize direct effects to sensitive habitats and maximize use of nonnative, disturbed, and developed land cover types. Furthermore, compensatory mitigation for impacts to sensitive upland habitats would occur at the Dean Mitigation Parcel on the slopes of San Dieguito Lagoon, immediately east of I-5 in a former tomato field. Specifically, mitigation for permanent impacts to coastal sage scrub and southern maritime chaparral on the slopes of San Dieguito Lagoon would occur at a proposed 2:1 ratio, subject to discussions with the resource agencies. In addition to these, a number of general avoidance and minimization measures, presented in Section 3.18.3, would reduce unavoidable impacts to natural communities, which would include clearly designating "no construction" zones; temporary fencing, and vegetation clearing outside of the breeding season (February 15 through August 31). For these reasons, combined with past, present, and reasonably foreseeable projects, the proposed project would not result in significant adverse cumulative impacts to natural communities.

3.26.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

VISUAL/AESTHETICS

Section 3.8.4 presents minimization and mitigation measures to be implemented for impacts to visual/aesthetics resources. No additional mitigation measures are proposed.

CULTURAL RESOURCES

Section 3.9.4 presents minimization and mitigation measures to be implemented for impacts to cultural resources. No additional mitigation measures are proposed.

PALEONTOLOGY

Section 3.13.4 presents minimization and mitigation measures to be implemented for impacts to paleontological resources. No additional mitigation measures are proposed.

NOISE

Section 3.16.4 presents abatement measures to be implemented for impacts to noise. No additional mitigation measures are proposed.

NATURAL COMMUNITIES

Section 3.18.3 presents avoidance and minimization measures to be implemented for impacts to natural communities. No additional mitigation measures are proposed.

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CHAPTER 4
CALIFORNIA ENVIRONMENTAL QUALITY ACT EVALUATION

4.1 DETERMINING SIGNIFICANCE UNDER CEQA

The proposed project is a joint project by Caltrans and FHWA and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. FHWA's responsibility for environmental review, consultation, and any other action required in accordance with NEPA and other applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 USC 327. Caltrans is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or some lower level of documentation, would be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a *whole* has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated, if feasible. In addition, CEQA Guidelines list a number of mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance under CEQA. This chapter discusses the effects of this project and its CEQA significance.

The proposed project would have no impacts to farmlands/timberlands, wild and scenic rivers, and environmental justice populations.

4.2 LESS-THAN-SIGNIFICANT EFFECTS OF THE PROPOSED PROJECT

This section lists the resources that would have a less-than-significant impact from implementation of the proposed project. As part of the scoping and environmental analysis conducted for the proposed project, the following environmental issues were considered, but no significant impacts were identified. Refer to the related sections identified below for the full discussion of project impacts.

- Land Use (Section 3.1)
- Growth (Section 3.2)
- Community Cohesion and Character (Section 3.3)
- Relocations and Real Property (Section 3.4)
- Utilities and Emergency Services (Section 3.6)
- Traffic and Transportation (Section 3.7)
- Hydrology and Floodplains (Section 3.10)
- Water Quality and Storm Water Runoff (Section 3.11)
- Geology/Soils/Seismic/Topography (Section 3.12)
- Hazardous Waste and Materials (Section 3.14)
- Air Quality (Section 3.15)

- Energy (Section 3.17)
- Wetlands and Waters of the U.S. (Section 3.19)
- Plant Species (Section 3.20)
- Animal Species (Section 3.21)
- Threatened and Endangered Species (Section 3.22)
- Invasive Species (Section 3.23)

4.3 LESS-THAN-SIGNIFICANT ENVIRONMENTAL EFFECTS AFTER MITIGATION AND/OR MINIMIZATION

This section lists the environmental resources that are determined to be significantly affected by implementation of the proposed project, but would be considered less than significant with the proposed mitigation and/or minimization outlined in Chapter 3 of this document.

4.3.1 VISUAL/AESTHETICS

As discussed in Section 3.8.3 the Auxiliary Lane Alternative would result in the lowest degree of visual impact in the proposed project area because it would have no direct connectors and fewer retaining and soundwalls.

As discussed in Section 3.8.4, mitigation of visual/aesthetic impacts for all build alternatives would improve the with-project visual quality. Landscape concept plans for each build alternative (found in Attachments A, B, C, and D of the VIA) were developed for the reestablishment of landscaping following construction. The plans identify opportunities to enhance areas within the proposed project limits with planting. The plan establishes planting themes, as well as surface architectural treatments for paving, retaining walls, soundwalls, and other construction items to emphasize the natural landscapes of the mesas, slopes, and riparian areas associated with Carmel Valley Creek and the lagoon within the proposed project area along I-5 and SR-56.

Mitigation measures identified in 3.8.4 would reduce the potential temporary and permanent visual impacts of the proposed project. For the Auxiliary Lane Alternative, the overall change in visual quality is still anticipated to decline because of the large reduction in screen plantings along I-5 and SR-56 and the construction of retaining walls and soundwalls. While these measures would not eliminate the visual impacts, they would provide visual enhancements that can improve the visual quality and help compensate for the project impacts (see Table 4-1).

Table 4-1. Auxiliary Lane Alternative: Visual Summary

Key View		Existing Visual Quality	Change in Visual Character and Quality	Viewer Response	Visual Impact
1	Upland Torrey Pines State Park	MH	L	MH	ML
2	Southbound I-5 north of Carmel Valley Road exit	MH	MH	MH	MH
3a	Northbound I-5 south of Carmel Valley Road	M	-	-	-
3b	Northbound I-5 north of Carmel Valley Road	M	MH	MH	MH
3c	Northbound I-5 south of Del Mar Heights Road	M	L	MH	ML
4a	Westbound SR-56 east of El Camino Real exit	MH	MH	MH	MH
4b	Westbound SR-56 at El Camino Real exit	M	-	-	-
5	Eastbound Carmel Valley Road west of I-5	ML	-	-	-
6	Eastbound SR-56 at slip off-ramp at Carmel Creek Road	M	-	-	-

Note: N - None; L - Low; ML - Moderately Low; M - Moderate; MH - Moderately High; H – High
Source: Compiled by AECOM in 2011

Implementation of the mitigation measures would result in a less-than-significant impacts related to visual/aesthetics for the Auxiliary Lane Alternative. The existing visual quality of the six key views ranges from low to moderately high; none of the key views were assessed to have a high existing visual quality. Therefore, taking into account existing conditions and the ratings and impacts across the 6 key views, the overall visual impact of the Auxiliary Lane Alternative would be less than significant with mitigation incorporated.

4.3.2 CULTURAL RESOURCES

As discussed in Section 3.9 of this document, the historic component of CA-SDI-4617/H will be protected by an ESA. The prehistoric component of this site has been destroyed by development. Upon the request from a Native American, the eastern portion of Locus I at CA-SDI-16653 will be protected by an ESA, and construction activities within ADI of the recommended soundwall will be monitored by a qualified archaeologist and a Native American, although Locus I of CA-SDI-16653 has been destroyed by development. As such, under CEQA, the current proposed project results in a finding of No Substantial Adverse Change – ESA.

4.3.3 PALEONTOLOGY

Direct impacts to paleontological resources occur when earthwork activities, such as mass grading operations, cut into the geological deposits (formations) within which fossils are buried. These direct impacts are in the form of physical destruction of fossil remains. Since fossils are the remains of prehistoric animal and plant life they are considered to be nonrenewable. The proposed project would result in impacts to native sedimentary deposits that have been assigned high (Del Mar Formation and Bay Point Formation), moderate (Torrey Sandstone), and low (younger alluvium) paleontological resource sensitivities. It is recommended that a Paleontological Mitigation Plan be implemented in order to reduce project related impacts to paleontological resources to a level below significance.

4.3.4 NOISE

The significance determination for noise impacts under CEQA is made by comparing the baseline (existing) noise levels and the proposed build noise levels. This determination is made by taking into consideration the uniqueness of the setting, the sensitive nature and the number of the noise receptors, the magnitude of the noise increase, and the absolute noise level. The CEQA noise analysis is completely independent of the NEPA 23 CFR 772 analysis discussed in Section 3.16, Noise, which focuses on noise abatement criteria (NAC).

Noise impacts are presented in Section 3.16, where tables for each alternative show the existing traffic noise levels and predicted noise levels. The proposed build alternatives would increase noise levels from 3 to 5 dBA in most locations. A 3 decibel difference is considered the minimal difference that the human ear can readily perceive; difference less than 3 dBA are generally not perceived.

At some receptors, however, the proposed project would result in noise level increases as high as 12 dBA and with absolute noise levels as high as 83 dBA. These noise impacts are considered significant. Noise abatement has been recommended to abate for highway traffic noise, including at locations where receptors are predicted to experience a noise level of 75 dBA or more with the proposed build alternatives. Implementation of the proposed noise abatement discussed in Section 3.16.4 would mitigate noise impacts to less-than-significant levels. Noise levels for construction occurring outside of State R/W are required to meet local noise ordinances. Construction noise within State R/W would be limited to Caltrans noise standards. Also found in Section 3.16.4, under Short-term Construction Noise Impacts, exists a detailed list regarding these impacts.

4.3.5 NATURAL COMMUNITIES

As discussed in Section 3.18, the proposed project (Direct Connect Alternative) would impact up to 8.2 acres of sensitive vegetation communities. Compensatory mitigation for impacts to sensitive upland habitats would be completed at the Dean Mitigation Parcel on the slopes of San Dieguito Lagoon immediately east of I-5 in a former tomato field. Specifically, permanent impacts to coastal sage scrub and southern maritime chaparral would be completed on Caltrans mitigation property on the slopes of San Dieguito Lagoon at a proposed 2:1 ratio, subject to discussions with the resource agencies. Furthermore, additional general avoidance and minimization measures would be implemented during construction to reduce unavoidable impacts to natural communities (see Section 3.18.3).

4.4 UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL EFFECTS

As discussed in Section 3.8.3, the Direct Connector Alternative would result in the greatest degree of visual impacts within the proposed project area because of the loss of existing mature vegetation, large visually intrusive retaining walls, extensive soundwalls, loss of median planting on SR-56, and a general increase in the expanse of asphalt and concrete surfacing. A decrease in planted area and the elimination of the planted median would occur on SR-56. In addition to the above, the imposition of two new highly visible connector bridge structures crossing above the existing three-level interchange would result in a visual element that would strongly affect the views from the road and to the road. Because of the amount of visual change, the Direct Connector Alternative could have a large visual impact.

The Hybrid Alternative would combine elements of the Direct Connector and Auxiliary Lane Alternatives, resulting in a negative visual change. The westbound SR-56 to I-5 connector structure, approach, and transition result in a negative visual change because of the loss of existing mature vegetation, increased exposure of adjacent commercial buildings, loss of median planting on SR-56, and a general increase in the expanse of asphalt and concrete surfacing. On the west and south sides of the intersection there are visual impacts from the retaining walls and a reduction in landscape screening areas between I-5 and adjacent residential areas to the west. Many of the existing trees and landscape buffers would remain between I-5 and the homes on Portofino Drive and Portofino Circle. As such, the visual effect of the Hybrid Alternative likely would be less than the Direct Connector Alternative and Hybrid with Flyover Alternative, but greater than the Auxiliary Lane Alternative.

The Hybrid with Flyover Alternative includes the Carmel Valley to SR-56 connector to replace the south I-5 to east SR-56 connector structure of the Direct Connector Alternative. The proposed flyover connecting Carmel Valley Road with SR-56 east would create an additional visual obstruction, visible from several approaches. This structure would contribute to the greater visual impact of the Hybrid with Flyover Alternative when compared with the Hybrid Alternative. Therefore, the visual effect of the Hybrid Alternative with Flyover would be less than the Direct Connector Alternative but greater than the Auxiliary Lane Alternative and the Hybrid Alternative.

As discussed in Section 3.8.4 and in Section 4.1, mitigation of visual/aesthetic impacts for all build alternatives would improve the with-project visual quality. Landscape concept plans for each build alternative (found in Attachments A, B, C, and D of the VIA) were developed for the reestablishment of landscaping following construction. The plans identify opportunities to enhance areas within the proposed project limits with planting. The plan establishes planting themes, as well as surface architectural treatments for paving, retaining walls, soundwalls, and other construction items to emphasize the natural landscapes of the mesas, slopes, and riparian areas associated with Carmel Valley Creek and the lagoon within the proposed project area along I-5 and SR-56.

Table 4-2. Direct Connector Alternative: Visual Summary

Key View		Existing Visual Quality	Change in Visual Character and Quality	Viewer Response	Visual Impact
1	Upland Torrey Pines State Park	MH	ML	MH	M
2	Southbound I-5 north of Carmel Valley Road exit	MH	MH	MH	MH
3a	Northbound I-5 south of Carmel Valley Road	M	ML	MH	M
3b	Northbound I-5 north of Carmel Valley Road	M	H	MH	H
3c	Northbound I-5 south of Del Mar Heights Road	M	-	-	-
4a	Westbound SR-56 east of El Camino Real exit	MH	-	-	-
4b	Westbound SR-56 at El Camino Real exit	M	MH	MH	MH
5	Eastbound Carmel Valley Road west of I-5	ML	L	MH	M
6	Eastbound SR-56 at slip off-ramp at Carmel Creek Road	M	-	-	-

Note: N - None; L - Low; ML - Moderately Low; M - Moderate; MH - Moderately High; H – High
Source: Compiled by AECOM in 2011

Table 4-3. Hybrid Alternative: Visual Summary

Key View		Existing Visual Quality	Change in Visual Character and Quality	Viewer Response	Visual Impact
1	Upland Torrey Pines State Park	MH	L	MH	ML
2	Southbound I-5 north of Carmel Valley Road exit	MH	MH	MH	MH
3a	Northbound I-5 south of Carmel Valley Road	M	-	-	-
3b	Northbound I-5 north of Carmel Valley Road	M	H	MH	H
3c	Northbound I-5 south of Del Mar Heights Road	M	ML	MH	M
4a	Westbound SR-56 east of El Camino Real exit	MH	H	MH	H
4b	Westbound SR-56 at El Camino Real exit	M	-	-	-
5	Eastbound Carmel Valley Road west of I-5	ML	-	-	-
6	Eastbound SR-56 at slip off-ramp at Carmel Creek Road	M	-	-	-

Note: N - None; L - Low; ML - Moderately Low; M - Moderate; MH - Moderately High; H – High
Source: Compiled by AECOM in 2011

Table 4-4. Hybrid with Flyover Alternative: Visual Summary

Key View		Existing Visual Quality	Change in Visual Character and Quality	Viewer Response	Visual Impact
1	Upland Torrey Pines State Park	MH	L	MH	ML
2	Southbound I-5 north of Carmel Valley Road exit	MH	MH	MH	MH
3a	Northbound I-5 south of Carmel Valley Road	M	-	-	-
3b	Northbound I-5 north of Carmel Valley Road	M	H	MH	H
3c	Northbound I-5 south of Del Mar Heights Road	M	ML	MH	MH
4a	Westbound SR-56 east of El Camino Real exit	MH	-	-	-
4b	Westbound SR-56 at El Camino Real exit	M	H	MH	H
5	Eastbound Carmel Valley Road west of I-5	ML	-	-	-
6	Eastbound SR-56 at slip off-ramp at Carmel Creek Road	M	MH	MH	MH

Note: N - None; L - Low; ML - Moderately Low; M - Moderate; MH - Moderately High; H – High
Source: Compiled by AECOM in 2011

These mitigation measures would reduce the potential temporary and permanent visual impacts of the proposed project. However, the overall change in visual quality is still anticipated to decline because of the large reduction in screen plantings along I-5 and SR-56 and the construction of retaining walls and soundwalls for the build alternatives; Direct Connector Alternative, Hybrid Alternative and Hybrid Alternative with a flyover connector. While these measures would not eliminate the visual impacts, they would provide visual enhancements that can improve the visual quality and help compensate for the project impacts (see Table 4-2, 4-3, and 4-4).

Implementation of the mitigation measures would result in reduced impacts related to visual/aesthetics. However for Direct Connector Alternative, Hybrid Alternative, and Hybrid with Flyover Alternative; the existing visual quality of the six key views ranges from low to high; none of the key views were assessed to have a high existing visual quality. The key view with the high visual impacts are at northbound I-5, north of Carmel Valley Road; Westbound SR-56 east of El Camino Real exit; and Westbound SR-56 at El Camino Real exit. Taking into account existing conditions and the ratings and impacts across the 6 key views, the overall visual impacts of the proposed project would remain significant with mitigation incorporated.

4.5 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Uses of any nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and secondary impacts generally commit future generations to similar uses. Also, environmental damage could result from environmental accidents associated with the project.

CLIMATE CHANGE

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 (GHGs), particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization's in 1988, has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs related to human activity that include 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).

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas (GHG) Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. "Adaptation," refers to the effort of planning for and adapting to impacts due to climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)[16].

Transportation sources (passenger cars, light duty trucks, other trucks, buses and motorcycles) in the state of California make up the largest source (second to electricity generation) of greenhouse gas emitting sources. Conversely, the main source of GHG emissions in the U.S. is electricity generation followed by transportation. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

[16] http://climatechange.transportation.org/ghg_mitigation/

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improve system and operation efficiencies, 2) reduce growth of vehicle miles traveled (VMT) 3) transition to lower GHG fuels and 4) improve vehicle technologies. To be most effective all four should be pursued collectively. The following regulatory setting section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

4.5.1 REGULATORY SETTING

STATE

With the passage of several pieces of legislation including State Senate and Assembly Bills and Executive Orders, California launched an innovative and pro-active approach to dealing with greenhouse gas emissions and climate change at the state level.

Assembly Bill 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases (AB 1493), 2002: requires the California Air Resources Board (CARB) to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the USEPA Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own GHG emission standards for motor vehicles beginning with model year 2009. California agencies will be working with Federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger cars model years 2017-2025.

Executive Order S-3-05: (signed on June 1, 2005, by Governor Arnold Schwarzenegger) the goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of AB 32.

AB32 (AB 32), the Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that CARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the State's Climate Action Team.

Executive Order S-01-07: Governor Schwarzenegger 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 ten percent by 2020.

Senate Bill 97 (Chapter 185, 2007): required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the State California Environmental Quality Act (CEQA) Guidelines for addressing greenhouse gas emissions. The Amendments became effective on March 18, 2010.

FEDERAL

Although climate change and GHG reduction is a concern at the federal level; currently there are no regulations or legislation that have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and Executive Order 13514- *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the interagency Climate Change Adaptation Task Force, which is engaged in developing a U.S. strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act and that the USEPA has the authority to regulate GHG. The Court held that the USEPA Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the USEPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases--carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)--in the atmosphere threaten the public health and welfare of current and future generations.

- **Cause or Contribute Finding:** The Administrator found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the USEPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009.[17] On May 7, 2010 the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register.

USEPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a memorandum on May 21, 2010.[18]

The final combined USEPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

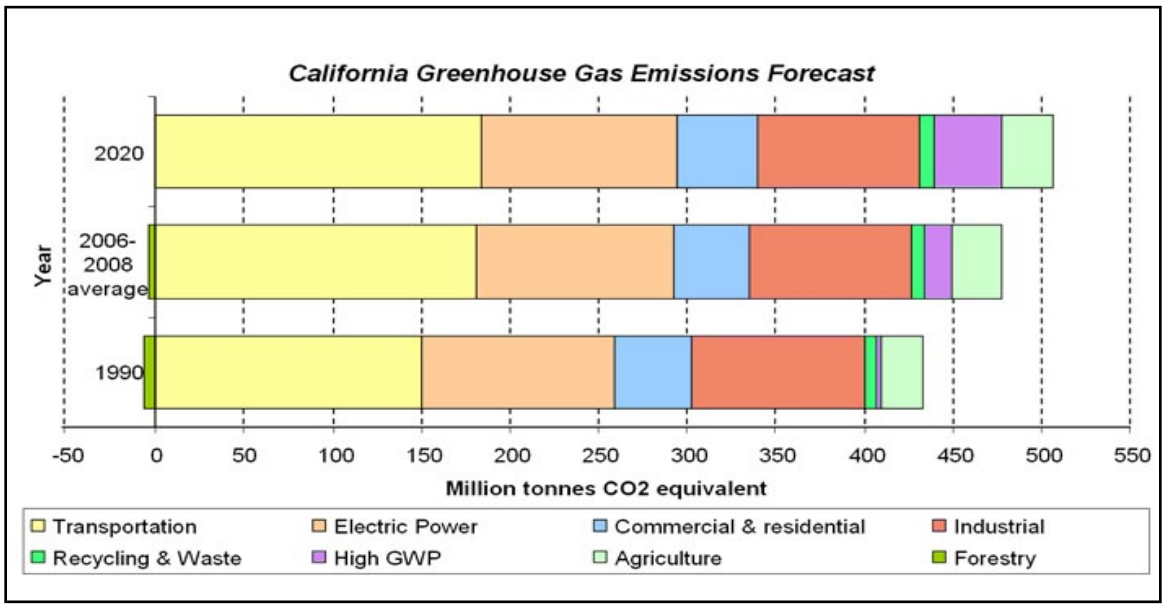
On January 24, 2011, the USEPA along with USDOT and the State of California announced a single timeframe for proposing fuel economy and greenhouse gas standards for model years 2017-2025 cars and light-trucks. Proposing the new standards in the same timeframe (September 1, 2011) signals continued collaboration that could lead to an extension of the current National Clean Car Program.

[17] Available online at: http://www.epa.gov/climatechange/endangerment.html.
[18] Available online at: http://epa.gov/otaq/climate/regulations.htm.

PROJECT ANALYSIS

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of GHG.[19] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See CEQA Guidelines sections 15064(h)(1) and 15130. To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult if not impossible task.

The AB 32 Scoping Plan contains the main strategies California will use to reduce GHG. As part of its supporting documentation for the Draft Scoping Plan, CARB released the GHG inventory for California (Forecast last updated: 28 October 2010) (see Figure 4-1). 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 GHG inventory for 2006, 2007, and 2008.



Source: CARB 2011

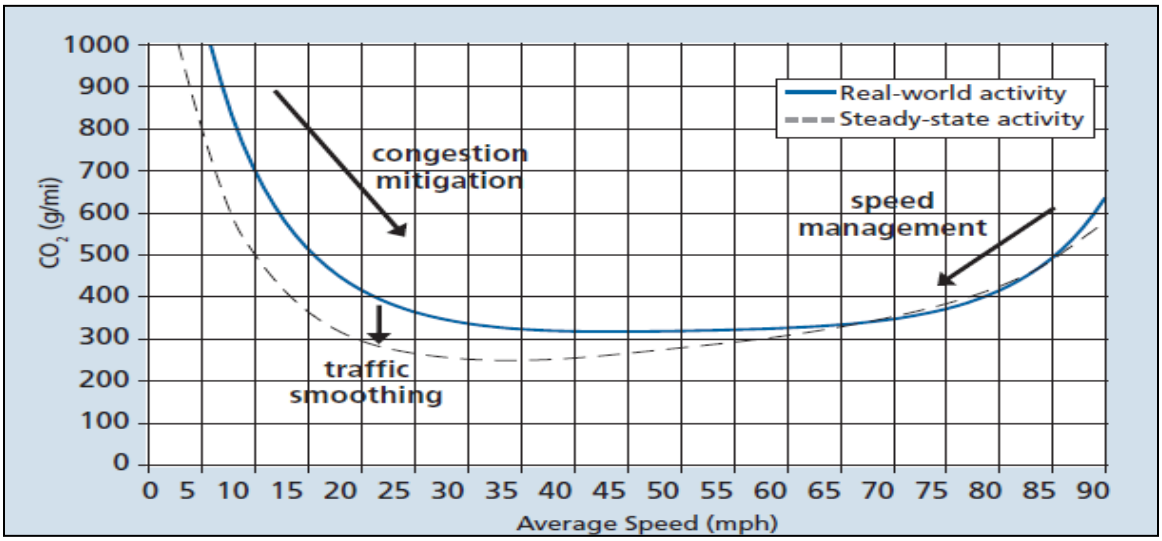
Figure 4-1 **California Greenhouse Gas Forecast**

The Department and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate

[19] 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 US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

Action Program at Caltrans that was published in December 2006 (see Climate Action Program at Caltrans (December 2006).[20]

One of the main strategies in the Climate Action Program at Caltrans to reduce GHG 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 to 25 miles per hour) and speeds faster than 55 mph; the most severe emissions occur from 0 to 25 miles per hour (see Figure 4-2). To the extent that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, GHG emissions, particularly carbon dioxide, may be reduced.



Source: Barth and Boriboonsomsin 2010

Figure 4-2 Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions

Chapter 1 of this document states that the overall project purpose is to maintain or improve the existing and future traffic operations in the I-5/SR-56 interchange to improve the safe and efficient regional movement of people and goods for the planning year of 2030. The proposed project is designed to reduce congestion and/or vehicle time delays by better matching traffic demand with a transportation system that can efficiently handle traffic volumes. Table 4-2 summarizes the study results below:

Table 4-2. Existing and Forecasted Travel Times

Routes	Direction of Travel in Morning and Evening	Current Travel Times (min)	2030 Travel Times (minutes)				
			No Build	Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
Local Street Routes	W-N in AM and S-E in PM	18-30	46-57[a]	30-36[b]	46-57[a]	37-45[a]	37-45[a]
	S-E in AM and W-N in PM	20-24	36-38[a]	27-32[b]	33-40[a]	29-35[b]	29-35[b]
Freeway Route	W-N in AM and S-E in PM	24	51[1]	19	39[1]	37[1]	33[2]
	S-E in AM and W-N in PM	17	33[a]	19	27[a]	26[b]	25[2]

Key: W-N: west-to-north; S-E: south-to-east
Notes:
1. Increase of more than 50%
2. Increase over baseline
Source: Dokken 2010b and LLG 2009

[20] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

State Planning

The project area is included in the Transportation Concept Report Interstate 5 (May 1997) and SR-56 Transportation Concept Report (October 1999). The I-5/SR-56 interchange was included in the 2020 Transportation Concept Report (TCR) as a facility improvement. Interstate 5 is listed as a Major International Trade Highway Route in the California Transportation Plan 2025 (Caltrans 2006e). The proposed project is in conformity with the SIP for Air Quality.

Regional Planning

The proposed project analyzes four build alternatives: the Direct Connector Alternative, Auxiliary Lane Alternative, Hybrid Alternative, and Hybrid with Flyover Alternative. The current SR-56 network requires drivers to exit the freeway to travel from southbound I-5 to eastbound SR-56 and from westbound SR-56 to northbound I-5. Lack of freeway-to-freeway connectors for travel in these directions forces drivers to use Carmel Valley Road and El Camino Real for access, which causes congestion and increased traffic on local surface streets. SR-56 is classified in the County of San Diego Circulation Element as a Prime Arterial, east/west corridor between I-5 and I-15. The proposed improvements to the interchange would form a Caltrans operated and maintained connecting link for travel between southbound I-5 and eastbound SR-56 and westbound SR-56 and northbound I-5. Currently, there is one Park and Ride lot within the project limits at the southwest corner of the I-5/SR-56 interchange. The proposed project would offer improved mobility to and from this Park and Ride lot. Park and Ride facilities encourage and support the use of commuter or express transit and car/vanpooling for a portion of longer vehicle trips and consequently reduce VMT within the San Diego region.

Under the No Build Alternative, the existing configuration for the I-5/SR-56 interchange would remain the same, but with the improvements proposed as part of the I-5 NCC Project, which are independent of the I-5/SR-56 interchange project. This alternative would not include the construction of direct freeway-to-freeway connectors in the westbound SR-56 to northbound I-5 (west to north) or southbound I-5 to eastbound SR-56 (south to east) directions, or improvements to local streets in the Carmel Valley area. Delays and travel times would continue to increase and no reduction in fuel consumption or GHG emissions would result. Under the No Build Alternative, traffic congestion and increased travel times would likely increase fuel consumption and GHG emissions in the project area.

The proposed project was identified in the 2050 RTP as a Major Capital Improvement. The 2050 RTP was approved by the SANDAG Board on October 28, 2011. This project is included in the SANDAG 2010 RTIP with Approved Amendment No. 7, which received federal approval on May 3, 2011. All projects within the 2010 RTIP are consistent with the RTP.

The 2050 RTP concluded that the consumption of nonrenewable energy (primarily gasoline and diesel fuel) associated with construction activities and the operation of passenger, public transit, and commercial vehicles results in GHG emissions that cause global climate change (also referred to herein as “climate change” and “global warming”). In addition, alternative fuels like natural gas (including compressed natural gas [CNG] and liquid natural gas [LNG]), ethanol, and electricity (unless derived from solar, wind, nuclear, or another energy source that does not produce carbon emissions) also result in GHG emissions and contribute to global climate change.

To estimate the potential beneficial or negative effects of the proposed project on San Diego regional GHG levels, EMFAC-2007/BURDEN analysis performed by SANDAG and the CARB EMFAC 2007 vehicle emissions model for the San Diego Air Basin (SDAB) were used to calculate carbon dioxide emissions for the San Diego metropolitan area with and without the proposed project.

To determine regional GHG emissions, the SANDAG "Revenue Constrained" Series 11, 2015 and 2030 regional travel demand models were used for the land use and local street network assumptions for the build and no build scenarios. Regional fuel consumption and CO_2 emissions were modeled with and without the build scenarios for each time horizon. An independently written draft report for construction emissions analysis was written for the I-5 NCC project and is a part of that project's environmental document.

Regional fuel consumption estimates were produced for the Direct Connector Alternative and Auxiliary Lanes Alternative. Fuel consumption estimates were only prepared for these two alternatives because the Direct Connector Alternative would result in the least amount of gasoline consumption and the Auxiliary Lanes Alternative would result in the largest amount of gasoline consumption. Fuel consumption for the Hybrid Alternative and Hybrid with Flyover Alternative would fall between the estimates reached for the Direct Connector Alternative and Auxiliary Lanes Alternative. The results of the regional fuel consumption and CO_2 emissions models are shown in Table 4-3.

Table 4-3. Average Difference in 2030 Regional CO_2 Emissions

	Gasoline Consumption (gal/day)	Diesel Fuel Consumption (gal/day)	CO^2 Emissions (tons/day)
Existing	4,395,910	526,135	47,875
No Build	5,082,820	577,300	55,790
Direct Connector	5,062,390	578,230	55,600
Auxiliary Lane	5,063,580	578,030	55,610

Note: EMFAC2007 model reporting limit=10 tons per day
Source: Caltrans 2011

The preceding table states the CO_2 emissions number for the alternatives. The CO_2 emissions numbers are only useful for a comparison between alternatives. The numbers are not necessarily an accurate reflection of what the true CO_2 emissions would be because CO_2 emissions are dependent on other factors that are not part of the model such as the fuel mix (EMFAC model emission rates are only for direct engine-out CO_2 emissions not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives like ethanol and the source of the fuel components), rate of acceleration, and the aerodynamics and efficiency of the vehicles.

All of the alternatives are predicted to result in an increase in CO^2 emissions when compared to the existing conditions. The future No Build Alternative, however, would result in the largest increase in CO^2 emissions. This is due to increasing congestion in the proposed project area as a result of the continuation of the missing moves at the I-5/SR-56 Interchange. As discussed in Section 3.7 Traffic, the lack of direct freeway-to-freeway connectors in the southbound I-5 to eastbound SR-56 and westbound SR-56 to northbound I-5 directions ("missing moves") would result in increasing congestion on both urban street and freeway facilities. This increase in congestion would lead to greater increases in CO^2 emissions. With the proposed project, regional traffic movements would be made on I-5 and SR-56 while local traffic movements would be made on El Camino Real, Carmel Valley Road, Carmel Creek Road, and Del Mar Heights Road. This increase in the efficiency of the overall transportation system within the project area would lead to a decrease in future CO^2 emissions when the future build alternatives are compared to the future no build alternative; the future build alternatives that were modeled (Direct Connector and Auxiliary Lane) would result in a 180-190 tons/day decrease in CO^2 emissions compared to the future no build condition. Because future emission would decrease with the build alternatives, it would not be the proposed project that would result in increased emissions compared to existing conditions. Rather, the increase in CO^2 emissions when compared to existing conditions would be caused by population growth and future development in the San Diego region and would occur regardless of whether the I-5/SR-56 project is constructed.

CONSTRUCTION EMISSIONS

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions are 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 stages. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

It is Caltrans' goal to construct this proposed project in the least amount of time by planning and staging the work efficiently. The reduced construction time would lead to a low number of construction-related delays and make the benefits of the project available sooner. The proposed increased capacity and improved geometry would reduce travel times for motorists, which would provide for less vehicle operating time, reduce wear on vehicles, and reduce fuel consumption and GHG emissions. Additional construction savings would result from fewer vehicle stops and starts, which is the most wasteful condition in terms of fuel.

Design goals are usually used to balance the project's cut/fill to negate either a shortage or excess of material for the proposed project, which could eliminate unnecessary trucking of materials to or from the construction site. Caltrans has recently been identifying ways to incorporate a "greener" construction fleet (some construction equipment runs on compressed natural gas or E-85) and is developing construction specifications by which construction-related emissions would be reduced. Caltrans is also proposing several features that would reduce the long-term maintenance needs of the project, which would reduce the long-term use of fuel and other resources. These include such items as concrete median barriers, overhead video-based detection, and minimal light installation.

The following measure would be incorporated to minimize energy consumption and GHG emissions:

- Construction staging plan to identify sequence of construction and to help minimize traffic delays.
- Traffic delays controlled to the extent feasible during periods of may simultaneous construction operations.
- Comprehensive TMP to further minimize delays developed after selection of preferred alternative but prior to the start of construction.
- TMP designed to increase driver awareness, ease congestion, and minimize delay during construction. Components include:
    - Public Awareness Program including changeable message signs, public service announcements via media, and 800 numbers.
    - Traffic Operations Strategies Program which includes ongoing evaluation of traffic operations and provides incident response during construction, CHP construction zone speed reduction enforcement, alternate route strategies.

The following are characteristics of more efficient transportation systems:

- Reduce, manage, and eliminate trips that are the primary cause of congestion, GHG's, and air pollution through smart land use, ITS, demand management, value pricing, and market based strategies.

- Regional Blueprint Planning.
- Local Development/Intergovernmental Review.
- Transportation Planning Grants.
- Improve operational efficiency of the existing and new transportation systems and movement of people, goods and services. Relieve congestion by enhancing operations and improving travel times in high congestion travel corridors based on Strategic Growth Plan, Transportation Infrastructure Investment Plan, and Director's Policy: 26: Intelligent Transportation Systems.

Additionally, cleaner more energy efficient transportation operations result in the following:

- Incorporate energy efficiency and GHG reduction measures into the planning, design, construction, operations and maintenance of transportation facilities, fleets, and buildings.
- Mainstream energy efficiency and GHG emissions reduction measures into land use and transportation decisions.
- Implement fleet greening and fuel diversification.
- Implement Non-Vehicular Conservation Measures.
- Reduce cement use in concrete without loss in performance.
- Provide education and information on transportation energy and climate change.
- Improve freight transportation efficiency based on Director's Policy 23: Energy Efficiency and Conservation.

4.5.2 CEQA CONCLUSION

While there would be a slight increase in GHG emissions during construction, it is anticipated that any increase in GHG emissions due to construction would be offset by the improvement in operational GHG emissions. Additionally, as previously discussed, regional CO_2 emissions in the year 2030 would decrease with implementation of the proposed project as compared to the No Build Alternative. As such, it is predicted that increases are not attributed to the proposed project It is Caltrans' determination that, in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding 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 GHG emissions. These measures are outlined in the following section.

AB 32 COMPLIANCE

Caltrans continues to be actively involved on the Governor's Climate Action Team as CARB works to implement EO S-3-05 and EO S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Former Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a $222 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including $100.7 billion in transportation funding during the next decade. The Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this

while accommodating growth in population and the economy. A suite of investment options has been created that combined together, are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain CO_2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in Figure 4-3, The Mobility Pyramid.

Figure 4-3 **The 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 is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and light- and heavy-duty trucks; Caltrans is doing this by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that control of the fuel economy standards is held by EPA and CARB. Lastly, the use of alternative fuels is also being considered; Caltrans is participating in funding for alternative fuel research at the University of California, Davis.

Table 4-4 summarizes the Caltrans and statewide efforts that Caltrans being implemented in order to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

To the extent that it is applicable or feasible for the project and through coordination with the project development team, the following measures would also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

- Caltrans and the California Highway Patrol are working with regional agencies to implement Intelligent Transportation Systems (ITS) to help manage the efficiency of the existing highway system. ITS is commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.

- In addition, Caltrans and SANDAG provide ridesharing services and Park and Ride facilities to help 4manage the growth in demand for highway capacity.

- Landscaping reduces surface warming, and, through photosynthesis, decreases CO_2. The project proposes planting in the intersection slopes, drainage channels, and seeding in areas adjacent to frontage roads and planting a variety of different-sized plant material and scattered skyline trees where appropriate. These plantings would help offset any potential CO_2 emissions increase.

- The proposed project would incorporate the use of energy efficient lighting, such as LED traffic signals. LED bulbs can last 5 to 6 years, compared to the 1-year average lifespan of the incandescent bulb. The LED bulbs consume 10 percent of the electricity of traditional lights, which would also help reduce the project's CO_2 emissions.

- According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to 10 minutes in each direction. In addition, the contractor must comply with SDAPCD's rules, ordinances, and regulations in regard to air quality restrictions.

The following "green" practices and materials would be used, where possible, in the proposed project as part of highway planting and erosion-control work:

- PVC irrigation pipe with recycled content
- Non-chlorinated high-density polyethylene (HDPE) irrigation crossover conduit
- Compost and soil amendments derived from sewage sludge and green waste materials
- Fiber produced from recycled pulp such as newspaper, chipboard, and cardboard
- Wood mulch made from green waste and/or clean manufactured wood or natural wood
- Native and drought-tolerant plants
- Irrigation controllers, including water conservation features and solar or battery power
- Restricted pesticide use and reduction goals

The State of California maintains several websites that provide public information on measures to improve renewable energy use, energy efficiency, water conservation and efficiency, land use and landscape maintenance, solid waste measures, and transportation alternatives.

Table 4-4. 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	.975	7.8
Operational Improvements & Intelligent Transportation 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	.0045	.0065 .045 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	.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 .36	4.2 3.6
Goods Movement	Office of Goods Movement	CalEPA, CARB, BTHA, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.66	18.67

Notes:
BTHA = Business, Transportation, and Housing Agency
CEC = California Energy Commission
MPO = Metropolitan Planning Organization
MMT = million metric tons
Source: Caltrans 2011a

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 can strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising

sea levels, more storm surges with higher intensity, and increased frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by longer periods of intense heat, increasing storm damage from flooding and erosion, and inundation from rising sea levels. These effects would vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and NOAA, released its interagency report October 14, 2010 outlining recommendations to President Obama for how federal agency policies and programs can better prepare the U.S. to respond to the impacts of climate change. The Progress Report of the Interagency Climate Change Adaptation Task Force recommends that the federal government implement actions to expand and strengthen the nation's capacity to better understand, prepare for, and respond to climate change.

Climate change adaption must also involve the natural environment. Efforts are underway on a statewide level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts would help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, Governor Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This executive order set in motion several agencies and actions to address the concern of sea level rise.

The California Natural Resources Agency was directed to coordinate with local, regional, state, and federal public and private entities to develop the California Climate Adaptation Strategy (December 2009),[21] 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 EO S-13-08 that specifically asked the California Natural 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 CalEPA, BTHA, 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 California Natural Resources Agency was also directed to request the National Academy of Sciences to prepare a Sea Level Rise Assessment Report by December 2010[22] to advise how California should plan for future sea level rise. The report is to include the following:

- Relative sea level rise projections for California, Oregon, and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, and storm surge and land subsidence rates;
- The range of uncertainty in selected sea level rise projections;

[21] Available online at: http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF.
[22] The Sea Level Rise Assessment Report is currently due to be completed in 2012 and will include information for Oregon and Washington State as well as California.

- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and
- A discussion of future research needs regarding sea level rise.

Prior to the release of the final Sea Level Rise Assessment Report, all state agencies that are planning to construct projects in areas vulnerable to future sea level rise were 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 regarding local uplift and subsidence, coastal erosion rates, predicted high water levels, storm surge and storm wave data. Until the final report from the National Academy of Sciences is released, interim guidance has been released by the Coastal Ocean Climate Action Team and Caltrans as a method to initiate action and discussion of potential risks to the state's infrastructure due to projected sea level rise.

However, all projects that filed a Notice of Preparation and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects as of the date of EO S-13-08, may, but are not required to, consider these planning guidelines.

The NOP for the proposed project was filed with OPR on May 13th, 2005. The proposed project is included in the current 2050 RTP, adopted on October 28, 2011 and the 2010 RTIP, through Amendment No. 7. The RTIP was approved by the federal agencies on November 17, 2008, and USDOT adopted a Clean Air Act conformity determination for the RTIP on that date. On May 3, 2011, USDOT determined that the adopted modifications set forth in Amendment No. 7 also comply with the conformity provisions. Therefore, the NOP for the proposed project was filed prior to the five year window and the proposed project is programmed within the 5-year window prior to 2013.

Furthermore, EO S-13-08 directed the BTHA to prepare a report to assess vulnerability of transportation systems to sea level affecting safety, maintenance, and operational improvements of the system and the economy of the state. Caltrans continues to work on assessing the transportation system's 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 impacts, Caltrans 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 warranted 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. Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Sciences report on Sea Level Rise Assessment, which is due to be released in 2012.

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CHAPTER 5
COMMENTS AND COORDINATION

5.1 INTRODUCTION

Early and continuing coordination with the general public and the 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; steering committee meetings; community group, planning group, and sponsor group presentations; a public information meeting; and the public scoping meeting. This chapter summarizes the results of Caltrans' efforts to fully identify, address, and resolve project-related issues through early and continuing coordination. A summary of coordination and public involvement is included in this chapter.

5.2 PUBLIC SCOPING PROCESS

5.2.1 NOTICE OF INTENT/NOTICE OF PREPARATION

Pursuant to NEPA and CEQA, a Notice of Intent (NOI) and Notice of Preparation (NOP) were prepared for the project. The NOI was published in the Federal Register on April 29, 2005 (Figure 5-1). The NOP was issued by the State Clearinghouse on May 13, 2005, and the review was completed on June 13, 2005 (Figure 5-2). Table 5-1 summarizes the comments received in response to the NOI and NOP.

5.2.2 PUBLIC SCOPING MEETING

A Public Scoping Meeting was held on March 17, 2005, from 5:00 p.m. to 8:00 p.m. to give the community an opportunity to review and comment on the proposed project. The meeting was conducted in an "open house" format. Caltrans, SANDAG, and the City of San Diego were in attendance to answer questions regarding project activities, studies, and the schedule. Notices were emailed to the resource agencies and mailed to elected representatives and the public. The Notice of Public Meeting was published in the *San Diego Union-Tribune* and in the *San Diego Daily Transcript* on March 3, 2005. A court reporter was present to record oral comments from attendees at the public scoping meeting. Comments were encouraged at the meeting and attendees submitted comments on 33 written Comment Sheets, 2 letters, and 8 recorded oral statements. Caltrans also accepted comments in nine letters received by mail after the meeting.

Comments expressed at the public scoping meeting include the following:

- Concerns about increased noise, especially related to the proposed flyovers and especially on nearby residences. *Chapter 3, Section 3.16, Noise, discuss the potential impacts of each alternative considered in the Draft EIR/EIS on sensitive receptors, including residences, in the area that could be affected by the project*.

- Requests for draft environmental documents regarding the I-5/SR-56 interchange improvements. *The Draft EIR/EIS for the I-5/SR-56 interchange project will be made available to the public after completion of technical studies and surveys*.

Table 5-1. Comments Summary Table on NOI/NOP - December 24, 2008

Communication Type	To	From	Communication Date	Summary of Comments
Letter, Comments on NOP	Caltrans - Jason Reynolds	Rancho Santa Fe Association - Keith Behner	May 23, 2005	The Rancho Santa Fe Association strongly supports the establishment of the badly needed and long overdue I-5/SR-56 freeway connectors. It seems clear that any alternative that does not provide direct connections will be significantly inefficient. Please model traffic scenarios which include SR-56 at its ultimate planned capacity as a six lane "expressway."
Letter, EIR Scoping Comments	City of San Diego - Brad Johnson	Rancho Santa Fe Association - Susan Bromley	March 17, 2005	The Rancho Santa Fe Association Board of Directors strongly supports the alternative for ramps directly connecting I-5 and SR-56. This is critical to both the immediate and long-term welfare of San Diego's regional circulation system. Failure to implement south-to-east and west-to-north ramp connectors will result in negative environmental impacts generated by increasing gridlock and its accompanying pollution and circulation inefficiencies.
Letter, Comments on NOP	Caltrans -Jason Reynolds	CDFG - Donald Chadwick	June 7, 2005	This project is adjacent to both Carmel Valley Creek and Los Peñasquitos Lagoon which provide, or could provide, habitat for endangered, threatened, and sensitive species. Potential impacts to these species should be avoided. List of recommendations of information the Draft EIR should include flora and fauna, direct, indirect, and cumulative impacts to biological resources, range of alternatives, and mitigation measures. CA Endangered Species Act permit must be obtained. We oppose any development or conversion which would result in a reduction of wetland acreage or wetland habitat values unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. All wetlands and watercourses should be retained and be provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations.
Letter, Comments on NOP	Federal Highway Administration- Cesar Perez	EPA - Nova Blazej	June 13, 2005	EPA's concerns with respect to the project focus on independent utility, air quality, water resources, threatened and endangered species, and cumulative impacts. EPA agrees with Caltrans conclusions on independent utility. EPA suggests using mitigation measures for air quality concerns. EPA requests efforts to avoid impacts to water resources, Carmel Valley Creek, and Los Peñasquitos Lagoon. EPA requests a full assessment of threatened and endangered species in the project area. EPA requests that cumulative impacts should incorporate the areas and resources protected by the SD Multiple Species Conservation Plan and identify mitigation measures, as appropriate.

Communication Type	To	From	Communication Date	Summary of Comments
Letter, Comments on NOP	Caltrans -Jason Reynolds	USFWS	July 14, 2005	The proposed project is adjacent to and may directly or indirectly impact the Carmel Valley River Enhancement Project and the Los Peñasquitos Lagoon. CVREP is a restoration project mitigating for past impacts to natural resources from the construction of the SR-56 and all direct and indirect impacts to CVREP should be strictly avoided. Los Peñasquitos lagoon supports a number of federally and State listed species and a host of sensitive species. Direct and indirect impact to CVREP and the lagoon from noise, fugitive dust, water pollution should be avoided and minimized by using BMPs. All impact to the MSCP's MHPA should be strictly avoided. The Draft EIS should identify and thoroughly discuss all project-related potential edge effects and propose measures to avoid or minimize them, a detailed discussion of construction and post-construction BMPs. The Draft EIS should include a complete purpose and need statement; list and assessment of flora and fauna; and discussions of direct, indirect and cumulative impacts, mitigation measures, alternatives, and potential to "take" federally listed species.
Letter, Comments on NOP	Caltrans - Jason Reynolds	Native American Heritage Commission - Carol Gaubatz	June 3, 2005	Contact the appropriate CA Historic Resources Information Center for a record search. Contact the Native American Heritage Commission for a Search Lands File. Lead agencies should consider avoidance, pursuant to Section 15370 of CEQA, when significant cultural resources are discovered.
Letter, Comments on NOP	Caltrans - Jason Reynolds	Torrey Pines Association - Douglas Lappi	June 6, 2005	Our major concern is the planned 70-foot flyover that would connect southbound I-5 and eastbound SR-56. It is our impression that this will have three major effects that are potentially deleterious to the environment of the Torrey pine; the TPA would like to see these addressed in the Draft EIR. The three concerns: the flyover would approach and perhaps be directly over the last remaining wildlife corridor leading into the Reserve; noise being broadcasted over the wetlands on the Los Peñasquitos Marsh Natural Preserve, which the clapper rail nests in; and the viewscape of the environment should be addressed in detailed pictorial form.
Letter, Comments on NOP	Caltrans -Jason Reynolds	San Diego County Archaeological Society - James Royle	May 21, 2005	We are pleased to note the inclusion of cultural resources in the list of subject areas to be addressed in the Draft EIR, and look forward to reviewing it during the upcoming public comment period. Please include us in the distribution of the Draft EIR.
Letter, Comments on NOP	Caltrans - Jason Reynolds	Torrey Pines Community Planning Board - Cliff Hanna	April 29, 2005	The DEIR should include: recent aerial photo of the Torrey Hills, Carmel Valley, and Torrey Pines Community Planning Areas, detailed map of existing and future connectors; map showing the Carmel Mountain Interchanges now under construction; Thomas Guide type street guide maps showing surface streets improvements; map showing planned additional westbound SR-56 lane; photo simulations of flyover; cumulative impact study; detailed explanation of how the planned connectors will reduce congestion on I-5; positions taken by Carmel Valley, Torrey Hills, and Torrey Pines community Planning Boards; language in the community plans that relate to the connectors and freeway congestion; an explanation of Proposition M language related to the Pacific Highlands development; input from the steering committee during development of the EIR; noise studies; impact on Carmel Creek and Los Peñasquitos Lagoon; impact of rising gasoline prices on traffic volumes for this area projected into the future.

Communication Type	To	From	Communication Date	Summary of Comments
Letter, Comments Scoping Meeting	Caltrans - Jason Reynolds	Connector Steering Committee -Bob Lewis, 13713 Recuerdo, Del Mar, CA 92014	April 21, 2005	Prop M should be fully analyzed: does it require 2 seamless connectors? Require a public transit plan? Measurable congestion problem on Carmel Valley surface streets? Pacific Highlands: is it defined as a transit-oriented development? Can development proceed according to Prop M if local planning boards approve surface street improvements rather than seamless connectors? The following should be included in the Draft EIR: detailed graphics of the impacted area which includes Torrey Hills, Torrey Pines, and Carmel Valley; Thomas guides type street guide that shows areas of congestion as a result of the lack of proposed connectors and the opening of SR-56; a map showing existing and proposed connectors; a map showing dual freeway system and the Carmel Mountain Interchange; a cumulative impact study; noise studies; positions of local planning boards; impacts to open space and Carmel Creek and Los Peñasquitos Lagoon; a map showing existing and proposed land for the area from I-5/805 merge to Via de la Valle; a map showing proposed surface street improvements; photo simulations of flyover; a cost estimate for the connector plan; and a transit plan that will possibly eliminate the need for the connectors. Members of the Steering Committee should be involved in the development and design of the Draft EIR.
Letter, Comments Scoping Meeting	Caltrans -Jason Reynolds	Pierre Godefroy - 13151 Shalimar Pl, Del Mar, CA 92014	March 19, 2005	Opposition to the impeding construction of flyover connectors. I do believe the noise level in my back yard already exceeds deferral standards. I would like Caltrans to come up with a solution that mitigates the noise level, not increase the already excessive high noise level.
Written comment Scoping Meeting	Comment Sheet	Patricia Wahle - 13130 Portofino Drive, Del Mar, CA 92014	April 22, 2005	In addition to the visual impact that a 70-foot flyover would have on an area of important natural and tourist resources, it will add noise and air pollution to Del Mar and surroundings. It will also impose a barrier for wintering birds to the Peñasquitos Lagoon. This alternative will not solve the problem of traffic congestion and will increase other issues.
Written comment Scoping Meeting	Comment Sheet	None listed		I am very concerned that if direct connectors are not put in, there will be enormous impacts on the adjacent interchanges—Del Mar Heights Road, in particular. Please be sure to look at the impact on Del Mar Heights Road and take that into account. I am for direct connectors in both directions.
Written comment Scoping Meeting	Comment Sheet	None listed		Want copy of EIR. Want EIR to specify noise level, pollutants from tires and increases would be, and what good it will do. Object to this proposal, object to the cost of pulling in the truck lane, object to the 70 foot fly lane.
Written comment Scoping Meeting	Comment Sheet	None listed		Please address the following in the EIR: whether noise levels will increase for residents west and east of I-5, whether pollution levels will increase over the lagoon or for residents or businesses on the north side of Carmel Valley Road east of I-5, and impacts on views of the lagoon from all directions.
Written comment Scoping Meeting	Comment Sheet	None listed		The people want to see a model of the alternative ramps to show the general height. Residential noise. Have an off-ramp going into Sorrento Valley south on Sorrento Valley Road.

Communication Type	To	From	Communication Date	Summary of Comments
Written comment Scoping Meeting	Comment Sheet	Susan Bisom-Rapp		We live on Barbados Way at Boca Raton. We are concerned about the increase in local traffic on Carmel Valley Road since the SR-56 was completed and the potential environmental impact of a proposed flyover on our neighborhood. If, to alleviate the former problem, a flyover is necessary, I would want some sort of soundwall (more effective than the one on Portofino Circle) constructed to protect our neighborhood.
Written comment Scoping Meeting	Comment Sheet	None listed		Please consider doing as much as possible with existing surface streets before building huge connecting ramps! A SR-56 I-5 north ramp would have the same backed up traffic on 56 as the southbound does now.
Written comment Scoping Meeting	Comment Sheet	None listed		EIR must include info on how each alternative will impact current "congestion'" define problem clearly, i.e. are we talking about one hour of congestion? If so, how well each alternative would make a difference from present (the I-5 south connector from 56 gets backed up). Include a tunnel or underground option. EIR include following impacts: noise level, visual, quality of life, Torrey Pines State Reserve, wildlife in the lagoon, migratory patterns. Visual from Torrey Pines Reserve, lagoon, residents, major scenic drive (HW101), and Carmel Valley Road and from new walking/hiking and bicycle trails along Sorrento Valley Road.
Written comment Scoping Meeting	Comment Sheet	None listed		I drove east on 56 from I-5 at 7:15 AM—traffic headed west on 56 was backed up for 2-3 miles—mainly by the metered lighting on the ramp feeding 5 south. What good would be accomplished by flyovers feeding 5 north? Will ramps also having metered lighting? NONE.
Written comment Scoping Meeting	Comment Sheet	None listed		Flyovers of 40-70 feet connecting 56 to 5 will create enormous noise for all of southern Del Mar. Please consider underground tunneling. Our environment is being degraded by massive Caltrans projects.
Written comment Scoping Meeting	Comment Sheet	None listed		I think you should build it on the east side.
Written comment Scoping Meeting	Comment Sheet	None listed		Thanks for providing this great opportunity for review. Everyone was very helpful and informed!
Written comment Scoping Meeting	Comment Sheet	Roger Goyd, heyroger@adelphia.net, 858-481-7547		My concern is the impact and design relative to traffic to and from the north. I live in Solana Beach. The "direct freeway-to-freeway" connector ramps are the 'common sense" design concept for all the obvious reasons. Questions: Is there any special consideration for future "rapid transit", i.e. trolleys, trains? What is the reaction to this project by local residents?
Written comment Scoping Meeting	Comment Sheet	None listed		I would like to hear and see studies done to improve alternative transportation in this area (rail, buses, carpools). Much has been said about increased truck traffic- I suggest we reduce truck traffic by using our rail system to transport goods to drop off points and transport from these hubs rather than increase the numbers of trucks on the highway particularly from Mexico. I am concerned about increased noise, air pollution, and further decrease in the beauty of this area

Communication Type	To	From	Communication Date	Summary of Comments
Written comment Scoping Meeting	Comment Sheet	None listed		Why spend millions to build huge concrete flyovers and connectors when Caltrans will just put red "meter" lights on them? This results in immoral waste of taxpayer money, without improving traffic back-up on local streets at peak hours. Why is the "Shell Station traffic light" on Carmel Valley Road not eliminated in order to speed traffic heading west on Carmel Valley Road? The south to east connector will cause (over) [*missing the rest of the comment sheet*].
Written comment Scoping Meeting	Comment Sheet	None listed		We live west of the freeway. Since the large office building went up on the east side of the freeway, we have experienced an increase in the noise. Please check out the noise level that bounces off those buildings. The reflections of the cars can be seen in the windows of the buildings. What you see, you can hear. We at first thought it was from the building's air conditioning—worked with the building manager and engineers—it was the reflections from the buildings.
Written comment Scoping Meeting	Comment Sheet	None listed		Why is the presentation without a full map of all the projects in the area from Del Mar heights to Carmel Valley to Carmel Mountain? I'm aware that some connection is necessary but the 70 foot flyover seems visually, environmentally, noise levels, pollution. Please concentrate on the other possible solutions that are not so extreme.
Written comment Scoping Meeting	Comment Sheet	None listed		The proposed high flyover linking 5 to 56 is unacceptable to me. The plan will create a dark, noisy, nasty concrete jungle that will darken the entrance to both Torrey Pines State Reserve and to Carmel Valley. San Francisco exercised wisdom in taking down the Embarcadero Freeway. Let's do them one better and not make the mistake of building such a structure.
Written comment Scoping Meeting	Comment Sheet	None listed		I live near the I-5. I am concerned about increased noise and pollution effecting our health and quality of life. I expect to be provided with information regarding environmental impact with regards to safe levels of noise and pollution. If the levels are projected to be unsafe I want to know if the plans will then be changed to protect local residents. I am also concerned that the 70 ft flyover 56 connector will be an eyesore and add to noise and pollution.
Written comment Scoping Meeting	Comment Sheet	None listed		Please monitor school sites for noise and air pollution. School officials should be included from the San Dieguito Union High School District, Solana Beach, and Del Mar Elementary Districts.
Written comment Scoping Meeting	Comment Sheet	None listed		Public Transit (buses, etc.) was part of the mitigation for Carmel Valley. The transit stop on Del Mar Heights Road was built and removed. Has the CEQA process not been violated? Can the connectors proceed without public transit to serve more than 40,000 people? How would public transit improve noise and air pollution?
Written comment Scoping Meeting	Comment Sheet	Richard 858-481-9295		We spoke with Jeff Fuller. We would like to offer our house and backyard to make noise measurements to determine the impact of noise from nearby freeway and large office buildings (they reflect back the freeway noise westward) Please contact us: 858-481-9295.
Written comment Scoping Meeting	Comment Sheet	None listed		A tunnel for the south to east connector is the best solution—is it technically feasible? The study of sound levels should take into account different environmental conditions—wind direction. A complete cover/roof built onto the south to east flyover could significantly cut noise pollution.

Communication Type	To	From	Communication Date	Summary of Comments
Written comment Scoping Meeting	Comment Sheet	None listed		Check noise level on both sides of I-5. When Santa Ana winds blow, the noise level shifts to the west. Measure west side of I-5 in homeowners' yards. Also measure east during on-shore winds. There is a school, Del Mar Hills, which should be checked during Santa Ana winds.
Written comment Scoping Meeting	Comment Sheet	None listed		Is the connector needed? What is the peak traffic now W56 to N5? Won't some of the traffic use the Carmel Mountain Road interchange and therefore reduce the need for I-5 south to SR-56 east? Or vice versa? How can we possible spend so much money on connectors when this money should be spent on light rail to get people off the road?
Written and Verbal Comment Scoping Meeting-referring to Letter	Community Representatives	Felicia Weinbaum - 12991 Long Boat Way, Del Mar, CA 92014	March 14. 2005	Please see attached letter dated March 14, 2007. Request for another scoping meeting. We have had difficulty to date obtaining information. The City, Caltrans, SANDAG, and URS officials have attempted to describe the connector proposals in various community meetings, but have done a poor job of providing information.
Written comment Scoping Meeting	Comment Sheet	None listed		In the EIR, describe any and all alternatives considered and rejected. The four you are focusing on are satisfactory, each for a different reason. The bridge over el Camino Real is not a direct connector.
Written comment Scoping Meeting	Comment Sheet	None listed		I have parents call our consulting company with concerns about pollutants during peak traffic and its effects on Del Mar Heights Elementary School. Please review/sample at the school and provide the school a copy.
Written comment Scoping Meeting	Comment Sheet	None listed		Please correct your displays. It is Carmel Valley Road not Sorrento Valley Road west of I-5. Do you know the community you are planning?
Written comment Scoping Meeting	Comment Sheet	None listed		I object strongly to the construction of a 70 foot south to east connector from I-5 to 56. This would create a huge increase in noise pollution for the surrounding houses and be a complete eyesore. There are other low level alternative solutions to moving traffic south to east that would be acceptable to the community. They must be low level and thus visually more acceptable and project less noise towards the surround houses.
Written comment Scoping Meeting	Comment Sheet	Cynthia Farwell - 12559 Caminito Mira, Del Mar		I'm extremely frustrated in the style and format of this meeting. From the advanced bulletins, it infers that it will be a public meeting which take to be education discussion. This is a complete waste of my time. It's all propaganda of things the way the City would want to project pursued.
Written comment Scoping Meeting	Comment Sheet	None listed		Of all the alternatives that have been presented, the only possibility is the second phase of the interim improvements. Building ramps to take traffic over El Camino Real. No 70 ft flyover—you cannot mitigate for noise impacts, air pollution etc. There has to be a better effort made to improve the current roadways. Communities will not tolerate the flyover. No real good alternative has been explored.
Verbal comment Scoping Meeting	Verbal	Robin Jackson - 13436 Mango Drive, Del Mar	March 17, 2005	No 70-foot overpass. Do not think it is really necessary.

Communication Type	To	From	Communication Date	Summary of Comments
Verbal comment Scoping Meeting	Verbal	Christine Springer - 13684 Mar Scenic Drive, Del Mar, 92014	March 17, 2005	In the backyard of residents west of the freeway. No 70 foot overpass. More exits into Sorrento Valley. Reopen frontage road. Improve train usage in Sorrento Valley.
Verbal comment Scoping Meeting	Verbal	Irene Young - 13671 Mercado Drive, Del Mar, 92014	March 17, 2005	Present models to the general public of Carmel Valley and Del Mar. Create access to Sorrento Valley. I don't want this project. Requested City Council involvement during scoping meeting. Need a freeway between I-5 and I-15.
Verbal comment Scoping Meeting	Verbal	Paula Abney - 11118 Corte Pleno Verano, San Diego, 92130	March 17, 2005	None of the alternatives are good enough. Member of the Torrey Hills Community Planning board and Steering Committee. No way to mitigate noise and air pollution
Verbal comment Scoping Meeting	Verbal	Marie Hochleutner - 13130 Portofino Drive, Del Mar	March 17, 2005	Concerned about noise and air quality. Concerned with ramp extending 70 feet above sea level.
Verbal comment Scoping Meeting	Verbal	David Weinbaum - 12991 Long Boat Way, Del Mar, 92014	March 17, 2005	EIR should include noise studies from all adjacent neighborhoods all the way up to the highest portions studied. Is there going to be a Jake brake regulation placed on the trucks that go through? Plan Option 4 seems to be the most logical and well thought-out portions. The flyovers—the visual, noise, air pollution impacts, we will not be able to mitigate. Would like to know the results of the traffic studies.
Verbal comment Scoping Meeting	Verbal	Deanna Rich - 12912 Long Boat Way, Del Mar, 92014	March 17, 2005	The area between Del Mar Heights Road and Carmel Valley Road is so narrow that we have been told that after you put all these projects here, the project—and the fact that there's going to be so much traffic, it's going to fail anyway. This area has been impacted with all the roads because there are no major through-roads between 56 and 78 because other cities said no. We, as a community, know this is going to fail and the health of our children is at stake, and we would like the city and Caltrans to examine the fact that the project – the freeway will fail at this point no matter what we do. Why don't we have roads in other places?

Source: Compiled by AECOM in 2011

- Concerns over increased air pollution, especially as related to the flyovers. *Chapter 3, Section 3.15 evaluates the increase in air pollution that would result from implementation of all project alternatives considered in the EIR/EIS.*

- Relationship of traffic and the street pattern in the area to the need for the project. *Chapter 3, Section 3.7, Traffic and Transportation/Pedestrian and Bicycle Facilities, discusses the results of computer modeling of future traffic on the circulation system within the area where changes in the circulation system due to the proposed project are expected to occur, in addition to existing conditions and the results of other foreseeable projects.*

- Visual impacts of the flyovers. *Chapter 3, Section 3.8, Visual/Aesthetics, discusses the visual impacts of the flyovers and includes visual simulations of the completed project.*

- Relationship of alternative transportation and public transit plans or possibilities to the need for the project. *Chapter 3, Section 3.7, Traffic and Transportation/Pedestrian and Bicycle Facilities, discusses the relationship of the project to existing and planned alternative transportation.*

- Possible impacts on schools in the area, especially with regard to noise and air pollution*. Chapter 3, Section 3.16, Noise, and Section 3.15, Air Quality, discuss the potential impacts of the project on sensitive receptors, including schools, in the area that could be affected by the project.*

- Concerns about effects on biota, especially with regard to Los Peñasquitos Lagoon, Carmel Creek, and wildlife corridors. *Chapter 3, Sections 3.18, Natural Communities; 3.19, Wetlands and Other Waters; 3.20, Plant Species; 3.21, Animal Species; 3.22, Threatened and Endangered Species; and 3.23, Invasive Species, discuss the potential effects of the each alternative on regional biota, including Los Peñasquitos Lagoon, Carmel Creek, and wildlife corridors.*

- Concerns about excessive costs or not enough return for the cost of the project in quality of life terms. *Costs of the project are estimated in Chapter 2, Project Alternatives, for each alternative considered in the EIR/EIS. Chapter 3, Sections 3.2, Growth; 3.3, Community Character and Cohesion; 3.4, Relocations and Real Property Acquisitions; 3.5, Environmental Justice; and, to some extent, all sections of Chapter 3, relate to the proposed project's potential effects on quality of life.*

- Three comments suggested tunneling in preference to flyovers, and one suggested covering the flyover. *Tunneling is considered in Chapter 2 as an alternative considered but eliminated from further consideration for reasons of cost, safety risks, and engineering feasibility. Covering the flyovers to control noise would require solid walls on both sides of the roadway, like a covered bridge of dense, solid material, and is not considered cost-effective.*

- A number of comments requested more information or suggested what studies were needed, what they should contain, and how they should be conducted. *Technical studies in support of this EIR/EIS have been conducted in accordance with Caltrans and FHWA guidance and standards. The studies address most, if not all, of the concerns raised in the public scoping process.*

ADDITIONAL PROJECT OUTREACH

Throughout the planning and design process, the Caltrans and SANDAG Project Management Team has striven to keep the public fully informed of progress and decisions in the project design process. Since 2004, the I-5/SR-56 Interchange Project Management Team has attended Steering Committee meetings and meetings of the Torrey Pines and Carmel Valley community planning boards, and has held a public information meeting to give presentations in an effort to update interested parties and the public on the status of the project (Table 5-2).

More information about the Steering Committee, including meeting minutes, is available online at: http://www.keepsandiegomoving.com/I-5-corridor/I-5-project-5-56.

Table 5-2. Project Public Outreach

Date	Type of Public Outreach
February 19, 2004	Steering Committee
January 20, 2005	Steering Committee
February 17, 2005	Steering Committee
March 17, 2005	Public Scoping Meeting
April 21, 2005	Steering Committee
March 16, 2006	Steering Committee
June 15, 2006	Steering Committee
November 16, 2006	Steering Committee
February 15, 2007	Steering Committee
May 17, 2007	Steering Committee
August 16, 2007	Steering Committee
November 15, 2007	Steering Committee
December 13, 2007	Torrey Pines Community Planning Board
January 8, 2008	Carmel Valley Community Planning Board
February 21, 2008	Steering Committee
June 26, 2008	Steering Committee
June 26, 2008	Public Information Meeting
September 18, 2008	Steering Committee
December 18, 2008	Steering Committee
June 18, 2009	Steering Committee
November 4, 2009	Steering Committee

Source: Compiled by AECOM in 2011

Steering Committee meetings provide a forum for input from community representatives, Community Planning Board members, the City of San Diego, Caltrans, and other stakeholders. The meetings are an opportunity for the exchange of information and discussion about what will be considered when determining design alternatives during the environmental approval process. As stated on the City of San Diego webpage: “the purpose of the Steering Committee is to obtain the interests of the communities that will be affected by the design of the I-5/SR-56 Freeway Connectors.” Representatives from Carmel Valley, Del Mar Mesa, Torrey Hills and Torrey Pines community planning group along with representatives from the City of San Diego, Caltrans, SANDAG and the project team meet on a periodic basis to discuss the progress of the I-5/SR-56 Freeway Connectors project and to also obtain feedback from the community. Steering Committee meetings are held quarterly. To date, Steering Committee meetings were held from February 19, 2002 to present. The Record of Decisions/Milestone Matrix for the Steering Committee meetings is presented in Table 5-3.

Table 5-3. Steering Committee Record of Decisions and Milestones

Date	Subject	Discussion
2004 First Quarter	Interim Improvements	Presentation of Improvements 1-4 (out of 13) as subject of full environmental analysis. Discussion of project programming, definition of project inclusion in regional plan, and schedule.
2005 First Quarter	Interim Improvements	Presentation of status.
	Alternatives Considered but Rejected	"North Crossover" rejected at the Steering Committee due to significant right-of-way and visual impacts. "South Horseshoe" and "Large Radius Loop" Alternatives rejected at the Steering Committee due to significant impacts to Los Peñasquitos Lagoon.
	Website	Graphics on proposed layout of website presented.
	Transit Planning	Future transit plans were presented.
	Bike Path Feasibility	Alignment studies to connect CVREP bike path of west side of I-5 under way.
2005 Second Quarter	Interim Improvements	City and Caltrans executing a Cooperative Agreement for construction.
	Traffic Analysis	Under way. Existing conditions to reflect opening of SR-56.
	Scoping Meeting	To be scheduled to encourage highest attendance possible.
	Traffic Analysis Video Clips	Micro-simulation of existing conditions were presented for comment and review. NOP/NOI FHWA has approved the NOP/NOI. Scoping Meeting Provided overview of March 17 2005 Scoping Meeting.
	NOP/NOI	FHWA has approved the NOP/NOI
	Scoping Meeting	Discussion of March 17 Scoping Meeting
2006 First Quarter	Alternatives Considered but Rejected	"Small Radius Loop" Alternative rejected at the Steering Committee due to safety and constructability issues.
	Air Quality	Existing environmental settings for air quality completed.
	Visual Impact Analysis	The Visual Impact Assessment methodology was Presented and discussed.
2006 Second Quarter	Visual Impact Analysis	The potential significant viewpoints were visited and discussed. Criteria for significant viewpoints were determined.
2006 Third Quarter	New Consultant	Dokken Engineering introduced as new design and environmental consultant.
2007 First Quarter	Alternatives Under Consideration	No Build, Direct Connector, and Auxiliary Lane Alternatives were presented as Alternatives Under Consideration.
2007 Second Quarter	Alternatives Considered but Rejected	A package of the previously studied alternatives presented to the Steering Committee, including a discussion as to why the alternatives were rejected.
	Year 2030 Traffic Volumes Forecast	The Year 2030 Direct Connector Traffic Volumes Forecasts were presented for review and comment.
	Lane Configuration	The lane configuration for the Auxiliary Lane Alternative was presented and discussed.
2007 Third Quarter	Existing and Year 2030 Traffic Volumes	Development of existing traffic volumes is complete and the refinement of future volumes is 80–90% complete.
	Purpose and Need	Draft Purpose and Need Statement was presented to the Steering Committee for review and comment.
	Alternatives Evaluation Criteria	Several Evaluation Criteria for comparing the project alternatives were presented to the Steering Committee for review and comment.
2007 Fourth Quarter	Project Notebook	Project Notebook, including sections for the Purpose and Need, Alternatives Under Consideration, Alternatives Considered and Withdrawn, and Evaluation Criteria was distributed to the Steering Committee for comment and review.

Date	Subject	Discussion
2008 First Quarter	I-5 North Coast Project	Overview of the I-5 North Coast Project was presented.
	Steering Committee Roles and Responsibilities	Draft Steering Committee Roles and Responsibilities statement was distributed to the Steering Committee for review and comment.
	Revised Direct Connector Alternative	A refined Direct Connector Alternative, with significant reduction in right-of-way impacts, was presented as an Alternative Under Consideration.
	Alternatives Considered but Rejected	Exhibits were presented for several previously studied alternatives and a review was provided regarding why the alternatives were rejected.
	Year 2030 Traffic	Study Year 2030 Draft Traffic Study, including results for the No Build, Auxiliary Lane and Direct Connector Alternative was under review by Caltrans.
2008 Second Quarter	New Alternative Under Consideration	The Hybrid Alternative, as an Alternative Under Consideration, was introduced and discussed.
	Eastbound Slip-Off-Ramp	The eastbound SR-56 slip-off-ramp to Carmel Creek Road was eliminated in all of the Project Build Alternatives.
	Year 2030 Traffic Study and Travel Time	Results of the Year 2030 Traffic Study and Travel Time Study were presented for review and comment.
	Portofino Circle Site Concept	The Portofino Circle Site Concept was presented for review and comment.
	Traffic Noise Abatement Process	The Traffic Noise Abatement Process was presented.
2008 Third Quarter	Response to Community Letters	Caltrans provided a discussion in response to several issue papers that were submitted by the Torrey Pines CPB.
	Alternatives Considered but Rejected	An exhibit was presented for the “Tunnel” Alternative and a review of why the alternative was rejected was provided to the Steering Committee.
	Regional Transportation Plan (RTP)	The Year 2030 San Diego Regional Transportation Plan was provided and discussed.
	2-D Visual Simulations	Exhibits were presented for the existing view and simulation view (with direct connectors) from eastbound Carmel Valley Road looking east.
	Project Schedule	A Schedule Milestones handout was provided and discussed.
2008 Fourth Quarter	Response to email Inquiries from Torrey Pines CPB	Caltrans led a discussion in response to email inquiries from the Torrey Pines CPB regarding the use of Direct Access Ramps on I-5 and the Los Angeles-San Diego Rail Corridor Agency’s (LOSSAN) proposed high-speed rail route parallel to I-5.
	New Alternative	The Hybrid with Flyover Alternative was introduced as a fifth Alternative Under Consideration.
	Year 2030 Travel Time	Updated results for the Year 2030 Travel Time Study were presented for review and comment.
	2-D Visual Simulations	Exhibits were presented for the existing view and simulation view (with direct connectors) from the east side of I-5 looking west towards the Pointe Del Mar/Portofino areas.
2009 Second Quarter	Project Timeline	The I-5/SR-56 Interchange Project Timeline, listing key Project events/milestones in chronological order, was provided and discussed.
	Website Update	An overview of the TransNet I-5/SR-56 Interchange Project website (www.keepsandiegomoving.com) was provided.
	I-5 North Coast Project	An updated overview of the I-5 North Coast Project was presented.
	Project Cost Estimate	The escalated Net Project Costs were presented for the Direct Connector, Auxiliary Lane, Hybrid and Hybrid with Flyover Alternatives.
	Pacific Highlands Ranch Traffic Projections	The overall effect of the proposed Pacific Highlands Ranch Project on the Year 2030 traffic demand for the proposed W-N and S-E connectors was discussed.
	Year 2030 Queuing Analysis	Results of the Year 2030 Queuing Analyses were presented in several exhibit displays for review and comment.
	2-D Visual Simulations	Exhibits were presented for the existing view and simulation view (with direct connectors) of the I-5/SR-56 interchange from a high point south-east of the interchange looking northwest.

Date	Subject	Discussion
	3-D Animation	A 3-D site animation for the Direct Connector Alternative was presented.
2009 Fourth Quarter	Alternative Design	A typical cross section, showing the location of the proposed W-N and S-E connectors relative to the homes along Pointe Del Mar Way, was presented.
	Website Update	Following public request, the Direct Connector and Auxiliary Lane Alternative site animations were made available for viewing and download at www.keepsandiegomoving.com
	I-5 North Coast Project	The Committee was updated on the I-5 North Coast Project, along with a discussion of the planned 60-day public review period and public hearing process following release of the Draft Environmental Document.
	3-D Animations	The 3-D site animations for the Auxiliary Lane and Direct Connector Alternatives were presented.
	Inventory of Steering Committee Concerns	An inventory of all key issues and concerns identified to date was distributed for review and comment.
	Review of Milestones/List of Completed Studies	An updated Record of Decisions matrix and a list of completed draft technical studies was provided and discussed.
	Traffic Development Flow Chart	The Traffic Development Flow Chart was presented. The flow chart provided a simple summary of the traffic development process and identified some of the key project locations to be discussed in detail in the Draft Project Report and Environmental Document.
2010 through 2011	Continuation and completion of draft technical studies and preparation of the environmental document.	

Source: Compiled by AECOM in 2011

The Torrey Pines and Carmel Valley community planning groups are the citizens' planning organizations in the geographic areas of the City of San Diego that would be geographically affected by the proposed project. A separate Public Information Meeting was held at the Carmel Valley Middle School Performing Arts Center on June 26, 2008.

Local planning groups discussed the proposed project alternatives at monthly meetings. On December 13, 2007, City of San Diego Planners, Caltrans Planners, and consultants attended the Torrey Pines Community Planning Board meeting to discuss the I-5/SR-56 Connector project. At this meeting, the Planning Board passed the following motion: "The Torrey Pines Community Planning Board will oppose any SR-56/I-5 connector options that result in the taking of any homes." The Board added an addendum to the previous statement at a later Board meeting: "The Planning Board also opposes any SR-56/I-5 flyover on the west side of I-5." The Torrey Pines Community Planning Board has also shown opposition to the I-5 Widening Project.

On January 8, 2008 members of the City of San Diego, Caltrans Planners, and Consultants attended the Carmel Valley Planning Board meeting to discuss the Connector project. At the meeting, Caltrans representatives discussed the general project timeline and process, proposed design alternatives, and answered questions for residents.

Caltrans and the City have maintained project information websites for the project. Several articles have been published in local publications about the proposed project. On December 10, 2007, Dave Downey wrote a story entitled "Community Rallies Against Freeway Ramp; Officials Exploring Solutions to I-5/Highway 56 Traffic" in the *North County Times*. The article expressed the concerns of residents who live near the proposed connector ramps. On December 10, 2007, an article by Ian Port entitled "The Merge: Missed Connections" appeared in the *Voice of San Diego*. The article described the history of the project and the rationale for not constructing the west-to-north and south-to-east connectors at the same time as the west-to-south and north-to-east connectors.

Several community groups have formed in opposition of the proposed project and related projects. The Torrey Pines community formed the group "Stop Taking Our Property (STOP)" to oppose the taking of private property and residences for building freeway connectors. This group also seeks a solution to the noise impacts. The STOP group held protest rallies at Steering Committee meetings and Public Information Meetings. Another group that formed in opposition of the I-5/SR-56 Interchange Project is Prevent Los Angeles Gridlock Usurping Environment (PLAGUE). This group also opposes the I-5 North Coast Corridor Project.

According to the group's website, "PLAGUE is a community action group that opposes turning San Diego into a Los Angeles-like concrete jungle." Finally, Citizens Against Freeway Expansion (CAFÉ), an outgrowth of the Santa Fe Hills Homeowners Association, was formed in July 2010 to oppose the I-5 North Coast Corridor Project. PLAGUE and CAFÉ have held several Town Hall Meetings to gain support of their mission. The opposition groups have garnered media coverage; several articles and stories have been published by local news stations.

5.3 PROJECT DEVELOPMENT TEAM MEETINGS

The I-5/SR-56 Interchange Project Development Team was assembled by Caltrans in 2004 to serve as the technical advisory committee and internal decision-making body for the project. The PDT consists of Caltrans' staff representatives from Program Management and the various technical divisions, including Environmental, Design, Maintenance, Hydraulics, etc. The PDT meets monthly during the course of project development and as issues arise requiring technical direction or resolution.

5.4 AGENCY COORDINATION

5.4.1 INITIATION OF AGENCY PARTICIPATION

For the I-5/SR-56 interchange project, Caltrans and SANDAG have coordinated with representatives of resource and regulatory agencies to enhance the overall quality of the decisions made throughout this environmental review process. Coordination has occurred with the following regulatory agencies: U.S. EPA, U.S. Fish and Wildlife Service; California Coastal Commission; California Resources Agency; California Department of Parks and Recreation; California Department of Water Resources; California Department of Fish and Game, Region 5; California Office of Emergency Services; Native American Heritage Commission; the State Historic Preservation Officer; California Highway Patrol; California Air Resources Board; California Environmental Protection Agency – Transportation Projects; California Integrated Waste Management Board; the California Regional Water Quality Control Board, Region 9; Native American tribes; and the Cities of San Diego and Del Mar.

The NOP was mailed directly to some agencies and was transmitted to the State Clearinghouse. The State Clearinghouse issued the NOP on May 13, 2005. The NOI was issued by the Federal Highway Administration on April 20, 2005. Both the NOP and NOI were distributed to state and federal agencies and were published in local newspapers. Both included requests that public agencies respond with their roles and responsibilities related to the proposed project. Table 5-4 lists the agencies that have responded. Figures 5-3 and 5-4 show the letters received from the USFWS and CDFG in response to the NOP and NOI.

Through the NEPA/404 process for the I-5 NCC Project Coastal Commission, U.S. EPA, U.S. Fish and Wildlife Service, California Coastal Commission and other partner agencies have been informed about the status of the proposed projects. Meetings were held on July 28, 2004, January 20, 2005, April 27, 2005, June 6, 2006, July 2007, May 28, 2008, and November 9, 2010.

Table 5-4. Agency Responses to NOP and NOI

Agencies	Date Responded	Roles
U.S. Environmental Protection Agency	June 13, 2005	Cooperating Agency
U.S. Fish and Wildlife Service	July 14, 2005	Cooperating Agency
Native American Heritage Commission	June 3, 2005	Cooperating Agency
California Department of Fish and Game	June 7, 2005	Cooperating Agency

Source: Compiled by AECOM in 2011

5.5 ADDITIONAL CONSULTATION AND COORDINATION WITH PUBLIC AGENCIES

5.5.1 STATE HISTORIC PRESERVATION OFFICER COORDINATION

Caltrans, as delegated by the FHWA, initiated consultation with the SHPO regarding the current proposed project under the stipulations of the Section 106 PA, which became effective on January 1, 2004. For the current proposed project, in accordance with Stipulation X.B.2.b of the Section 106 PA, the SHPO was initially notified of the proposed project's effect determination under Section 106 of the NHPA (No Adverse Effect with Standard Conditions – ESA) on October 25, 2011 with the First Supplemental HPSR (Crafts 2011). The SHPO emailed Caltrans stating that they did not have any objections to Caltrans' effect determination. Subsequently, due to the revisions to the First Supplemental HPSR by Crafts, the SHPO was again notified of the effect determination under Section 106 of the NHPA (No Adverse Effect with Standard Conditions – ESA) on February 2, 2012 with the Revised First Supplemental HPSR (Tsunoda 2012).

5.5.2 NATIVE AMERICAN HERITAGE COMMISSION COORDINATION

Consultation and coordination with the Native American Heritage Commission regarding the current proposed project was initiated by Caltrans in December 2005. This coordination effort, as well as Caltrans' consultation efforts with local Native Americans, is summarized in the original HPSR (Meiser 2010), the First Supplemental HPSR (Crafts 2011), and the Revised First Supplemental HPSR (Tsunoda 2012).

5.5.3 U.S. FISH AND WILDLIFE CONSULTATION UNDER SECTION 7 OF THE FEDERAL ENDANGERED SPECIES ACT OF 1973

Caltrans and FHWA conducted informal consultation with USFWS, pursuant to Section 7 of the FESA, to assess the potential for federally listed threatened or endangered species within the proposed project study area. The USFWS letter dated February 4, 2009, provides identification and informal resolution of potential species conflicts in the early stages of project planning (Figure 5-5). This letter provides information about listed threatened and endangered species and their critical habitats in the project vicinity. On this basis of this recommendation and the results of studies conducted for the proposed project, it was determined that consultation with the USFWS under Section 7 of the ESA was not required for the I-5/SR-56 interchange project. An updated USFWS letter was received October 5, 2011 and provided the USFWS's current species list on federally listed threatened or endangered species and their critical habitats, proposed or candidate species, or proposed critical habitats (Figure 5-6). This letter does not add any additional species to those outlined in the 2009 letter, but does update the critical habitats identified within the proposed project area from four species in 2009 to only critical habitat for the western snowy plover (*Charadrius alexandrines nivosus*). The analysis for this proposed project remains valid since no new species or critical habitats have been defined for the project vicinity.

5.5.4 AIR QUALITY AND FHWA CONFORMITY DETERMINATION

The Air Quality Analysis Report, dated November 2009, indicated that implementation of the I-5/SR-56 Interchange Improvement alternatives would not adversely impact existing air quality at representative sensitive receptors within the project area. The alternatives would not violate any state or federal CO standards, as such; no mitigation measures are needed. Furthermore, the proposed alternatives fully conform to the implementation plan's purpose of attaining and maintaining national ambient air quality standards and meet all criteria for a finding of conformity with the SIP.

FHWA's conformity determination will be obtained once the preferred alternative is identified for the proposed project. The proposed project is located in an attainment area for federal PM_{10} and $PM_{2.5}$ standards, and in a nonattainment area of state PM_{10} and $PM_{2.5}$ standards. Based on screening using USEPA PM Guidance, the proposed project is not a project of air quality concern (POAQC) and does not require interagency consultation because it does not meet the criteria due to relatively low truck ADT, truck percentage, and increase in truck volumes comparing the build alternatives and No Build Alternative. See Section 3.15 for additional information regarding air quality.

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collected; and (d) ways to minimize the burden of the collection of information on respondents, including the use of automated collection techniques or other forms of information technology.

All responses to this notice will be summarized and included in the request for OMB approval. All comments will also become a matter of public record.

Issued in Washington, DC on April 22, 2005.

Charles W. McGuire,

Chief, Special Authorities.

[FR Doc. 05–8617 Filed 4–28–05; 8:45 am]

BILLING CODE 4910–62–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

[Policy Statement Number PS–ACE100–2004–10030]

Policy on Substantiation of Secondary Composite Structures

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of issuance of policy statement.

SUMMARY: This notice announces the issuance of a Federal Aviation Administration (FAA) policy to provide some guidelines for certifying secondary structures made from composite materials. This notice is necessary to advise the public, especially manufacturers of normal, utility, and acrobatic category airplanes, and commuter category airplanes and their suppliers, that the FAA has adopted a policy on composite applications that range from secondary structures to non-structural parts such as interiors.

DATES: Policy statement PS–ACE100–2004–10030 was issued by the Manager of the Small Airplane Directorate on April 19, 2005.

How to Obtain Copies: A paper copy of policy statement may be obtained by writing to the following: Small Airplane Directorate, Standards Office (ACE–110), Aircraft Certification Service, Federal Aviation Administration, 901 Locust Street, Room 301, Kansas City, MO 64106. The policy statement will also be available on the Internet at the following address *http://www.airweb.faa.gov/policy.*

FOR FURTHER INFORMATION CONTACT: Lester Cheng, Federal Aviation Administration, Small Airplane Directorate, Regulations & Policy, ACE–111, 901 Locust Street, Room 301, Kansas City, Missouri 64106; telephone: (316) 946–4111; fax: 816–329–4090; e-mail: *lester.cheng@faa.gov.*

SUPPLEMENTARY INFORMATION:

Background

We announced the availability of the policy statement on August 16, 2004 (69 FR 50438). No comments were received, and the policy has been adopted as proposed.

Issued in Kansas City, Missouri on April 19, 2005.

Patrick R. Mullen,

Acting Manager, Small Airplane Directorate, Aircraft Certification Service.

[FR Doc. 05–8537 Filed 4–28–05; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

Environmental Impact Statement: City of San Diego, CA

AGENCY: Federal Highway Administration (FHWA), DOT

ACTION: Notice of intent.

SUMMARY: The FHWA is issuing this notice to advise the public that an environmental impact statement will be prepared for a proposed highway project in the City of San Diego, California.

FOR FURTHER INFORMATION CONTACT: Cesar Perez, Team Leader South Region, Federal Highway Administration, 650 Capitol Mall Suite 4–100, Sacramento, California 95815, Telephone (916) 498–5065, or Jason A. Reynolds, Chief—Environmental Analysis Branch A, California Department of Transportation District 11, 2829 Juan Street, MS 46, San Diego, California 92110, Telephone (858) 616–6609.

SUPPLEMENTARY INFORMATION: The FHWA, in cooperation with the California Department of Transportation and the City of San Diego, will prepare an environmental impact statement (EIS) on a proposal to provide connection between southbound U.S. Interstate 5 to eastbound State Route 56, and between westbound State Route 56 to northbound U.S. Interstate 5. The project may include new connector ramps, interchange improvements, surface street improvements, and/or auxiliary lanes on State Route 56 between Interstate 5 and Carmel Country Road. One auxiliary lane in each direction on Interstate 5 may also be added from State Route 56 to Del Mar Heights Road. Truck bypass lanes may be extended to Del Mar Heights Road on each side of Interstate 5.

Improvements to the corridor are considered necessary to provide for projected traffic demand. Alternatives under consideration include (1) taking no action (2) direct freeway-to-freeway connector ramps; (3) freeway-to-freeway connector ramps with loop; (4) local street improvements; and (5) local street improvements with west to north direct freeway-to-freeway connector ramp.

Letters describing the proposed action and soliciting comments will be sent to appropriate Federal, State, and local agencies, and to private organizations and citizens who have previously expressed or are known to have interest in this proposal. State and local interests have already been involved with initiation of the project and coordination is already being conducted. At least one new scoping meeting is anticipated with the specific date, time, and location to be determined. In addition, a public hearing will be held after publication of the draft EIS. Public notice will be given of the time and place of the hearing. The draft EIS will be available for public and agency review and comment prior to the public hearing.

To ensure that the full range of issues related to this proposed action are addressed and all significant issues identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS should be directed to the FHWA at the address provided above. (Catalog of Federal Domestic Assistance Program Number 20.205, Highway Research, Planning, and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program.)

Dated: April 20, 2005.

Cesar Perez,

Team Leader South Region, Sacramento, California.

[FR Doc. 05–8589 Filed 4–28–05; 8:45 am]

BILLING CODE 4910–22–M

DEPARTMENT OF TRANSPORTATION

Surface Transportation Board

[Ex Parte No. 333]

Sunshine Act Meeting

TIME AND DATE: 10 a.m., May 3, 2005.

PLACE: The Board's Hearing Room, Surface Transportation Board, 1925 K Street, NW., Washington, DC 20423.

STATUS: The Board will meet to discuss among themselves the following agenda items. Although the conference is open for public observation, no public participation is permitted.

MATTERS TO BE CONSIDERED: STB Finance Docket No. 34662, *CSX*

Figure 5-1 **Notice of Intent (page 1 of 1)**

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Sean Walsh
Director

Notice of Preparation

May 13, 2005

To: Reviewing Agencies

Re: Interstate 5/ State Route 56 Freeway Connectors Project
SCH# 2005051061

Attached for your review and comment is the Notice of Preparation (NOP) for the Interstate 5/ State Route 56 Freeway Connectors Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Jason A. Reynolds
Department of Transportation, District 11
P.O. Box 85406 MS 46
San Diego, CA 92110

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Senior Planner, State Clearinghouse

Attachments
cc: Lead Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Figure 5-2 **Notice of Preparation (page 1 of 3)**

Document Details Report
State Clearinghouse Data Base

SCH#	**2005051061**
Project Title	Interstate 5/ State Route 56 Freeway Connectors Project
Lead Agency	Caltrans #11
Type	**NOP** Notice of Preparation
Description	The proposed project will provide connection between southbound I-5 to eastbound SR 56, and between westbound SR 56 to northbound I-5. The project may include new connector ramps, interchange improvements, surface street improvements, and/or auxiliary lanes.

Lead Agency Contact

Name	Jason A. Reynolds		
Agency	Department of Transportation, District 11		
Phone	(858) 616-6609	***Fax***	
email			
Address	P.O. Box 85406 MS 46		
City	San Diego	***State*** CA	***Zip*** 92110

Project Location

County	San Diego			
City	San Diego			
Region				
Cross Streets	Interstate 5/ State Route 56			
Parcel No.				
Township		***Range***	***Section***	***Base***

Proximity to:

Highways	5, 56
Airports	
Railways	Coaster
Waterways	Carmel Valley Cree
Schools	
Land Use	Highway Facility
Project Issues	Aesthetic/Visual; Air Quality; Archaeologic-Historic; Coastal Zone; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Noise; Recreation/Parks; Soil Erosion/Compaction/Grading; Traffic/Circulation; Vegetation; Water Quality; Wetland/Riparian; Wildlife; Landuse; Cumulative Effects
Reviewing Agencies	Resources Agency; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Game, Region 5; Office of Emergency Services; Native American Heritage Commission; California Highway Patrol; Air Resources Board, Transportation Projects; Integrated Waste Management Board; Regional Water Quality Control Board, Region 9

Date Received 05/13/2005 ***Start of Review*** 05/13/2005 ***End of Review*** 06/13/2005

Note: Blanks in data fields result from insufficient information provided by lead agency.

Figure 5-2 **Notice of Preparation (page 2 of 3)**

NOP Distribution List

County: San Diego **SCH#** 2005051061

Resources Agency

- [x] **Resources Agency** Nadell Gayou
- [ ] **Dept. of Boating & Waterways** David Johnson
- [ ] **California Coastal Commission** Elizabeth A. Fuchs
- [ ] **Colorado River Board** Gerald R. Zimmerman
- [ ] **Dept. of Conservation** Roseanne Taylor
- [ ] **California Energy Commission** Environmental Office
- [ ] **Dept. of Forestry & Fire Protection** Allen Robertson
- [ ] **Office of Historic Preservation** Wayne Donaldson
- [x] **Dept of Parks & Recreation** B. Noah Tilghman, Environmental Stewardship Section
- [ ] **Reclamation Board** DeeDee Jones
- [ ] **Santa Monica Mountains Conservancy** Paul Edelman
- [ ] **S.F. Bay Conservation & Dev't. Comm.** Steve McAdam
- [x] **Dept. of Water Resources** Resources Agency, Nadell Gayou

Fish and Game

- [ ] **Depart. of Fish & Game** Scott Flint, Environmental Services Division
- [ ] **Fish & Game Region 1** Donald Koch
- [ ] **Fish & Game Region 2** Banky Curtis
- [ ] **Fish & Game Region 3** Robert Floerke
- [ ] **Fish & Game Region 4** William Laudermilk
- [x] **Fish & Game Region 5** Don Chadwick, Habitat Conservation Program
- [ ] **Fish & Game Region 6** Gabrina Gatchel, Habitat Conservation Program
- [ ] **Fish & Game Region 6 I/M** Tammy Allen, Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Game M** George Isaac, Marine Region

Other Departments

- [ ] **Food & Agriculture** Steve Shaffer, Dept. of Food and Agriculture
- [ ] **Depart. of General Services** Public School Construction
- [ ] **Dept. of General Services** Robert Sleppy, Environmental Services Section
- [ ] **Dept. of Health Services** Veronica Rameriz, Dept. of Health/Drinking Water

Independent Commissions,Boards

- [ ] **Coachella Valley Mountains Conservancy**
- [ ] **Delta Protection Commission** Debby Eddy
- [x] **Office of Emergency Services** Dennis Castrillo
- [ ] **Governor's Office of Planning & Research** State Clearinghouse
- [x] **Native American Heritage Comm.** Debbie Treadway
- [ ] **Public Utilities Commission** Ken Lewis
- [ ] **San Gabriel & Lower LA Rivers**
- [ ] **San Joaquin River Conservancy**
- [ ] **State Lands Commission** Jean Sarino
- [ ] **Tahoe Regional Planning Agency (TRPA)** Cherry Jacques

Business, Trans & Housing

- [ ] **Caltrans - Division of Aeronautics** Sandy Hesnard
- [ ] **Caltrans - Planning** Terri Pencovic
- [x] **California Highway Patrol** John Olejnik, Office of Special Projects
- [ ] **Housing & Community Development** Lisa Nichols, Housing Policy Division

Dept. of Transportation

- [ ] **Caltrans, District 1** Mike Eagan
- [ ] **Caltrans, District 2** Don Anderson
- [ ] **Caltrans, District 3** Jeff Pulverman
- [ ] **Caltrans, District 4** Tim Sable
- [ ] **Caltrans, District 5** David Murray
- [ ] **Caltrans, District 6** Marc Birnbaum
- [ ] **Caltrans, District 7** Cheryl J. Powell
- [ ] **Caltrans, District 8** John Pagano
- [ ] **Caltrans, District 9** Gayle Rosander
- [ ] **Caltrans, District 10** Tom Dumas
- [ ] **Caltrans, District 11** Mario Orso
- [ ] **Caltrans, District 12** Bob Joseph

Cal EPA

Air Resources Board

- [ ] Airport Projects, Jim Lerner
- [x] Transportation Projects, Kurt Karperos
- [ ] Industrial Projects, Mike Tollstrup
- [x] **California Integrated Waste Management Board** Sue O'Leary
- [ ] **State Water Resources Control Board** Jim Hockenberry, Division of Financial Assistance
- [ ] **State Water Resources Control Board** Student Intern, 401 Water Quality Certification Unit, Division of Water Quality
- [ ] **State Water Resouces Control Board** Steven Herrera, Division of Water Rights
- [ ] **Dept. of Toxic Substances Control** CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1** Cathleen Hudson, North Coast Region (1)
- [ ] **RWQCB 2** Environmental Document Coordinator, San Francisco Bay Region (2)
- [ ] **RWQCB 3** Central Coast Region (3)
- [ ] **RWQCB 4** Jonathan Bishop, Los Angeles Region (4)
- [ ] **RWQCB 5S** Central Valley Region (5)
  - [ ] **RWQCB 5F** Central Valley Region (5) Fresno Branch Office
  - [ ] **RWQCB 5R** Central Valley Region (5) Redding Branch Office
- [ ] **RWQCB 6** Lahontan Region (6)
  - [ ] **RWQCB 6V** Lahontan Region (6) Victorville Branch Office
- [ ] **RWQCB 7** Colorado River Basin Region (7)
- [ ] **RWQCB 8** Santa Ana Region (8)
- [x] **RWQCB 9** San Diego Region (9)
- [ ] **Other** _____

Last Updated on 3/11/05

Figure 5-2

Notice of Preparation (page 3 of 3)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011

In Reply Refer To:
FWS-SDG-4503.1

JUL 14 2005

Jason A. Reynolds
Branch Chief, Environmental Analysis A
Caltrans, District 11
Environmental Division, MS 46
2829 Juan Street
San Diego, CA 92110

RE: Notice of Preparation of Draft Environmental Impact Statement for the Interstate 5- State Route 56 Connectors Project in the City of San Diego, San Diego County, California

Dear Mr. Reynolds:

The U.S. Fish and Wildlife Service has reviewed the April 29, 2005, Federal Register Notice requesting comments on the Federal Highway Administration's decision to prepare a Draft Environmental Impact Statement (DEIS) for the Interstate 5 (I-5) – State Route 56 (SR 56) Connectors Project in the City of San Diego, California. We received your request for comments on June 17, 2005. The proposed project will provide connection between southbound I-5 to eastbound SR 56 and between westbound SR 56 to northbound I-5. The proposed project may include new connector ramps, interchange improvements, surface street improvements, and/or auxiliary lanes on SR 56 between I-5 and Carmel County Road. One auxiliary lane in each direction on I-5 may also be added from SR 56 to Del Mar Heights Road. Truck bypass lanes may be extended to Del Mar Heights Road on each side of I-5.

The primary concern and mandate of the Service is the protection of public fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and endangered animals and plants occurring in the United States. These comments have been prepared under the authority, and in accordance with the provisions, of the National Environmental Policy Act (NEPA, 2 U.S.C. § 4321 et seq.) Endangered Species Act (ESA, 16 U.S.C. 1531-1544, as amended), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) mandating Department of Interior concerns for environmental values.

The proposed project is adjacent to and may directly or indirectly impact the Carmel Valley River Enhancement Project (CVREP) and the Los Penasquitos Lagoon. CVREP is a restoration project mitigating for past impacts to natural resources from the construction of SR 56 and all direct and indirect impacts to CVREP should be strictly avoided. The Los Penasquitos Lagoon supports a number of federally and State listed species and a host of sensitive species. In

TAKE PRIDE IN AMERICA

Figure 5-3 **USFWS Response to NOP and NOI (page 1 of 6)**

Mr. Jason A. Reynolds FWS-SDG-4503.1 2

particular, the area immediately adjacent to the proposed project supports a population of the State and federally endangered light-footed clapper rail (*Rallus longirostris levipes*) and the State listed as endangered Belding's savannah sparrow (*Passerculus sandwichensis beldingi*). In addition to direct impacts, indirect impacts to CVREP and Los Penasquitos Lagoon from noise, fugitive dust, and water pollution should be avoided and minimized by employing best management practices.

Although Caltrans is not participating in the Multiple Species Conservation Program (MSCP), the DEIS should address the project's consistency with these habitat conservation plans, including the plans' agency guidelines. All impacts the MSCP's Multiple Habitat Planning Area (MHPA) should be strictly avoided. In addition, the proposed project should avoid and/or minimize impacts to native habitats, particularly the rare southern maritime chaparral and south coastal salt marsh.

Among the wildlife species that the proposed project may affect are the State endangered Belding's savannah sparrow; the State and federally endangered least Bell's vireo (*Vireo bellii pusillus*), brown pelican (*Pelicanus occidentalis*), California least tern (*Sterna antillarum browni*), and light-footed clapper rail; the federally threatened and State Species of Concern coastal California gnatcatcher (*Polioptila californica californica*); and the MSCP covered California rufous-crowned sparrow (*Aimophila ruficeps canescens*) and orange-throated whiptail (*Cnemidorphorus hyperythrus beldingi*). Among the sensitive plant species that the project might impacts are the federally endangered Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*); the federally threatened Encinitas Baccharis (*Baccharis vanessae*); and the MSCP covered Del Mar sand aster (*Corethrobyne filagnifolia* var. *linifolia*), San Diego barrel cactus (*Ferocactus viridescens*), torrey pine (*Pinus torreyana*), and wart-stemmed ceanothus (*Ceanothus verrucosus*).

The DEIS should identify and thoroughly discuss all project-related potential edge effects and propose measures to avoid or minimize them. Edge effects are defined as undesirable anthropogenic disturbances beyond urban boundaries into potential reserve habitat (Kelly and Rotenberry 1993). Edge effects, such as disturbance by humans and non-native predators (pets), exotic ants, trampling, noise, and lighting, and decreases in avian productivity (Andren and Angelstam 1988), are all documented effects that have negative impacts on sensitive biological resources in southern California. These edge effects can penetrate up to 200 meters from the actual reserve boundary. Surrounding natural habitat could be permanently destroyed by human or domestic animal encroachment, trampling, bushwhacking, and frequent fires; therefore, development and open space configurations should minimize adverse edge effects (Soulé 1991). We are particularly concerned about biological effects from construction noise, and construction and operational light, glare, and hydrological changes.

Regarding artificial night lighting, illumination of riparian corridors by night lighting has the potential to adversely affect birds. Physiological, developmental, and behavioral effects of light intensity, wavelength, and photoperiod on bird species are well-documented. In the wild, urban

Figure 5-3 **USFWS Response to NOP and NOI (page 2 of 6)**

Mr. Jason A. Reynolds FWS-SDG-4503.1 3

lighting is associated with early daily initiation of avian song activity (Bergen and Abs 1997). Avian species are known to place their nests significantly farther from motorway lights than from unlighted controls (de Molenar et al, 2000). Placement of nests away from lighted areas implies that part of the home range is rendered less suitable for nesting by artificial light. If potential nest sites are limited within the bird's home range, reduction in available sites associated with artificial night lighting may cause the bird to use a suboptimal nest site that is more vulnerable to predation, cowbird parasitism, or extremes of weather. We recommend that no additional lighting be added to the I-5 and associated infrastructure within the vicinity of both upland and wetland sensitive habitats, and if possible that existing lighting within such areas be removed. As to noise, the DEIS should propose and fully describe methods to attenuate project-related construction and operational noise levels in excess of ambient levels at the edge of sensitive habitats to avoid or minimize further degradation by noise of conditions for wildlife, particularly avian species.

The DEIS should provide a detailed discussion of construction and post-construction structural best management practices (BMPs). The discussion should identify the specific BMPs and their locations, include figures of the project area with an overlay of the development footprint and the locations of the BMPs (e.g., attenuation, and filtration), describe the maintenance (e.g., frequency, season, activities) that Caltrans would conduct on the BMPs to ensure that they function as intended. The quantification of habitat loss, if any, should include the loss resulting from the BMPs. The BMPs should be designed to obviate the need for riprap or other attenuation measures within sensitive habitat.

In addition, the Service recommends the DEIS also include the following information and/or address the following issues.

1. A complete discussion of the purpose and need for, and description of, the proposed project, including all staging areas and access routes to the construction and staging areas.

2. A complete list and assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying State or federally listed rare, threatened, endangered, or proposed candidate species, California Species of Special Concern and/or State Protected or Fully Protected species, and any locally unique species and sensitive habitats. Specifically, the DEIS should include:

   a. A thorough assessment of Rare Natural Communities on site and within the area of impact.

   b. A current inventory of the biological resources associated with each habitat type on site and within the area of impact.

   c. Detailed discussions, including both qualitative and quantitative analyses, of the potentially affected listed and sensitive species (fish, wildlife, plants), and their habitats

Figure 5-3 **USFWS Response to NOP and NOI (page 3 of 6)**

Mr. Jason A. Reynolds FWS-SDG-4503.1 4

on the proposed project site, area of impact, and alternative sites, including information pertaining to their local status and distribution.

d. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required.

e. An inventory of rare, threatened, and endangered species on site and within the area of impact.

f. Discussions regarding seasonal variations in use by sensitive species of the project site as well as the area of impact on those species.

3. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources. All facets of the project should be included in this assessment. Specifically, the DEIS should provide:

a. Specific acreage and descriptions of the types of wetlands, coastal sage scrub, and other sensitive habitats that will or may be affected by the proposed project or project alternatives. Maps and tables should be used to summarize such information.

b. The anticipated or real impacts of the project on the listed and sensitive species and habitats. As to plants species, all plants included on CNPS' List 1B and List 2 meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department Fish and Game Code and are eligible for listing.

c. Project impacts should be analyzed relative to their effects on off-site habitats. Specifically, this should include nearby public lands, open space, adjacent natural habitats, and riparian ecosystems. Impacts to, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitat in adjacent areas should be fully evaluated and provided.

d. A discussion of potential conflicts resulting from wildlife-human interactions, potential adverse impacts from lighting, noise, vibration, human activity, changes in drainage patterns, polluted runoff, hazardous materials spills, soil erosion and/or sedimentation, with mitigation measures proposed to alleviate such impacts, must be included.

e. If applicable, the document should include an analysis of the effect that the project may have on completion and implementation of regional and/or subregional conservation programs.

Figure 5-3 **USFWS Response to NOP and NOI (page 4 of 6)**

Mr. Jason A. Reynolds FWS-SDG-4503.1 5

g. An analysis of cumulative effects. General and specific plans, and past, present, and anticipated future projects, should be analyzed concerning their impacts on similar plant communities and wildlife habitats.

4. Mitigation measures for adverse project-related impacts on sensitive plants, animals, and habitats. Measures to fully avoid and otherwise protect Rare Natural Communities from project-related impacts should be included in the DEIS.

Mitigation measures should emphasize avoidance, and where avoidance is infeasible, reduction of project impacts. For unavoidable impacts, off-site mitigation through acquisition and preservation of the affected habitats in perpetuity should be addressed. The Service generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts on rare, threatened, or endangered species. Studies have shown that these efforts are experimental in nature and largely unsuccessful.

Include measures to perpetually protect the targeted habitat values where preservation and/or restoration is proposed. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc. Plans for restoration and revegetation should be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan should include, at a minimum: (a) the location of the mitigation site; (b) the plant species to be used; (c) a schematic depicting the mitigation area; (d) time of year that planting will occur; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the entity(ies) that will guarantee achieving the success criteria and provide for conservation of the mitigation site in perpetuity.

5. Descriptions and analyses of a range of alternatives to ensure that alternatives to the proposed project are fully considered and evaluated. The analyses must include alternatives that avoid or otherwise reduce impacts to sensitive biological resources. Specific alternative locations should be evaluated in areas of lower resource sensitivity where appropriate.

6. If the proposed project has the potential to "take" any federally listed species, either directly or indirectly (i.e., foraging, reduction in habitat) over the life of the project, "take" authorization will need to be obtained from the Service through section 7 of the ESA ~~Act.~~

a. An analysis and discussion demonstrating that: 1) each impact has been minimized and fully mitigated, 2) all mitigation measures are capable of successful

Figure 5-3 **USFWS Response to NOP and NOI (page 5 of 6)**

implementation, and 3) adequate funding is ensured for implementation, and for monitoring compliance with, and effectiveness of, the mitigation measures.

b. The analysis of the impacts of the taking must include all impacts on the species.

c. An evaluation of the impacts that includes a discussion of the potential to jeopardize the continued existence of the species. This shall include consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of: 1) known population trends, 2) known threats to the species, and 3) reasonably foreseeable impacts on the species from other related projects and activities.

If you have any questions or concerns about this comment letter, please contact John DiGregoria of my staff at (760) 431-9440 extension 208.

Sincerely,

Therese O'Rourke
Assistant Field Supervisor

Literature Cited

Andren, H. and P. Angelstam. 1988. Elevated predation rates as an edge effect in habitat islands: experimental evidence. Ecology 64: 1057-1068.

Bergen, F. and M. Abs. 1997. Etho-ecological study of the singing activity of the blue tit (Parus caeruleus), great tit (Parus major) and chaffinch (Fringilla coelebs). Journal fur Ornithologie 138(4):451-467

de Molenar, J. G., D. A. Jonkers, and M. E. Sanders. 2000. Road illumination and nature. III. Local influence of road lights on a black-tailed godwit (Limosa l. limosa) population. Report prepared for Directorate-General of Public Works and Water Management, by Alterra, Green World Research. Wageningen, Netherlands

Kelly, P. A. and J. T. Rotenberry. 1993. Buffer zones for ecological reserves in California. In J. E. Keeley, ed. Interface Between Ecology and Land Development in California. Southern California Academy of Sciences, Los Angeles.

Soulé, Michael E. 1991. Land use planning and wildlife maintenance. *Journal of the American Planning Association*, Vol. 57, No. 3, Summer 1991. American Planning Association, Chicago, Illinois.

Figure 5-3 **USFWS Response to NOP and NOI (page 6 of 6)**

State of California - The Resources Agency ARNOLD SCHWARZENEGGER, Governor
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
4949 Viewridge Avenue
San Diego, CA 92123
(858) 467-4201

June 7, 2005

Jason A. Reynolds
Department of Transportation, District 11
P.O. Box 85406, MS 46
San Diego, CA 92110

Notice of Preparation of a Draft Environmental Impact Report for
The Interstate 5 / State Route 56 Freeway Connectors Project
San Diego County
(SCH# 2005051061)

Dear Mr. Reynolds:

The Department of Fish and Game (Department) appreciates this opportunity to comment on the above-referenced project relative to impacts to biological resources. The following statements and comments have been prepared pursuant to the Department's authority as a Trustee Agency with jurisdiction over natural resources affected by the project (CEQA Section 15386), and pursuant to our authority as a Responsible Agency (CEQA Section 15381) over those aspects of the proposed project that come under the purview of either the California Endangered Species Act (Fish and Game Code Section 2050 *et seq.*) or the Streambed Alteration Program (Fish and Game Code Section 1600 *et seq.*).

The proposed project will provide connection from southbound I-5 to eastbound SR-56, and from westbound SR-56 to northbound I-5. The project may include new connector ramps, interchange improvements, surface street improvements, and/or auxiliary lanes on SR-56 between I-5 and Carmel Country Road. One auxiliary lane in each direction on I-5 may also be added from SR-56 to Del Mar Heights Road. Truck bypass lanes may be extended to Del Mar Heights Road on each side of I-5. This project is adjacent to both Carmel Valley Creek and Los Penasquitos Lagoon which provide, or could provide, habitat for endangered, threatened, and sensitive species. Potential impacts to these species should be avoided.

To enable Department staff to adequately review and comment on the proposed project, we recommend the following information be included in the Draft Environmental Impact Report (DEIR), as applicable:

1. A complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive habitats.

Conserving California's Wildlife Since 1870

Figure 5-4 **CDFG Response to NOP and NOI (page 1 of 5)**

Mr. Jason Reynolds
June 7, 2005
Page 2 of 5

a. A thorough assessment of rare plants and rare natural communities, following the Department's May 1984 Guidelines (revised May 2000) for Assessing Impacts to Rare Plants and Rare Natural Communities (Attachment 1).

b. A complete assessment of sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service.

c. Rare, threatened, and endangered species to be addressed should include all those which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, § 15380).

d. The Department's California Natural Diversity Data Base in Sacramento should be contacted at (916) 324-3812 to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

2. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts, should be included.

a. CEQA Guidelines, § 15125(a), direct that knowledge of the regional setting is critical to an assessment of environmental impacts and that special emphasis should be placed on resources that are rare or unique to the region.

b. Project impacts should be analyzed relative to their effects on off-site habitats. Specifically, this should include nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any designated and/or proposed Natural Communities Conservation Planning (NCCP) reserve lands. Impacts to and maintenance of wildlife corridor/movement areas, including access to undisturbed habitat in adjacent areas, should be fully evaluated and provided.

c. A discussion of impacts associated with increased lighting, noise, human activity, changes in drainage patterns, changes in water volume, velocity, and quality, soil erosion, and /or sedimentation in streams and water courses on or near the project site, with mitigation measures proposed to alleviate such impacts should be included.

d. The zoning of areas for development projects or other uses that are nearby or adjacent to natural areas may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the environmental document.

Figure 5-4 **CDFG Response to NOP and NOI (page 2 of 5)**

Mr. Jason Reynolds
June 7, 2005
Page 3 of 5

e. A cumulative effects analysis should be developed as described under CEQA Guidelines, § 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

3. A range of alternatives should be analyzed to ensure that alternatives to the proposed project are fully considered and evaluated. A range of alternatives which avoid or otherwise minimize impacts to sensitive biological resources should be included. Specific alternative locations should also be evaluated in areas with lower resource sensitivity where appropriate. The Department considers Rare Natural Communities as threatened habitats having both regional and local significance. Thus, these communities should be fully avoided and otherwise protected from project-related impacts (Attachment 2).

4. Mitigation measures for adverse project-related impacts to sensitive plants, animals, and habitats should be discussed. Mitigation measures should emphasize avoidance and reduction of project impacts. For unavoidable impacts, on-site habitat restoration or enhancement should be discussed in detail. If on-site mitigation is not feasible, off-site mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

   a. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Studies have shown that these efforts are experimental in nature and largely unsuccessful.

   b. Areas reserved as mitigation for project impacts should be protected from future direct and indirect impacts. Potential issues to be considered include limitation of access, conservation easements, monitoring and management programs, control of illegal dumping, water pollution, and fire.

   c. Plans for restoration and revegetation should be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan should include, at a minimum: (a) the location of the mitigation site; (b) the plant species to be used, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity.

5. A California Endangered Species Act (CESA) Permit must be obtained, if the project has the potential to result in "take" of species of plants or animals listed under CESA, either during construction or over the life of the project. CESA Permits are issued to conserve, protect, enhance, and restore State-listed threatened or endangered species and their habitats. Early consultation is encouraged, as significant modification to a project and mitigation measures may be required in order

Figure 5-4 **CDFG Response to NOP and NOI (page 3 of 5)**

Mr. Jason Reynolds
June 7, 2005
Page 4 of 5

to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that the Department issue a separate CEQA document for the issuance of a 2081 permit unless the project CEQA document addresses all project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of a 2081 permit. For these reasons, the following information is requested:

a. Biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA Permit.

b. A Department-approved Mitigation Agreement and Mitigation Plan are required for plants listed as rare under the Native Plant Protection Act.

6. The Department has responsibility for wetland and riparian habitats. It is the policy of the Department to strongly discourage development in wetlands or conversion of wetlands to uplands. We oppose any development or conversion which would result in a reduction of wetland acreage or wetland habitat values, unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. Development and conversion include but are not limited to conversion to subsurface drains, placement of fill or building of structures within the wetland, and channelization or removal of materials from the streambed. All wetlands and watercourses, whether intermittent or perennial, should be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations.

a. If the site has the potential to support aquatic, riparian, or wetland habitat, a jurisdictional delineation of lakes, streams, and associated riparian habitats should be included in the DEIR, including a delineation of wetlands pursuant to the U. S. Fish and Wildlife Service wetland definition adopted by the Department[1]. Please note that some wetland and riparian habitats subject to the Department's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers.

b. The project may require a Lake or Streambed Alteration Agreement, pursuant to Section 1600 *et seq*. of the Fish and Game Code, with the applicant prior to the applicant's commencement of any activity that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake, or use material from a streambed. The Department's issuance of a Lake or Streambed Alteration Agreement for a project that is subject to CEQA will require CEQA compliance actions by the Department as a responsible agency. The Department as a responsible agency under CEQA may consider the local jurisdiction's (lead agency) Negative Declaration or Environmental Impact Report for the project. To minimize additional requirements by the

[1] Cowardin, Lewis M., et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service.

Figure 5-4 **CDFG Response to NOP and NOI (page 4 of 5)**

Mr. Jason Reynolds
June 7, 2005
Page 5 of 5

Department pursuant to Section 1600 *et seq*. and/or under CEQA, the document should fully identify the potential impacts to the lake, stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the agreement[2].

Questions regarding this letter and further coordination on these issues should be directed to Pam Beare at (858) 467-4229.

Sincerely,

Donald R. Chadwick
Habitat Conservation Supervisor

Enclosures
cc: State Clearinghouse

PB:pb
I5 SR56 ConnectorsNOP.doc

[2] A Streambed Alteration Agreement form may be obtained by writing to: Department of Fish and Game, 4949 Viewridge Avenue, San Diego, CA 92123, by calling (858) 636-3160, or by accessing the Department's web site at www.dfg.ca.gov/1600 .

Figure 5-4 **CDFG Response to NOP and NOI (page 5 of 5)**

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

In Reply Refer To:
FWS-SDG-09B0099-09SL0144

FEB 04 2009

Mr. Lyndon Quon
EDAW Inc.
1420 Kettner Boulevard, Suite 500
San Diego, California 92101

Subject: Request for Candidate, Proposed, Threatened, or Endangered Species for the Proposed Interstate 5/State Route 56 Interchange Project, San Diego County, California

Dear Mr. Quon:

The U.S. Fish and Wildlife Service (Service) has reviewed the information provided in your October 30, 2008, letter to assess the potential presence of federally listed species at the proposed project site. We do not have site specific information for your project area. However, to assist you in evaluating whether or not the proposed project may affect listed species, we are providing the enclosed list of federally listed species that may occur in the general project area. Please note that this is not a comprehensive list. You should also contact the California Department of Fish and Game for State-listed and sensitive species that may occur in the area of the proposed project. Please note that State-listed species are protected under the provisions of the California Endangered Species Act. We recommend that you seek assistance from a biologist familiar with your project site, and experienced in assessing the potential for direct, indirect, and cumulative effects to species and their habitats likely to result from the proposed activity.

If it is determined that the proposed project may affect a listed or proposed species, or the designation of any critical habitat, you should initiate consultation (or conference for proposed species) with the Service pursuant to section 7 of the Endangered Species Act (Act) of 1973, as amended. Informal consultation may be used to exchange information and resolve conflicts with respect to listed species prior to a written request for formal consultation.

If you have any questions regarding the species on the enclosed list or your responsibilities under the Act, please call Janet Stuckrath of my staff at (760) 431-9440.

Sincerely,

for

Karen A. Goebel
Assistant Field Supervisor

TAKE PRIDE IN AMERICA

Figure 5-5 **February 4, 2009 Section 7 Species List from USFWS (page 1 of 2)**

Mr. Lyndon Quon (FWS-SDG-09B0099-09SL0144) 2

Listed Endangered, Threatened and Proposed Species that may
Occur within or near the proposed
Interstate 5/State Route 56 Interchange Project
San Diego County, California

Common Name	Scientific Name	Status
MAMMALS		
Pacific pocket mouse	*Perognathus longimembris pacificus*	E
BIRDS		
western snowy plover	*Charadrius alexandrinus nivosus*	T, CH
southwestern willow flycatcher	*Empidonax traillii extimus*	E, CH
coastal California gnatcatcher	*Polioptila californica californica*	T*, CH
light-footed clapper rail	*Rallus longirostris levipes*	E
California least tern	*Sternula (Sterna) antillarum browni*	E
least Bell's vireo	*Vireo bellii pusillus*	E, CH
PLANTS		
Del Mar manzanita	*Arctostaphylos glandulosa* ssp. *crassifolia*	E
Encinitas baccharis	*Baccharis vanessae*	T

T=Threatened E=Endangered CH=Critical Habitat
T*=Threatened - Proposed Distinct Population Segment

Figure 5-5 February 4, 2009 Section 7 Species List from USFWS (page 2 of 2)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

In Reply Refer To:
FWS-SDG-09B0099-12SL0002

OCT 05 2011

Ms. Susan Scatolini
Ecological Studies
California Department of Transportation - District 11
4050 Taylor Street
San Diego, California 92110

Subject: Request for a List of Proposed, Threatened, or Endangered Species Potentially Occurring in the Vicinity of the Interstate 5 / State Route 56 Interchange Project, San Diego County, California

Dear Ms. Scatolini:

This letter is in response to your request, received by our office on September 28, 2011, for information on federally endangered, threatened, proposed, and candidate species that may occur in the vicinity of the Interstate 5 / State Route 56 Interchange Project, in San Diego County, California. To assist you in evaluating the potential occurrence of federally listed endangered, threatened, proposed, and candidate species that may occur in the vicinity of the proposed action, we are providing the enclosed list.

Because we do not have site-specific information for the proposed project, we recommend that you seek assistance from a biologist familiar with the habitat conditions and associated species in and around the project site to assess the actual potential for direct, indirect, and cumulative impacts likely to result from the proposed activity. We also suggest that you contact the California Department of Fish and Game regarding State-listed and sensitive species that may occur within the project area. Please note that State-listed species are protected under the provisions of the California Endangered Species Act.

As a reminder, if a proposed project is authorized, funded, or carried out by a Federal agency and may affect a federally listed species, then section 7 consultation pursuant to the Endangered Species Act of 1973 (Act), as amended, is required. If a proposed project does not involve a Federal agency, but is likely to result in the take of a listed animal species, then the project proponent should apply for an incidental take permit, pursuant to section 10 of the Act.

Please note that the Carlsbad Fish and Wildlife Office is hosting all critical habitat GIS data within our jurisdictional area on our website at http://www.fws.gov/carlsbad. Select the GIS DATA link to access current critical habitat layers.

Figure 5-6 October 5, 2011 Section 7 Species List from USFWS (page 1 of 3)

Ms. Susan Scatolini (FWS-SDG-09B0099-12SL0002) 2

Should you have any questions regarding the species listed or your responsibilities under the Act, please contact Sally Brown of this office at 760-431-9440, extension 278.

Sincerely,

for Karen A. Goebel
Assistant Field Supervisor

Enclosure

Figure 5-6 October 5, 2011 Section 7 Species List from USFWS (page 2 of 3)

Federally Endangered, Threatened, Proposed, and Candidate Species and Critical Habitat that May Occur in the Vicinity of the Interstate 5 / State Route 56 Interchange Project, San Diego County, California

October 4, 2011

Common Name	Scientific Name	Federal Status	Critical Habitat in Vicinity
Plants			
Encinitas baccharis	*Baccharis vanessae*	threatened	N/A*
Del Mar Manzanita	*Arctostaphylos glandulosa subsp. crassifolia*	endangered	N/A
Birds			
Least Bell's vireo	*Vireo bellii pusillus*	endangered	absent
southwestern willow flycatcher	*Empidonax traillii extimus*	endangered	absent
coastal California gnatcatcher	*Polioptila californica californica*	threatened	absent
light-footed clapper rail	*Rallus longirostris levipes*	endangered	N/A
western snowy plover	*Charadrius alexandrinus nivosus*	threatened	present
California least tern	*Sternula antillarum browni*	endangered	N/A
Mammals			
Pacific pocket mouse	*Perognathus longimembris pacificus*	endangered	N/A

* N/A = not applicable

Figure 5-6 October 5, 2011 Section 7 Species List from USFWS (page 3 of 3)

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY Edmund G. Brown, Jr., Governor

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Be energy efficient!

October 25, 2011

Mr. Milford Wayne Donaldson, FAIA
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks & Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

Attention: Susan Stratton

Subject: **First Supplemental Historic Property Survey Report (HPSR) for the Interstate 5 and State Route 56 Interchange Project; Submitted Pursuant to the Section 106 Programmatic Agreement; Notification of Finding of No Adverse Effect with Standard Conditions - ESAs.**

The California Department of Transportation (Caltrans), as delegated by the Federal Highway Administration (FHWA), is filing a notification with the State Historic Preservation Officer (SHPO) regarding the proposed First Supplemental HPSR for the Interstate 5 and State Route 56 Interchange Project in San Diego County, California. This notification is being filed in accordance with the Section 106 Programmatic Agreement (PA) among FHWA, the Advisory Council on Historic Preservation, the California SHPO, and Caltrans, which was executed on January 1, 2004

Caltrans is transmitting this First Supplemental HPSR for the Project as the National Environmental Policy Act (NEPA) lead agency under the provisions of the *Memorandum of Understanding (MOU) between the Federal Highway Administration and the California Department of Transportation Concerning the State of California's Participation in the Surface Transportation Project Delivery Pilot Program* that became effective on July 1, 2007.

The MOU was signed pursuant to Section 6005 of the 2005 *Safe, Accountable, Flexible, Efficient Transportation Equity Act : A Legacy for Users* (SAFETEA-LU), allowing the Secretary of Transportation to assign, and the State of California to assume FHWA's responsibilities under NEPA, as well as consultation and coordination responsibilities under other Federal Environmental laws.

Therefore, as a project covered under the Pilot Program MOU, FHWA has assigned, and Caltrans has assumed FHWA's responsibility for environmental review, consultation, and coordination on the Project. Please direct all future correspondence on the Project to Caltrans.

The current HPSR documents the Area of Potential Effects (APE) and Caltrans' historic property identification and evaluation efforts for the Project, which proposes the construction of a sound wall on private property to mitigate noise impacts anticipated from the proposed Interstate 5 and

"Caltrans improves mobility across California"

Figure 5-7 **Caltrans Section 106 Notification of a Finding of No Adverse Effect with Standard Conditions (page 1 of 2)**

Milford Wayne Donaldson, FAIA
April 14, 2011
Page 2

State Route 56 Interchange project. The enclosed First Supplemental HPSR, was prepared, reviewed, and approved by Caltrans District 11 (Kevin Hovey: Environmental Branch Chief, PQS-PI in Prehistoric Archaeology, Koji Tsunoda: PQS-PI in Prehistoric Archaeology, and Karen Crafts: PQS-Co-PI in Prehistoric Archaeology) in 2011. A portion of prehistoric archaeological site, CA-SDI-16,653, has been identified within the APE as a result of this HPSR. Caltrans, as delegated by FHWA, has determined a Finding of No Adverse Effect with Standard Conditions – ESAs, pursuant to Stipulation X.B(2) of the PA and 36 CFR 800.5(b), is appropriate for this undertaking, and is herby notifying SHPO of this finding.

Should you have any questions regarding this undertaking, please contact me at 619-688-0240 or [kevin_hovey@dot.ca.gov].

Sincerely,

KEVIN HOVEY
Chief
Cultural Resource Studies

Enclosure

c: JSlatton – D11
AMedin – HQ Section 106 Coordinator
KTsunoda - HRC
SCIC - SDSU

"Caltrans improves mobility across California"

Figure 5-7 **Caltrans Section 106 Notification of a Finding of No Adverse Effect with Standard Conditions (page 2 of 2)**

CHAPTER 6
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CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 11

Alsheikh, May – Registered Transportation Engineer, NPDES/Storm Water Compliance Branch; Bachelor of Science Civil & Environmental Engineering, San Diego State University; 12 years Caltrans experience

Alvi, Shahbaz – Project Engineer, Registered Civil Engineer (P.E.); Master of Science Transport Planning and Engineering, Leeds University, UK); 11 years Caltrans experience

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Crafts, Karen – Archaeologist, Associate Environmental Planner; Bachelor of Arts Anthropology, San Diego State University; 30 years Caltrans experience

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Scatolini, Susan – Biologist, Associate Environmental Planner - Natural Sciences; Master of Science Ecology, San Diego State University, Bachelor of Science Aquatic Biology, University of California at Santa Barbara; 10 years Caltrans experience

Slatton, John S. – Environmental Planner, Bachelor of Arts Business Administration, University of California, Los Angeles, Master of Business Administration, Pepperdine University; 35 years experience forward/environmental planning, 3 years Caltrans experience

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Vermeulen, Diane – Hazardous Waste Specialist; Bachelor of Science Civil Engineering; 16 years experience state environmental engineering, 20 years Caltrans experience

Whiteaker, Curt – Hydraulics; 22 years Caltrans experience

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<u>AECOM (formerly EDAW)</u>

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Lee, Jessie - GIS Analyst; Bachelor of Arts Geography, University of Texas at Austin; 8 years of experience, 5 years of experience at AECOM

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HONORABLE DARRELL ISSA
U.S. HOUSE OF REPRESENTATIVES
49TH DISTRICT
1800 THIBODO ROAD, SUITE 310
VISTA, CA 92083

HONORABLE NATHAN FLETCHER
STATE ASSEMBLY
75TH DISTRICT
9909 MIRA MESA BOULEVARD, SUITE 130
SAN DIEGO, CA 92131

HONORABLE DIANE L. HARKEY
STATE ASSEMBLY
73RD DISTRICT
302 N. COAST HIGHWAY
OCEANSIDE, CA 92054

NATIVE AMERICAN ORGANIZATIONS

NATIVE AMERICAN TRIBAL COUNCILS
INTER TRIBAL COUNCIL OF CALIFORNIA
2755 COTTAGE WAY SUITE #14
SACRAMENTO CA 95825

MR LARRY MYERS
NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITAL MALL ROOM 288
SACRAMENTO CA 95814

MR. DAVE SINGLETON, PROGRAM ANALYST
NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL ROOM 364
SACRAMENTO, CA 95814

CHAIRPERSON
BARONA GROUP OF THE CAPITAN GRANDE
1095 BARONA ROAD
LAKESIDE, CA 92040

CHAIRPERSON
EWIIAAPAAYP TRIBAL OFFICE
PO BOX 2250
ALPINE, CA 91903-2250

CHAIRPERSON
INAJA BAND OF MISSION INDIANS
309 SOUTH MAPLE STREET
ESCONDIDO, CA 92025

CHAIRPERSON
JAMUL INDIAN VILLAGE
PO BOX 612
JAMUL, CA 91935

KUMEYAAY CULTURAL HISTORIC COMMITTEE
56 VIEJAS GRADE ROAD
ALPINE, CA 92001

MESA GRANDE BAND OF MISSION INDIANS
PO BOX 270
SANTA YSABEL, CA 92070

CHAIRPERSON
SAN PASQUAL BAND OF MISSION INDIANS
PO BOX 635
VALLEY CENTER, CA 92082

CHAIRPERSON
SANTA YSABEL BAND OF DIEGUENO INDIANS
PO BOX 130
SANTA YSABEL, CA 92070

CHAIRPERSON
SYCUAN BAND OF MISSION INDIANS
5459 DEHESA ROAD
EL CAJON, CA 92021

CHAIRPERSON
VIEJAS BAND OF MISSION INDIANS
PO BOX 908
ALPINE, CA 91903

DAVID BARON
BARONA GROUP OF CAPITAN GRANDE BAND OF MISSION INDIANS
BARONA BAND OF MISSION INDIANS
1095 BARONA ROAD
LAKESIDE, CA 92040

RHONDA WELCH-SCALCO
BARONA GROUP OF CAPITAN GRANDE BAND OF MISSION INDIANS
BARONA BAND OF MISSION INDIANS
1095 BARONA ROAD
LAKESIDE, CA 92040

MICHELLE SALGADO
CAHUILLA BAND OF MISSION INDIANS
P.O. BOX 391670
ANZA, CA 92086

FIDEL HYDE
CAMPO KUMEYAAY NATION
36190 CHURCH ROAD, SUITE 1
CAMPO, CA 91906

EDWIN “THORPE” ROMERO
BARONA GROUP OF CAPITAN GRANDE BAND OF MISSION INDIANS
BARONA BAND OF MISSION INDIANS
1095 BARONA ROAD
LAKESIDE, CA 92040

SYDNEY MORRIS
SYCUAN BAND OF MISSION INDIANS
5459 SYCUAN ROAD
EL CAJON, CA 92021

MARK MOJADO
SAN LUIS REY BAND OF MISSION INDIANS
P.O. BOX 1
PALA, CA 92059

BOBBY L. BARRETT
VIEJAS BAND OF KUMEYAAY INDIANS
P.O. BOX 908
ALPINE, CA 91903

DEAN MIKE
TWENTY-NINE PALMS BAND OF MISSION INDIANS
46-200 HARRISON PLACE
COACHELLA, CA 92236

DANIEL TUCKER
SYCUAN BAND OF MISSION INDIANS
5459 DEHESA ROAD
EL CAJON, CA 92021

ROBERT J. SALGADO, JR.
SOBOBA BAND OF MISSION INDIANS
P.O. BOX 487
SAN JACINTO, CA 92581

CHARLENE RYAN
SOBOBA BAND OF MISSION INDIANS
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SAN JACINTO, CA 92581

RODNEY KEPHART
SANTA YSABEL BAND OF DIEGUEÑO INDIANS
P.O. BOX 130
SANTA YSABEL, CA 92070

JOHNNY HERNANDEZ
SANTA YSABEL BAND OF DIEGUEÑO INDIANS
P.O. BOX 130
SANTA YSABEL, CA 92070

DEVON REED LOMAYESVA
SANTA YSABEL BAND OF DIEGUEÑO INDIANS
P.O. BOX 130
SANTA YSABEL, CA 92070

BEN SCERATO
SANTA YSABEL BAND OF DIEGUEÑO INDIANS
P.O. BOX 130
SANTA YSABEL, CA 92070

ERLINDA JONES
SANTA ROSA BAND OF MISSION INDIANS
325 N. WESTERN AVENUE
HEMET, CA 92343

ALLEN E. LAWSON, JR.
SAN PASQUAL BAND OF MISSION INDIANS
P.O. BOX 365
VALLEY CENTER, CA 92082

RUSSELL ROMO
SAN LUIS REY BAND OF MISSION INDIANS
12064 OLD POMERADO DRIVE
POWAY, CA 92064

MONIQUE LA CHAPPA
CAMPO KUMEYAAY NATION
36190 CHURCH ROAD, SUITE 1
CAMPO, CA 91906

JIM VELASQUES
COASTAL GABRIELINO DIEGUEÑO BAND OF MISSION INDIANS
5776 42ND STREET
RIVERSIDE, CA 92509

SHASTA GAUGHEN
PALA BAND OF MISSION INDIANS
CUPA CULTURAL CENTER
35008 PALA-TEMECULA ROAD, PMB 445
PALA, CA 92059

ROBERT PINTO
EWIIAAPAAYP BAND OF MISSION INDIANS
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ALPINE, CA 91903-2250

MICHAEL GARCIA
EWIIAAPAAYP TRIBAL OFFICE
P.O. BOX 2250
ALPINE, CA 91903-2250

WILL MICKLIN
EWIIAAPAAYP TRIBAL OFFICE
P.O. BOX 2250
ALPINE, CA 91903-2250

REBECCA OSMA
INAJA COSMIT BAND OF MISSION INDIANS
2005 S. ESCONDIDO BOULEVARD
ESCONDIDO, CA 92025-8207

REBECCA M. MAXCY
INAJA COSMIT BAND OF MISSION INDIANS
2005 S. ESCONDIDO BOULEVARD
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CLINT LINTON
JAMUL BAND OF MISSION INDIANS
P.O. BOX 612
14191 HIGHWAY 94
JAMUL, CA 91935

KENNETH MEZA
JAMUL BAND OF MISSION INDIANS
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14191 HIGHWAY 94
JAMUL, CA 91935

ANITA ESPINOZA
JUANEÑO BAND OF MISSION INDIANS
1740 CONCERTO DRIVE
ANAHEIM, CA 92807

ANTHONY RIVERA, JR.
JUANEÑO BAND OF MISSION INDIANS
ACJACHEMEN NATION
31411-A LA MATANZA STREET
SAN JUAN CAPISTRANO, CA 92675-2674

DAVID BELARDES
JUANEÑO BAND OF MISSION INDIANS
P.O. BOX 25628
SANTA ANA, CA 92799

DAVID BELARDES
JUANEÑO BAND OF MISSION INDIANS
32161 AVENIDA LOS AMIGOS
SAN JUAN CAPISTRANO, CA 92675

JOYCE PERRY
JUANEÑO BAND OF MISSION INDIANS
4955 PASEO SEGOVIA
IRVINE, CA 92612

MIKE AGUILAR
JUANEÑO BAND OF MISSION INDIANS
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SANTA ANA, CA 92799

MIKE AGUILAR
JUANEÑO BAND OF MISSION INDIANS
7141 SUNNYBRAE AVENUE
WINNETKA, CA 91306

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SANTA ANA, CA 92799

ALFRED CRUZ
JUANEÑO BAND OF MISSION INDIANS
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SANTA ANA, CA 92799

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36190 CHURCH ROAD, SUITE 5
CAMPO, CA 91906

RON CHRISTMAN
KUMEYAAY CULTURAL HISTORIC COMMITTEE
56 VIEJAS GRADE ROAD
ALPINE, CA 91901

STEVE BANEGAS
KUMEYAAY CULTURAL REPATRIATION COMMITTEE
1095 BARONA ROAD
LAKESIDE, CA 92040

CARMEN LUCAS
KWAAYMIL LAGUNA BEACH BAND OF MISSION INDIANS
P.O. BOX 44
JULIAN, CA 92036

TRACY LEE NELSON
LA JOLLA BAND OF LUISEÑO INDIANS
STAR ROUTE, BOX 158
VALLEY CENTER, CA 92082

JACK MUSICK
LA JOLLA BAND OF MISSION INDIANS
22000 HIGHWAY 76
PAUMA VALLEY, CA 92061

ROB ROY
LA JOLLA BAND OF MISSION INDIANS
22000 HIGHWAY 76
PAUMA VALLEY, CA 92061

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BOULEVARD, CA 91905

GWENDOLYN PARADA
LA POSTA BAND OF MISSION INDIANS
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BOULEVARD, CA 91905

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LOS COYOTES BAND OF MISSION INDIANS
P.O. BOX 189
WARNER SPRINGS, CA 92086-0189

EVELYN DURO
LOS COYOTES BAND OF MISSION INDIANS
P.O. BOX 189
WARNER SPRINGS, CA 92086-0189

MELODY SEES
LOS COYOTES BAND OF MISSION INDIANS
P.O. BOX 189
WARNER SPRINGS, CA 92086-0189

MANZANITA BAND OF MISSION INDIANS
P.O. BOX 1302
BOULEVARD, CA 91905

LEROY ELLIOT
MANZANITA BAND OF MISSION INDIANS
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BOULEVARD, CA 91905

MIKE LINTO
MESA GRANDE BAND OF MISSION INDIANS
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SANTA YSABEL, CA 92070

HOWARD MAXCY
MESA GRANDE BAND OF MISSION INDIANS
P.O. BOX 270
SANTA YSABEL, CA 92070

ROBERT SMITH
PALA BAND OF MISSION INDIANS
P.O. BOX 50
12 PALA- TEMECULA ROAD
PALA, CA 92059

BENNAE CALAC
PAUMA & YUIMA BAND OF MISSION INDIANS
P.O. BOX 369
PAUMA VALLEY, CA 92061

PAUMA & YUIMA BAND OF MISSION INDIANS
P.O. BOX 369
PAUMA VALLEY, CA 92061

CRISTOBAL C. DEVERS
PAUMA & YUIMA BAND OF MISSION INDIANS
P.O. BOX 369
PAUMA VALLEY, CA 92061

BENJAMIN MAGANTE, SR.
PAUMA BAND OF MISSION INDIANS
P.O. BOX 369
PAUMA VALLEY, CA 92061

PAUL MACARRO
PECHANGA BAND OF MISSION INDIANS
CULTURAL RESOURCE CENTER
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TEMECULA, CA 92593

MARK MACARRO
PECHANGA BAND OF MISSION INDIANS
P.O. BOX 1477
TEMECULA, CA 92593

RAYMOND BASQUEZ
PECHANGA BAND OF MISSION INDIANS
P.O. BOX 1477
TEMECULA, CA 92593

JOHN CURRIER
RINCON BAND OF LUISEÑO MISSION INDIANS
P.O. BOX 68
ONE WEST TRIBAL ROAD
VALLEY CENTER, CA 92082

KRISTIE OROSCO
RINCON BAND OF LUISEÑO MISSION INDIANS
P.O. BOX 68
ONE WEST TRIBAL ROAD
VALLEY CENTER, CA 92082

ROB SHAFFER
RINCON BAND OF LUISEÑO MISSION INDIANS
P.O. BOX 68
ONE WEST TRIBAL ROAD
VALLEY CENTER, CA 92082

RUTH CALAC
RINCON BAND OF LUISEÑO MISSION INDIANS
RINCON HERITAGE COMMISSION
P.O. BOX 68
VALLEY CENTER, CA 92082

RINCON BAND OF LUISEÑO MISSION INDIANS
CULTURAL COMMITTEE
P.O. BOX 68
VALLEY CENTER, CA 92082

CARMEN MOJADO
SAN LUIS REY BAND OF MISSION INDIANS
1889 SUNSET DRIVE
VISTA, CA 92081

HENRY CONTRERAS
SAN LUIS REY BAND OF MISSION INDIANS
1763 CHAPULIN LANE
FALLBROOK, CA 92028

LOCAL GOVERNMENT – CITY/COUNTY

MERCEDES MARTIN, CITY CLERK
CITY OF DEL MAR
1050 CAMINO DEL MAR
DEL MAR, CA 92014-2604

DEL MAR PUBLIC LIBRARY
1309 CAMINO DEL MAR
DEL MAR, CA 92014-2507

SUPERINTENDENT
DEL MAR UNION SCHOOL DISTRICT
225 NINTH STREET
DEL MAR, CA 92014-2716

MR CHARLES MARCHESNO
COUNTY OF SAN DIEGO DEPT OF PARKS & RECREATION
9150 CHESAPEAKE DRIVE SUITE 200
SAN DIEGO CA 92123

JIM BARRETT
CITY OF SAN DIEGO WATER DEPARTMENT
600 B STREET, SUITE 400, MS 904A
SAN DIEGO, CA 92101

CITY OF DEL MAR
FIRE DEPARTMENT
1050 CAMINO DEL MAR
DEL MAR, CA 92014

KAREN P. BRUST
CITY OF DEL MAR
1050 CAMINO DEL MAR
DEL MAR, CA 92014

BRIAN MOONEY
CITY OF DEL MAR
1050 CAMINO DEL MAR
DEL MAR, CA 92014

COUNTY ADMINISTRATION CENTER
1600 PACIFIC HIGHWAY, SUITE 310
SAN DIEGO, CA 92101

PAUL LANSPERY
SAN DIEGO COUNTY WATER AUTHORITY
4677 OVERLAND AVENUE
SAN DIEGO, CA 92123

LINDA NILES
CITY OF DEL MAR
DEPARTMENT OF PLANNING/COMMUNITY DEVELOPMENT
1050 CAMINO DEL MAR
DEL MAR, CA 92014

ROBERT REIDER
AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD
SAN DIEGO, CA 92131

LINDA PARDY
REGIONAL WATER QUALITY CONTROL BOARD
9174 SKY PARK CT., SUITE 100
SAN DIEGO, CA 92123

SHARON COONEY
SAN DIEGO METROPOLITAN TRANSIT SYSTEMS
1255 IMPERIAL AVENUE
SAN DIEGO, CA 92101

RICHARD DENNISON
TORREY PINES STATE RESERVE
12600 N. TORREY PINES ROAD
SAN DIEGO, CA 92037

WILLIAM D. GORE
SAN DIEGO COUNTY SHERIFF'S DEPARTMENT
JOHN F. DUFFY ADMINISTRATIVE CENTER
P.O. BOX 939062
SAN DIEGO, CA 92193-9062

STACEY LOMEDICO
CITY OF SAN DIEGO PARKS & RECREATION
202 C STREET, MS 37C
SAN DIEGO, CA 92101

DAVID SCHERER
CITY OF DEL MAR
PUBLIC WORKS DEPARTMENT
1050 CAMINO DEL MAR
DEL MAR, CA 92014

WILLIAM METCALF
NORTH COUNTY FIRE PROTECTION DISTRICT
315 EAST IVY STREET
FALLBROOK, CA 92028

DEBRA L REED
SAN DIEGO GAS & ELECTRIC CO.
8330 CENTURY PARK COURT
SAN DIEGO, CA 92123

KURT LUHRSEN
NORTH COUNTY TRANSIT DISTRICT
810 MISSION AVENUE
OCEANSIDE, CA 92054

WILLIAM LANSDOWNE
SAN DIEGO POLICE DEPARTMENT
1401 BROADWAY
SAN DIEGO, CA 92101

SAN DIEGO REGIONAL CHAMBER OF COMMERCE
402 WEST BROADWAY, SUITE 1000
SAN DIEGO, CA 92101

MR THOMAS OBERBAUER, CHIEF, LAND USE
SAN DIEGO COUNTY DPLU
5201 RUFFIN RD STE B
SAN DIEGO CA 92123

MR NICK ORTIZ
SAN DIEGO COUNTY DPW
5555 OVERLAND AVE
SAN DIEGO CA 92123

MR GARY PRYOR
SAN DIEGO COUNTY DPLU
5201 RUFFIN RD STE B
SAN DIEGO CA 92123

MR JOHN ROBERTUS EXECUTIVE OFFICER
SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD
9174 SKY PARK COURT STE 100
SAN DIEGO CA 92123

MR. CHRISTOPHER MEANS
REGIONAL WATER QUALITY CONTROL BOARD
9174 SKY PARK CT STE 100
SAN DIEGO CA 92123

MS SHELBY TUCKER
SANDAG AREAWIDE CLEARINGHOUSE
401 B ST SUITE 800
SAN DIEGO CA 92101

MR ROB RUNDLE
SANDAG
401 B ST SUITE 800
SAN DIEGO CA 92101

THE DIRECTOR
AIR POLLUTION CONTROL DISTRICT
9150 CHESAPEAKE DR MS 0-176
SAN DIEGO CA 92123

REGIONAL AIR POLLUTION CONTROL DISTRICT
SANTA BARBARA COUNTY APCD
260 N. SAN ANTONIO ROAD SUITE A
SANTA BARBARA, CA 93110-1315

SHERIFF WILLIAM B KOLENDER
SAN DIEGO COUNTY SHERIFF'S DEPT
JOHN DUFFY ADMINISTRATION CENTER
9621 RIDGEHAVEN CT MS-041
SAN DIEGO CA 92142

THE DIRECTOR
SAN DIEGO COUNTY WATER AUTHORITY
4677 OVERLAND AVE
SAN DIEGO CA 92123

COUNTY CLERK'S OFFICE
COUNTY OF SAN DIEGO
1600 PACIFIC HIGHWAY
SAN DIEGO CA 92101

MR. ERIC GIBSON, DIRECTOR, DPLU
COUNTY OF SAN DIEGO
5201 RUFFIN ROAD, SUITE B
SAN DIEGO, CA 92123

SAN DIEGO TRANSIT CORP
100 16TH ST
SAN DIEGO CA 92101

METROPOLITAN TRANSIT DEVELOPMENT BOARD
1255 IMPERIAL AVE STE 1000
SAN DIEGO CA 92101-7400

SAN DIEGO GAS & ELECTRIC
PLANNING & LAND USE
PO BOX 1831
SAN DIEGO CA 92112

MR TIMOTHY BRICK
CHAIR
METROPOLITAN WATER DISTRICT
PO BOX 54153
LOS ANGELES CA 90054

CITY OF SAN DIEGO
CITY PLANNING AND COMMUNITY INVESTMENT
PLANNING DIVISION
SAN DIEGO, CA 92101

SHARON GARROW
SOLANA BEACH CHAMBER OF COMMERCE
210 W PLAZA
P.O. BOX 623
SOLANA BEACH, CA 92075

SAN DIEGO GAS & ELECTRIC CO
8330 CENTURY PARK CT
SAN DIEGO CA 92123

CITY OF DEL MAR
1050 CAMINO DEL MAR
DEL MAR, CA 92014-2604

CITY OF SAN DIEGO POLICE SERVICES:
NORTHWESTERN
12592 EL CAMINO REAL
SAN DIEGO, CA 92130-4001

CITY OF DEL MAR, POLICE & SHERRIFF'S
DEPARTMENT
175 N. EL CAMINO REAL
ENCINITAS, CA 92024-2802

SAN DIEGO FIRE STATION #24
13077 HARTFIELD AVE.
SAN DIEGO, CA 92103

SAN DIEGO PUBLIC LIBRARY
CARMEL VALLEY BRANCH LIBRARY
3919 TOWNSGATE DRIVE
SAN DIEGO, CA 92130

DEL MAR FIRE DEPARTMENT
2200 JIMMY DURANTE BLVD.
DEL MAR, CA 92014-2216

DEL MAR REGIONAL CHAMBERS
1104 CAMINO DEL MAR
DEL MAR, CA 92014-2644

DEL MAR REGIONAL CHAMBER OF COMMERCE
#1, 1104 CAMINO DEL MAR
DEL MAR, CA 92014

LOCAL ELECTED OFFICIALS

MAYOR CRYSTAL CRAWFORD
CITY OF DEL MAR
1050 CAMINO DEL MAR
DEL MAR, CA 92014

MAYOR JERRY SANDERS
CITY OF SAN DIEGO ADMINISTRATION BUILDING
11TH FLOOR, 202 C STREET
SAN DIEGO, CA 92101

MAYOR JERRY SANDERS
CITY ADMINISTRATION BUILDING
202 C STREET, 11TH FLOOR
SAN DIEGO, CA 92101

MAYOR RICHARD EARNEST
1050 CAMINO DEL MAR
DEL MAR, CA 92014

MAYOR THOMAS M. CAMPBELL
635 SOUTH HIGHWAY 101
SOLANA BEACH, CA 92075

HONORABLE BILL HORN, SUPERVISOR
5TH DISTRICT
1600 PACIFIC HIGHWAY, ROOM 335
SAN DIEGO, CA 92101

HONORABLE DIANNE JACOB, SUPERVISOR
2ND DISTRICT
1600 PACIFIC HIGHWAY
SAN DIEGO, CA 92101

HONORABLE GREG COX, SUPERVISOR
1ST DISTRICT
1600 PACIFIC HIGHWAY
SAN DIEGO, CA 92101

HONORABLE RON ROBERTS, SUPERVISOR
4TH DISTRICT
1600 PACIFIC HIGHWAY, ROOM 335
SAN DIEGO, CA 92101

HONORABLE DAVID W. ROBERTS
635 SOUTH HIGHWAY 101
SOLANA BEACH, CA 92075

HONORABLE PAM SLATER-PRICE
1600 PACIFIC HIGHWAY, ROOM 335
SAN DIEGO, CA 92101

HONORABLE KEVIN FAULCONER
CITY ADMINISTRATION BUILDING
202 C STREET
SAN DIEGO, CA 92101

HONORABLE TODD GLORIA
CITY ADMINISTRATION BUILDING
202 C STREET
SAN DIEGO, CA 92101

HONORABLE SHERRI LIGHTNER
CITY ADMINISTRATION BUILDING
202 C STREET
SAN DIEGO, CA 92101

HONORABLE CARL DEMAIO
CITY ADMINISTRATION BUILDING
202 C STREET
SAN DIEGO, CA 92101

HONORABLE DONNA FRYE
CITY ADMINISTRATION BUILDING
202 C STREET
SAN DIEGO, CA 92101

HONORABLE TONY YOUNG
CITY ADMINISTRATION BUILDING
202 C STREET
SAN DIEGO, CA 92101

HONORABLE BEN HUESO
CITY ADMINISTRATION BUILDING
202 C STREET
SAN DIEGO, CA 92101

HONORABLE CARN HILLIARD
1050 CAMINO DEL MAR
DEL MAR, CA 92014

HONORABLE MARTI EMERALD
CITY ADMINISTRATION BUILDING
202 C STREET
SAN DIEGO, CA 92101

HONORABLE DON MOSIER
1050 CAMINO DEL MAR
DEL MAR, CA 92014

HONORABLE MIKE NICHOLS
635 SOUTH HIGHWAY 101
SOLANA BEACH, CA 92075

HONORABLE MARK FILANC
1050 CAMINO DEL MAR
DEL MAR, CA 92014

HONORABLE LESA HEEBNER
635 SOUTH HIGHWAY 101
SOLANA BEACH, CA 92075

HONORABLE JOE G. KELLEJIAN
635 SOUTH HIGHWAY 101
SOLANA BEACH, CA 92075

INTERESTED COMPANIES, ORGANIZATIONS, CITIZENS, AND COMMUNITY PLANNING GROUPS

CINDY STANKOWSKI DIRECTOR
SAN DIEGO ARCHAEOLOGICAL CENTER
16666 SAN PASQUAL VALLEY RD
ESCONDIDO CA 92027-7001

THE DIRECTOR
SAN DIEGO AUDUBON SOCIETY
4891 PACIFIC HIGHWAY STE 112
SAN DIEGO CA 92110

MR JIM PEUGH
SAN DIEGO AUDUBON SOCIETY
2776 NIPOMA
SAN DIEGO CA 92106-1112

MR GARY FINK
SAN DIEGO COUNTY ARCHAEOLOGICAL SOCIETY INC
PO BOX 81106
SAN DIEGO CA 92138-0016

MR TOM DEMERE
SAN DIEGO NATURAL HISTORY MUSEUM
PO BOX 121390
SAN DIEGO CA 92112-1390

MR BRUCE COONS DIRECTOR
SAVE OUR HERITAGE ORGANISATION
2476 SAN DIEGO AVE
SAN DIEGO CA 92110-2838

SAN DIEGO CHAPTER SIERRA CLUB
DOCUMENT REVIEW TEAM
3820 RAY ST
SAN DIEGO CA 92104

CALIFORNIA WILDLIFE FEDERATION
1012 J STREET
SACRAMENTO, CA 95816-5113

SIERRA CLUB
1414 K STREET SUITE 500
SACRAMENTO, CA 95814

SAN DIEGO HISTORICAL SOCIETY
PO BOX 81825
SAN DIEGO CA 92138

BRUCE C FOSTER
SOUTHERN CALIFORNIA EDISON
P.O. BOX 800
ROSEMEAD, CA 91770

SAN DIEGO UNIFIED SCHOOL DISTRICT
EUGENE BRUCKER EDUCATION CENTER
4100 NORMAL STREET
SAN DIEGO, CA 92103

LARRY WATT
SAN DIEGUITO WATER DISTRICT
505 S. VULCAN AVENUE
ENCINITAS, CA 92024

ENVIRONMENTAL HEALTH COALITION
1717 KETTNER BLVD, STE 100
SAN DIEGO, CA 92101

DICK BOBERTZ
THE SAN DIEGUITO RIVER PARK
14103 HIGHLAND VALLEY ROAD
ESCONDIDO, CA 92025

METROPOLITAN TRANSIT SYSTEM
1255 IMPERIAL AVE., SUITE 1000
SAN DIEGO, CA 92101-7400

SAN DIEGO FIRE-RESCUE DEPARTMENT
ADMINISTRATIVE OFFICE/GENERAL INFORMATION
1010 2ND AVENUE, SUITE 400
SAN DIEGO, CA 92101

SAN DIEGUITO UNION HIGH SCHOOL DISTRICT
710 ENCINITAS BOULEVARD
ENCINITAS, CA 92024

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PHYSICAL PLANNING OFFICE
9500 GILMAN DRIVE, MC 0074
LA JOLLA, CA 92093-0074

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SAN DIEGO, CA 92130

MANAGER, HAMPTON INN
11920 EL CAMINO REAL
SAN DIEGO, CA 92130

MANAGER, CARMEL VALLEY SHELL GASOLINE
3060 CARMEL VALLEY ROAD
SAN DIEGO CA 92130-2545

PRINCIPAL, BETH MONTESSORI SCHOOL
11860 CARMEL CREEK ROAD
SAN DIEGO CA 92130

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CHAPTER 8
REFERENCES

Barth, Matthre and Kanok Boriboonsomsin (Barth and Boriboonsomsin)

2010 *Traffic Congestion and Greenhouse Gases*. Transportation Research Board of the National Academies. No. 268. Available at: http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf. May-June.

California Air Resources Board (CARB)

2008 Air Quality Data Statistics. Available at http://www.arb.ca.gov/adam/welcome.html. Accessed March 2009.

2009a *2006 State Area Designations, effective July 26, 2007*. Available at http://www.arb.ca.gov/desig/adm/adm.htm. Accessed August.

2009b *EMFAC 2007.* Available at http://www.arb.ca.gov/msei/onroad/latest_ version.htm. Accessed August.

2010a Air Quality Standards Chart. Available at: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

2010b State Implementation Status. Available at: http://www.arb.ca.gov/planning/sip/planarea/sansip.htm.

2011 Greenhouse Gas Inventory - 2020 Emissions Forecast. Available at: http://www.arb.ca.gov/cc/inventory/data/forecast.htm.

California Department of Conservation (CDC)

2009a *Farmland Mapping and Monitoring Program: Important Farmland in California, 2006.* January 2009. Available at http://www.consrv.ca.gov/dlrp/fmmp/overview/ Documents/fmmp2006_08_11.pdf. Accessed October 2.

2009b *San Diego County Williamson Act Lands 2008.* April 2009. Available at ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Map%20and%20PDF/San%20Diego/ SanDeigoWA_08_09.pdf. Accessed October 2.

California Department of Fish and Game (CDFG)

2002 Natural Diversity Database. List of California Natural Terrestrial Communities Recognized by the California Natural Diversity Database. February. 67 pp.

2008 California Natural Diversity Database (CNDDB)—Rarefind. Database Search for Del Mar Quad. September.

California Department of Toxic Substances Control (DTSC)

2008 Alternative Management Standards for Treated Wood Waste. Available at: http://www.dtsc.ca.gov/LawsRegsPolicies/Title22/Title_22_Chapter_34.cfm. June.

California Department of Transportation (Caltrans)

1997 Transportation Concept Report- Interstate 5 District 11. May.

1999 SR-56 Transportation Concept Report. October.

2000 *Project Study Report.* December.

2005 Guidance for Preparers of Cumulative Impact Assessments: CEQA Guidelines for Cumulative and Indirect Impacts. Available at: http://www.dot.ca.gov/ser/cumulative_guidance/downloads/CEQA_Guidelines_for_Cum ulative_and_Indirect_Impacts.pdf. January 19.

2006a Climate Action Program at Caltrans. Available at: http://www.climatechange.ca.gov/publications/agencies/2006-12_CALTRANS_ClimateReport.PDF. December.

2006b *Noise Analysis Protocol for New Highway Construction and Reconstruction Projects*. Available at: http://www.dot.ca.gov/hq/env/noise/pub/2006_protocol.pdf. August.

2006c Guidance for Preparers of Growth-related, Indirect Impact Analyses. Available at: http://www.dot.ca.gov/ser/Growth-related_IndirectImpactAnalysis/GRI_guidance06May_files/gri_guidance.pdf. May.

2006d Standard Specifications State of California Business, Transportation and Housing Agency Department of Transportation. Available at: http://www.dot.ca.gov/hq/esc/oe/specifications/std_specs/2006_StdSpecs/2006_StdSpecs.pdf. May.

2006e *California Transportation Plan 2025*. Available at: http://www.dot.ca.gov/hq/tpp/offices/osp/ctp2025.html. April.

2009a Division of Environmental Analysis, Air Quality. *CO Protocol*. Available at http://www.dot.ca.gov/hq/env/air/pages/coprot.htm. Accessed August.

2009b *Hazardous Waste Initial Site Assessment (ISA) Review for 5/56 Interchange Project*. November 24.

2009c *Steering Committee Meeting Notes for the I-5/SR-56 Interchange Project*. Carmel Valley Library. June 18.

2010a *Interstate 5 North Coast Corridor Project Draft Environmental Impact Report/Environmental Impact Statement*. June.

2010b *Interstate 5/State Route 56 Interchange Project Water Quality Report*. October.

2010c *The Interstate 5 San Diego North Coast Corridor System Management Plan*. August.

2010d Standard Specifications State of California Business, Transportation and Housing Agency Department of Transportation. Available at: http://www.dot.ca.gov/hq/esc/oe/specifications/std_specs/2010_StdSpecs/2010_StdSpecs.pdf.

2011a Environmental Impact Report/Environmental Impact Statement Annotated Outline. Available at: http://www.dot.ca.gov/ser/forms.htm. Revised July.

2011b Noise Analysis Protocol for New Highway Construction and Reconstruction Projects. Available at: http://www.dot.ca.gov/hq/env/noise/pub/ca_tnap_may2011.pdf. May.

Caltrans and SANDAG

2010 *I-5 North Coast Corridor Transportation and Resource Enhancement Program and Highway Public Works Plan.* July.

California Employment Development Department (EDD)

2010 California Labor Market Info, Data Library. Available at: http://www.labormarketinfo.edd.ca.gov/cgi/databrowsing/?PAGEID=4&SUBID=133. Accessed January.

California Invasive Plant Council (Cal-IPC)

2006 *California Invasive Plant Inventory*. Cal-IPC Publication 2006-02. California Invasive Plant Council: Berkeley, California. Available at http://www.cal-ipc.org/ip/inventory/weedlist.php. Accessed July 24, 2009.

California Native Plant Society (CNPS)

2001 *Inventory of Rare and Endangered Plants of California (sixth edition)*. Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento, California. 388 pp.

2008 *Inventory of Rare and Endangered Plants of California* (online edition, version 7-08d, last updated October 5, 2008). Available at http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi. Accessed October 15.

Craig, D., and P. L. Williams

1998 Willow Flycatcher (*Empidonax traillii*). In: *The Riparian Bird Conservation Plan: A Strategy for Reversing the Decline of Riparian-associated Birds in California*. California

Partners in Flight. Available at http://www.prbo.org/calpif/htmldocs/ riparian_v-2.html. Accessed July 27, 2009.

Davis, Emma Lou
1976 *Two Dated La Jolla Burials and Their Place in California Prehistory: A Review.* In Pacific Coast Archaeological Society Quarterly (12)4:1-44.

Del Mar Fairgrounds
2009 *Del Mar Fairgrounds Master Plan Project: Notice of Availability Draft Environmental Impact Report 2008 Master Plan Press Release*. Available at http://www.delmarfairgrounds.com/index.php?fuseaction=about.press_details&newsid=520. October 9.

Dokken Engineering (Dokken)
2009a *Carmel Creek Valley Location Hydraulic Study*. September.
2009b *Preliminary Geotechnical Report*. January.
2010a *Preliminary Noise Abatement Decision Report for Interstate 5/State Route 56 Interchange Project.* April.
2010b *Draft User Friendly Traffic Summary*. October.
2011 Draft Project Report. November.

Downey, Dave
2007 *Community Rallies against freeway ramp; officials exploring solutions to I-5/Highway 56 traffic.* North County Times. Available at: http://www.nctimes.com/news/local/article_0626d65a-1c9c-5056-b1a2-c7752cbfec35.html. December 10.

EDAW AECOM (AECOM)
2007 *Results of Focused Protocol Surveys for the Least Bell's Vireo and Southwestern Willow Flycatcher along State Route 56 at Interstate 5, San Diego County, California*. December 27.
2008 *Results of Focused Surveys for the Coastal California Gnatcatcher for the Proposed Interstate 5/State Route 56 Interchange Project*, *County of San Diego, California*. October 28.
2009 *Air Quality Analysis for Interstate 5/State Route 56 Interchange Improvement Project.* Accessed November.
2010a *Archaeological Survey Report For The Interstate 5/State Route 56 Freeway Connector Project City Of San Diego, San Diego County, California*. October.
2010b *Historic Properties Survey Report*. October.
2010c *Draft Relocation Impact Statement*. November.
2011a *Natural Environment Study Interstate 5 – State Route 56 Interchange, San Diego County*. Prepared for Caltrans. February.
2011b *Community Impact Assessment*. August.
2011c *Addendum to the Natural Environment Study Interstate 5 – State Route 56 Interchange, San Diego County*. Prepared for Caltrans. October.

Estrada Land Planning, Inc. (Estrada)
2011 *Draft Visual Impact Assessment: I-5/SR-56 Freeway Connectors*. November.

Federal Highway Administration (FHWA)
1981 *Visual Impact Assessment for Highway Projects.*
2006a *Interim Guidance on Air Toxics in NEPA Documents*. Available at: http://www. fhwa.dot.gov/environment/airtoxic/020306guidmem.htm. February 3.

2006b *Roadway Construction Noise Model User's Guide Final Report*. Available at: http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf. January.
2009 *U.S. Department of Transportation Memorandum: INFORMATION: Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA*. Available at: http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/100109guidmem.cfm. September 30.

Federal Register
2007 *Vol. 72, No. 37.* February 20, 2007. Page 8430.

Fehr and Peers
2005 *Fehr and Peers Technical Memorandum #3 and #4 Report.* September 2004 to March.

Fire and Resource Assessment Program (FRAP)
2003 *State of California Department of Forestry and Fire Protection: The Management Landscape.* March 2003. Available at http://frap.cdf.ca.gov/webdata/maps/statewide/landscapesmap.pdf. Accessed October 2, 2009.

I-5 PLAGUE (PLAGUE)
2011 Prevent the Los Angeles Gridlock from Usurping our Environment About Us. Available at: http://i-5plague.com/about/. Accessed May.

League of Women Voters of California Education Fund (LWV)
2010 SmartVoter: Proposition C Amending Ordinance Number O-18568 (Proposition M of 1998) Relating to Development of Pacific Highlands Ranch for the City of San Diego. Available at http://www.smartvoter.org/2010/11/02/ca/sd/prop/C/. Accessed November 9.

Linscott Law and Greenspan (LLG)
2009 *Draft Traffic Study, Combined Traffic Operations and Volumes Report, I-5/SR-56 Interchange Project, San Diego, California.* December.

Metropolitan Transportation Engineering Board (MTEB)
1958 Master Plan of Freeways and Expressways.

National Oceanic and Atmospheric Administration (NOAA)
2010 *Coastal Zone Management Act.* Available at http://coastalmanagement.noaa.gov/czm/czm_act.html. Accessed November 5.

Parsons and Acentech (Parsons)
2007 *I-5 North Coast Corridor Widening Project Noise Study Report*. April.
2010 *Interstate 5/State Route 56 Interchange Project Noise Study Report*. January.

Port, Ian S.
2007 *The Merge: Missed Connections*. Voice of San Diego.org. Available at: http://www.voiceofsandiego.org/opinion/article_04ae82fd-495d-5bb3-a019-e7f7eca0c130.html. December 10.

San Diego Association of Governments (SANDAG)
2003 *Regional Transportation Plan, Mobility 2030 – The Transportation Plan for the San Diego Region.* April.
2004a *SANDAG Info: Land Use and Land Ownership in the San Diego Region*. November.
2004b Final Regional Comprehensive Plan. Available at: http://www.sandag.org/index.asp?projectid=1&fuseaction=projects.detail. July.

2007 *2030 San Diego Regional Transportation Plan: Pathways for the Future*. November 2007. Available at http://www.sandag.org/index.asp?projectid=292&fuseaction=projects.detail. Accessed August 2009.
2008a *2008 Regional Transportation Improvement Program*. July. Available at http://www.sandag.org/uploads/publicationid/publicationid_1389_8526.pdf.
2008b *2030 Regional Growth Forecast Update No. 2*. Available at http://www.sandag.org/index.asp?projectid=356&fuseaction=projects.detail/. July.
2008c Congestion Management Plan. Available at: http://www.sandag.org/index.asp?projectid=13&fuseaction=projects.detail. November.
2010a *2010 TransNet Update Brochure*. May. Available at http://www.sandag.org/uploads/publicationid/publicationid_1487_11178.pdf.
2010b 2050 Regional Growth Forecast Subregional Area 13 – Del Mar/Mira Mesa. February.
2010c Board of Directors Agenda Item No. 10-02-16. 2050 Regional Growth Forecast. February 26.
2010d Information regarding population estimates and projections. Available at: http://datawarehouse.sandag.org/default.asp. Accessed September 10.
2011a 2010 Regional Transportation Improvement Program. May. Available at http://www.sandag.org/index.asp?projectid=363&fuseaction=projects.detail.
2011b 2050 Regional Transportation Plan. Available at: http://www.sandag.org/index.asp?projectid=349&fuseaction=projects.detail. October.

San Diego, County of, Air Pollution Control District (SDAPCD)
2008 *Five Year Air Quality Summary*. Available at: http://www.sdapcd.org/air/reports/smog.pdf.

San Diego, City of
1975 *Carmel Valley (North City West) Community Plan*. February 1. Available at: http://www.sandiego.gov/planning/community/profiles/carmelvalley/plan.shtml. Accessed September 2010.
1984 *Via de la Valle Specific Plan*. April 24.
1987 *University Community Plan*. July 7. Available at: http://www.sandiego.gov/planning/community/profiles/university/plan.shtml. Accessed September 2010.
1992a *North City Future Urbanizing Area Framework Plan*. October 1. Available at: http://www.sandiego.gov/planning/community/profiles/ncfua/plan.shtml. Accessed September 2010.
1992b *Guidelines for Future Development*. October 1. Available at http://www.sandiego.gov/cityofvillages/documents/progress-guide/fullversion.shtml.
1995 *Torrey Pines Community Plan*. January 10. Available at: http://www.sandiego.gov/planning/community/profiles/torreypines/plan.shtml. Accessed September 2010.
1996 *Torrey Highlands Subarea Plan*. August 5. Available at: http://www.sandiego.gov/planning/community/profiles/torreyhighlands/plan.shtml. Accessed September 2010.
1997a *City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan.* March. Available at: http://www.sandiego.gov/planning/mscp/pdf/subareafullversion.pdf. Accessed September 2010.
1997b *City of San Diego Street Design Manual*. January.
1997c *Torrey Hills Community Plan*. March 17. Available at: http://www.sandiego.gov/planning/community/profiles/torreyhills/plan.shtml. Accessed September 2010.
1998 *Pacific Highlands Ranch Subarea Plan*. July 28. Available at: http://www.sandiego.gov/planning/community/profiles/pacifichighlandsranch/plan.shtml. Accessed September 2010.
2000a *Del Mar Mesa Specific Plan*. June 27. Available at: http://www.sandiego.gov/planning/community/profiles/delmarmesa/plan.shtml. Accessed September 2010.

2000b *San Diego Municipal Code. Chapter 14: General Regulations*. June.
2002a *City of San Diego Street Design Manual – New Roadways.* November.
2002b *Plan Report. City of San Diego Bicycle Master Plan*. Alta Transportation Consulting. May.
2007 *Land Development Review Significance Determination Thresholds*. January.
2008 *City of San Diego General Plan*. Available at http://www.sandiego.gov/planning/genplan/index.shtml. Accessed January 8, 2009.
2009a *San Diego Fire-Rescue Department Fire Station Locations/Apparatus*. Available at http://www.sandiego.gov/fireandems/about/apparatus.shtml. Accessed July 16, 2009.
2009b *San Diego Police Department Northwestern Division*. Available at http://www.sandiego.gov/police/neighborhood/northwestern.shtml. Accessed July 16, 2009.
2009c *San Diego Police Department Northern Division*. Available at http://www.sandiego.gov/police/neighborhood/northern.shtml. Accessed July 16, 2009.
2009d *Project Studies*. Available at http://www.sandiego.gov/5_56freewayconnectors/studies.shtml#Bike. Accessed October 7, 2009.
2010 Los Peñasquitos Canyon Preserve. Available at: http://www.sandiego.gov/park-and-recreation/parks/penasq.shtml. Accessed September 2010.

San Diego, County of
1994 *County of San Diego Circulation Element*. Amended July 24.
2010a *Registrar of Voters Propositions for November 2, 2010 – Local Propositions in the County of San Diego*. Available at http://www.sdcounty.ca.gov/voters/Eng/election/local_prop_110210.pdf. Accessed November 10, 2010.
2010b *Registrar of Voters Unofficial Results from the County of San Diego Gubernatorial General Election from Tuesday, November 2*. Available at http://www.sdcounty.ca.gov/voters/results/transform.htm?paramVal1=prop_ab.xsl Accessed November 10, 2010.

San Diego Natural History Museum
2009 *Interstate 5 Paleontological Resource Assessment*. June.

San Diego Traffic Engineers Council and Institute of Transportation Engineers (SANTEC/ITE)
2006 *SANTEC/ITE Guidelines for Traffic Impact Studies (TIS) in the San Diego Region*. March 2, 2000. Revised December.

San Diego Geographic Information System (SanGIS)
2009 San Diego Geographic Information System Database – Roads. Last updated December 21, 2004.

Smith, Brian F. and James R. Moriarty III
1983 A Cultural Resources Survey of Carmel Valley Neighborhood 8, North City West. Unpublished report on file at the South Coastal Information Center.
1983 The Archaeological Investigations at Site W-20, Sierra del Mar. Unpublished report on file at the South Coastal Information Center.

State Water Resources Control Board (SWRCB)
2011 *Geotracker*. Available at https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=3060+carmel+valley+road%2C+san+diego%2C+ca. Accessed February 3, 2011.

TransNet.
2010 *Keep San Diego Moving - About TransNet*. Available at http://www.keepsandiego moving.com/transnet-about.aspx. Accessed November 9, 2010.

Transportation Research Board
2000 *Highway Capacity Manual: 2000*. December.

University of California, Davis. Institute of Transportation Studies (UCD ITS)
1997 *Transportation Project-Level Carbon Monoxide Protocol (UCD-ITS-RR-97-21).* December 1997.

U.S. Bureau of the Census (U.S. Census)
2000 Profiles of Demographic Characteristics, 2000. Available at www.census.gov. Accessed January 8, 2009.

U.S. Department of Energy
2009 *Energy Information Administration, California State Energy Profile.* Available at www.eia.doe.gov. Accessed August 18, 2009.

U.S. Department of Transportation (USDOT)
2008 Letter from Mr. Will Kempton, Director, California Department of Transportation. Subject: California 2009 Federal Statewide Transportation Improvement Program. November 17, 2009.

U.S. Environmental Protection Agency (USEPA)
2003 *Official Release of EMFAC 2002 Mobile Vehicle Emission Factor Model for Use in the State of California*. April 1.
2009 *The Green Book Nonattainment Areas for Criteria Pollutants*. Last updated October 8, 2009. Available at http://www.epa.gov/air/oaqps/greenbk/index.html. Accessed in October 2009.

USEPA and USDOT
2006 *Transportation Conformity Guidance for Qualitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas*. Available at: http://www.epa.gov/otaq/stateresources/transconf/policy/420b06902.pdf. March.

U.S. Fish and Wildlife Service (USFWS)
2008 Geographic Information System, GeoDatabase.

URS Corporation (URS)
2005 *Interstate 5/State Route 56 Freeway Connectors Biological Resources Report (DRAFT).* November 21.

Value Management Strategies, Inc. (VMS)
2002 *Value Analysis Report*. May.

Western Region Climatic Center (WRCC)
2009 *Monthly Climate Summary, Escondido, California*. Available at http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2862. Accessed July 2009.

Wilson and Company
2006 *I-5 North Coast Corridor Study*. June.

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APPENDICES

APPENDIX A

CEQA Checklist

CEQA ENVIRONMENTAL CHECKLIST

11-SD-I-5 and SR-56	I-5-PM 32.7/34.8; SR-56-PM 0.0/2.5	SCH# 2005051061 EA 177900
Dist.-Co.-Rte.	P.M/P.M.	E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Supporting documentation of all CEQA checklist determinations is provided in Chapter 3 of this Environmental Impact Report/Environmental Impact Statement.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☒	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☒	☐	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

II. AGRICULTURE AND FORESTRY RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐
VI. GEOLOGY AND SOILS: Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐

VII. GREENHOUSE GAS EMISSIONS: Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

An assessment of greenhouse gas emissions and climate change is included in the body of the environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☒	☐
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒
XI. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. PUBLIC SERVICES:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☒	☐
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒
XV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒
XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

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APPENDIX B

Resources Evaluated Relative to the Requirements of Section 4(f)

This section of the document discusses parks, recreational facilities, wildlife refuges, and historic properties found within or adjacent to the project area that do not trigger Section 4(f) protection either because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

Recreational facilities listed in Table B-1 were evaluated for their eligibility for Section 4(f) protection. The table lists whether the facilities are publicly or privately owned, if they qualify as a 4(f) resource, and if they would be used by any of the proposed build alternatives. Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 USC 303, specifies that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- there is no prudent and feasible alternative to using that land, and
- the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f).

Resources Not Eligible for Protection Under Section 4(f)

As shown in Table B-1, the following recreational resources were determined to be privately owned, and are therefore not protected by Section 4(f):

- San Diego Jewish Academy
- Notre Dame Academy
- Clews Horse Ranch
- Seabreeze Farms Equestrian Center
- Grand Del Mar Golf Club
- Palacio Del Mar Recreation Center and Golf Course

Sorrento Valley Road, while publicly owned, is still designated for transportation purposes, and is therefore, not a park or recreational facility.

Therefore, with respect to the facilities listed above, the provisions of Section 4(f) are not triggered.

Table B-1. Evaluation of Recreational Facilities Relative to Section 4(f)

Facility	Public/Private Ownership	4(f) Resource	Used by Project
Solana Highlands Park	Public	Yes	No
Carmel Valley Community Park and Recreation Center	Public	Yes	No
Carmel Grove Park	Public	Yes	No
Carmel Del Mar Park	Public	Yes	No
Del Mar Trails Park	Public	Yes	No
Torrey Pines State Natural Reserve	Public	Yes	No
Carmel Mission Park	Public	Yes	No
Carmel Knolls Park	Public	Yes	No
Carmel Creek Open Space	Public	Yes	No
San Dieguito River Park	Public	Yes	No
Crest Canyon Open Space Park	Public	Yes	No
Overlook Park	Public	Yes	No
Trans County Trail	Public	Yes	No
Community Open Space and Trails	Public	Yes	No
Sorrento Valley Road	Public	No[1]	No
Del Mar Hills Academy of Arts and Sciences	Public	Yes	No
Solana Highlands Elementary School	Public	Yes	No
Del Mar Heights Elementary School	Public	Yes	No
Carmel Del Mar Elementary School	Public	Yes	No
Sycamore Ridge Elementary School	Public	Yes	No
San Diego Jewish Academy	Private	No	No
Notre Dame Academy	Private	No	No
Clews Horse Ranch	Private	No	No
Seabreeze Farms Equestrian Center	Private	No	No
Grand Del Mar Golf Club	Private	No	No
Palacio Del Mar Recreation Center and Golf Course	Private	No	No

Note:
1 While Sorrento Valley Road is publicly owned and used by public, it has not been designated as part of the park or as a recreational facility.
Source: Compiled by AECOM in 2011

Resources Potentially Eligible for Protection under Section 4(f)

All of the other facilities listed in Table B-1 are Section 4(f) properties. Further evaluation was conducted to determine if the proposed project would use land from these remaining facilities. "Use" occurs if the project would actually incorporate land from one of these facilities into the transportation facility or if the proximity impacts caused by the proposed project substantially impair the activities, features, or attributes of a Section 4(f) resource that qualify the resource for protections under Section 4(f). Proximity impacts can include impacts to accessibility, aesthetics (visual), vegetation, wildlife, air quality, or water quality.

The proposed project would not actually use any land from these resources. However, an analysis was conducted to determine if the proposed project would result in constructive use.

The following facilities are separated from the proposed project by intervening development and/or substantial distance and would therefore not be subject to proximity impacts from the proposed project:

- Solano Highlands Park
- Carmel Valley Community Park and Recreation Center
- Carmel Grove Park
- Carmel Del Mar Park
- Del Mar Trails Park
- Carmel Mission Park
- Carmel Knolls Park
- Community Open Space and Trails
- Solano Highlands Elementary School
- Del Mar Heights Elementary School
- Carmel Del Mar Elementary School
- Sycamore Ridge Elementary School

Therefore, with respect to the above listed facilities, the proposed project would not cause a constructive use of these facilities because the proximity impacts would not substantially impair the protected activities, features, or attributes of these recreational resources.

However, the following facilities are adjacent, partially adjacent, or exposed to the proposed project; all four build alternatives potentially could have proximity impact to these facilities, related to visual and noise impacts.

Del Mar Hills Academy of Arts and Sciences

The Del Mar Hills Academy of Arts and Sciences, with grades kindergarten through 6, is located on the bluffs above the west side of I-5, about 1,400 feet north of the Del Mar Heights Road interchange. Playing fields at the school can be scheduled for use after school hours by organizations such as Little League or soccer leagues. All of the proposed project build alternatives would widen I-5 at this location. The widening would not take any land from the school and would not substantially change views from the school or its grounds. For the proposed project's Noise Study Report, four receptors (R5.5, R5.5A, R5.6, and R5.6A in Figures 2-4c, 2-5c, 2-6c, and 2-7c) were placed on or near the school grounds nearest the freeway.

Calculated future noise levels showed a decrease of 1 to 5 dBA $L_{eq(h)}$ from future levels for the No Build Alternative at all receptors and for all build alternatives. Therefore, the proposed project would not substantially impair the activities, features, or attributes of the recreational facility that would qualify it for protections under Section 4(f).

San Dieguito River Park (including Crest Canyon Park and Overlook Park)

Overlook Park and Crest Canyon Park are adjacent to the northern end of the proposed project impact area, with Overlook Park on the east and Crest Canyon Park on the west. North of these two parks and adjacent to the impact area on the north is the San Dieguito River Park.

Overlook Park is an open space area without a designated trail system and has no formal recreational facilities. The park essentially serves as open space. While the most northerly portion of the proposed project (the northbound Del Mar Height on-ramp to I-5), tapers off in close proximity to the park, the proposed project would not substantially impair Overlook Park's function as open space. In fact, the noise modeling conducted for the proposed project shows that noise levels would actually decrease by 3 dBA with the proposed project (see Direct Connector Alternative receptor R5.24). There would be only minimal visual intrusion by the proposed project to the park since the only new element that would be visible from the park boundary would be the taper of the on-ramp lane. The trail system in Crest Canyon Park runs south in a loop in the canyon from the San Dieguito River Park. The trail is more than 1,200 feet from I-5 and separated by a ridge, so that no visual or noise effects would occur on the trail from any alternative of the proposed project. Both Overlook Park and Crest Canyon Park are 4(f) resources, but the proposed project would not use any of the parks' lands and would not affect use areas of the parks.

The San Dieguito River Park is administered by the San Dieguito River Valley Regional Open Space Park Joint Powers Authority (JPA), which is working to create a regional open space greenway and park system by preserving and restoring land along the length of the San Dieguito River watershed. This open space greenway and park system is planned to be integrated by a corridor of walking, equestrian, and bicycle trails that would extend from the Pacific Ocean to Volcan Mountain. Overlook Park and Crest Canyon Park are integrated into the San Dieguito River Park Concept Plan.

The area of the San Dieguito River Park north of the project area is in the Coastal Area of the park and is part of the San Dieguito Lagoon ecological preserve. It is not developed for active use, and the park's trail systems are more than 0.5 mile north of the proposed project's construction limits. Because of the physical distance between the northern terminus of the proposed project and the San Dieguito River Park, the park would not be subject to noise impacts nor visual impacts from the proposed project.

Therefore, the proposed project would not substantially impair the activities, features, or attributes of these Section 4(f) resources that would qualify the resources for protection under Section 4(f).

Torrey Pines State Natural Reserve

The Torrey Pines State Natural Reserve is west of I-5 and southwest of the proposed project site. The Los Peñasquitos Marsh Natural Preserve is the nearest area (and natural preserve and lagoon) to the I-5 interchange. Torrey Pines State Natural Reserve is part of the State of California Natural Reserve system and operates as a day-use-only facility. West of the marsh

preserve are eight miles of hiking trails, a visitor center, and guided walks on weekends and holidays. A separate preserve area with its own system of trails, known as the Annex, is north of Carmel Valley Road and at least 700 feet west of I-5.

All parts of Torrey Pines State Natural Reserve are outside of the construction limits of all proposed project build alternatives. No public access exists to the Los Peñasquitos Marsh Natural Preserve, and the trails and visitor center are well to the west of the proposed project. Part of the Annex is within 0.5 mile of the proposed project construction limits, but it is separated from those limits by residential development. The proposed project would not use any of the land belonging to the reserve and would not affect the reserve's future use. In addition, the proposed project's noise and visual impacts would not substantially impair the activities, features, or attributes of the reserve that would qualify it for protection under Section 4(f).

Carmel Creek Open Space Preserve

The Carmel Creek Open Space Preserve is located south of and adjacent to SR-56 from the I-5 interchange to Carmel Country Road. This open space area is permanently preserved as an ecological restoration area and, as such, is a 4(f) resource. It is bordered on the south by the Trans County Trail. Public access to the Carmel Creek Open Space Preserve is not allowed. Construction of the proposed project adjacent to the preserve would not occur within the preserve. All structures foundation work and bridge piers would occur within Caltrans existing right-of-way. Similar to the Trans County Trail discussed below, the preserve would not be constructively used because the anticipated change in noise level is only 1 or 2 dBA $L_{eq(h)}$ (A-weighted decibel equivalent sound level over one hour), which is virtually imperceptible to the human ear and therefore would not give rise to substantial impairment of the open space area. The open space preserve's key activities, features, and attributes qualify it for protection under Section 4(f) as an ecological preserve. Because the preserve is not open to the public (human use), no sensitive viewer groups would be present within the preserve.

Therefore, the proposed project would not substantially impair the activities, features, or attributes of these Section 4(f) resources that would qualify the preserve for protections under Section 4(f).

Trans County Trail

The segment of the Trans County Trail in the proposed project area is sometimes known as the 56 Bike Trail, although it is also intended for use by hikers and equestrians. The San Diego Trans County Trail is a segment of the Sea to Sea Trail. Promoted by the Sea to Sea Trail Foundation, the Trans County Trail is intended to be part of a network of connected trails crisscrossing the lower 48 states. When completed, the Trans County Trail will run from the Pacific Ocean at Torrey Pines State Natural Reserve, through Anza-Borrego Desert State Park to the Salton Sea.. It crosses the Pacific Crest Trail, which is part of the federally designated National Trails System.

In the proposed project area, the Trans County Trail has a paved section for bikers and pedestrians and a decomposed granite section for pedestrians and equestrians. Leaving the proposed project area, the Trans County Trail turns southerly to enter Los Peñasquitos Canyon Preserve. On the west, the Trail crosses under I-5 and follows Carmel Valley Road to the Pacific shore. Publicly owned and with public access, the Trans County Trail is a Section 4(f) resource. In most of the proposed project area, it is about 300 to 900 feet south of SR-56, but it is within about 150 feet of the freeway where the trail bends northward around the Clews Horse Ranch.

The proposed project would not use any land dedicated to Trans County Trail use. Forecast future noise levels have not been calculated at the trail, but they were calculated for the adjacent San Diego Jewish Academy on the west and the Clews Horse Ranch on the east in the proposed project's Noise Study Report. Noise levels were calculated at four receptors (R42, R43, R44, and R45 in Figures 2-4d, 2-5d, 2-6d, and 2-7d) at the San Diego Jewish Academy, and two receptors at Clews Horse Ranch (R46 and R47 in Figures 2-4e, 2-5e, 2-6e, 2-7e). Compared to future noise levels under the No Build Alternative at the San Diego Jewish Academy, future noise levels were calculated to remain the same at three receptors and rise 1 dBA $L_{eq(h)}$ at the other receptor after implementation of any of the build alternatives (Table 3.1-3). At the Clews Horse Ranch, only the Direct Connector Alternative would raise the noise level, with a rise of 1 dBA at one receptor and 2 dBA at the other receptor. The comparative rise in noise at the trail can reasonably be expected to be similar; that is, a rise of no more than 1 or 2 dBA $L_{eq(h)}$. A rise of 1 or 2 dBA from future levels under the No Build Alternative would barely be audible and would not affect the use of the trail.

Westbound users of the trail are adjacent to well vegetated areas in the Carmel Creek open space area. All along the route from Carmel Country Road to I-5, tall vegetation associated with the Carmel Creek open space area buffers the trail visually from SR-56. In this area, with the proposed project Direct Connector Alternative, segments of the I-5 southbound to SR-56 east direct connector would be visible to the northwest, however, in most parts of the trail, vegetation would obscure the view of the direct connector. Between El Camino Real and I-5 in some segments of the trail, views exist of the I-5 northbound to SR-56 eastbound connector above and between trees for westbound trail users. No prominent or obtrusive element would occur on views of the direct connector from the trail. Limited visibility of the direct connector would not affect the use of the trail. For the other three build alternatives, the visual impact would be less than that for the Direct Connector Alternative.

Table 3.1-3. Future Noise Levels near Trans County Trail

Receptor	No Build Alternative	Direct Connector Alternative	Auxiliary Lane Alternative	Hybrid Alternative	Hybrid with Flyover Alternative
San Diego Jewish Academy					
R42	67 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$	68 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$	66 dBA $L_{eq(h)}$
R43	66 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$	66 dBA $L_{eq(h)}$
R44	69 dBA $L_{eq(h)}$	69 dBA $L_{eq(h)}$	69 dBA $L_{eq(h)}$	69 dBA $L_{eq(h)}$	68 dBA $L_{eq(h)}$
R45	68 dBA $L_{eq(h)}$	69 dBA $L_{eq(h)}$	69 dBA $L_{eq(h)}$	68 dBA $L_{eq(h)}$	68 dBA $L_{eq(h)}$
Clews Horse Ranch					
R46	70 dBA $L_{eq(h)}$	71 dBA $L_{eq(h)}$	70 dBA $L_{eq(h)}$	70 dBA $L_{eq(h)}$	71 dBA $L_{eq(h)}$
R47	65 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$	65 dBA $L_{eq(h)}$	65 dBA $L_{eq(h)}$	67 dBA $L_{eq(h)}$

Source: Parsons 2010

Therefore, neither the proposed project's noise nor visual impacts would substantially impair the activities, features, or attributes of the trail that would qualify the trail for protection under Section 4(f).

APPENDIX C

Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. Box 942873, MS-49
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TTY 711

Flex your power!
Be energy efficient!

July 20, 2010

TITLE VI
POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact Charles Wahnon, Manager, Title VI and Americans with Disabilities Act Program, California Department of Transportation, 1823 14th Street, MS-79, Sacramento, CA 95811. Phone: (916) 324-1353 or toll free 1-866-810-6346 (voice), TTY 711, fax (916) 324-1869, or via email: charles_wahnon@dot.ca.gov.

CINDY McKIM
Director

"Caltrans improves mobility across California"

APPENDIX D

Summary of Relocation Benefits

California Department of Transportation Relocation Assistance Program

Environmental Planners and consultants who prepare community impact assessment studies for Caltrans should have a basic understanding of the relocation laws and provisions with which the Department works. It should be understood at the outset that Relocation Assistance is fairly complex. This Appendix is general in nature and is not intended to be a complete statement of federal and state relocation laws and regulations. Any questions concerning relocation should be addressed to Caltrans Right of Way. This section provides some general descriptive information on Public Law (PL) 91-646, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. This is often referred to simply as the "Uniform Act." The information in this Appendix is provided only as background and is not intended as a complete statement of all the State or Federal laws and regulations; for specific details the planner should contact the appropriate Caltrans District or Regional Right of Way Relocation Branch. After presenting an outline of the basic legal foundation for relocation policy, the Appendix looks at important relocation assistance information, including advisory services and the payment program. Refer to the Caltrans Right of Way Manual Chapter 10, for more detailed and specific information regarding relocation and housing programs.

RELOCATION ASSISTANCE ADVISORY SERVICES

DECLARATION OF POLICY

"The purpose of this title is to establish a ***uniform policy for fair and equitable treatment*** of persons displaced as a result of federal and federally assisted programs in order that such persons ***shall not suffer disproportionate injuries*** as a result of programs designed for the benefit of the public as a whole."

The Fifth Amendment to the U.S. Constitution states, "No Person shall…be deprived of life, liberty, or property, without due process of law, nor shall private property be taken for public use without just compensation." The Uniform Act sets forth in statute the due process that must be followed in Real Property acquisitions involving federal funds. Supplementing the Uniform Act is the government-wide single rule for all agencies to follow, set forth in 49 Code of Federal Regulations, Part 24. Displaced individuals, families, businesses, farms, and nonprofit organizations may be eligible for relocation advisory services and payments, as discussed below.

FAIR HOUSING

The Fair Housing Law (Title VIII of the Civil Rights Act of 1968) sets forth the policy of the United States to provide, within constitutional limitations, for fair housing. This Act, and as amended, makes discriminatory practices in the purchase and rental of most residential units illegal. Whenever possible, minority persons shall be given reasonable opportunities to relocate to any available housing regardless of neighborhood, as long as the replacement dwellings are decent, safe, and sanitary and are within their financial means. This policy, however, does not require Caltrans to provide a person a larger payment than is necessary to enable a person to relocate to a comparable replacement dwelling.

Any persons to be displaced will be assigned to a relocation advisor, who will work closely with each displacee in order to see that all payments and benefits are fully utilized, and that all

regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments. At the time of the initiation of negotiations (usually the first written offer to purchase), owner-occupants are given a detailed explanation of the state's relocation services. Tenant occupants of properties to be acquired are contacted soon after the initiation of negotiations, and also are given a detailed explanation of the Caltrans Relocation Assistance Program. To avoid loss of possible benefits, no individual, family, business, farm, or nonprofit organization should commit to purchase or rent a replacement property without first contacting a Caltrans relocation advisor.

RELOCATION ASSISTANCE ADVISORY SERVICES

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, Caltrans will provide relocation advisory assistance to any person, business, farm or nonprofit organization displaced as a result of the acquisition of real property for public use, so long as they are legally present in the United States. Caltrans will assist eligible displacees in obtaining comparable replacement housing by providing current and continuing information on the availability and prices of both houses for sale and rental units that are "decent, safe and sanitary." Nonresidential displacees will receive information on comparable properties for lease or purchase (For business, farm and nonprofit organization relocation services, see below).

Residential replacement dwellings will be in a location generally not less desirable than the displacement neighborhood at prices or rents within the financial ability of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, comparable replacement dwellings will be offered to displacees that are open to all persons regardless of race, color, religion, sex, national origin, and consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include the supplying of information concerning Federal and State assisted housing programs, and any other known services being offered by public and private agencies in the area.

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without first being given at least 90 days written notice. Residential occupants eligible for relocation payment(s) will not be required to move unless at least one comparable "decent, safe and sanitary" replacement dwelling, available on the market, is offered to them by Caltrans.

RESIDENTIAL RELOCATION PAYMENTS

The Relocation Assistance Program will help eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for or incidental to the purchase or rental of a replacement dwelling and actual reasonable moving expenses to a new location within 50 miles of the displacement property. Any actual moving costs in excess of the 50 miles are the responsibility of the displacee. The Residential Relocation Assistance Program can be summarized as follows:

Moving Costs

Any displaced person, who lawfully occupied the acquired property, regardless of the length of occupancy in the property acquired, will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable costs involved in moving themselves and personal property up to a maximum of 50 miles, or a fixed payment based on a fixed moving

cost schedule. Lawful occupants who move into the displacement property after the initiation of negotiations must wait until the Department obtains control of the property in order to be eligible for relocation payments.

Purchase Differential

In addition to moving and related expense payments, fully eligible homeowners may be entitled to payments for increased costs of replacement housing.

Homeowners who have owned and occupied their property for 180 days or more prior to the date of the initiation of negotiations (usually the first written offer to purchase the property), may qualify to receive a price differential payment and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate. The maximum combination of these three supplemental payments that the owner-occupant can receive is $22,500. If the total entitlement (without the moving payments) is in excess of $22,500, the Last Resort Housing Program will be used (See the explanation of the Last Resort Housing Program below).

Rent Differential

Tenants and certain owner-occupants (based on length of ownership) who have occupied the property to be acquired by Caltrans prior to the date of the initiation of negotiations may qualify to receive a rent differential payment. This payment is made when Caltrans determines that the cost to rent a comparable "decent, safe and sanitary" replacement dwelling will be more than the present rent of the displacement dwelling. As an alternative, the tenant may qualify for a down

payment benefit designed to assist in the purchase of a replacement property and the payment of certain costs incidental to the purchase, subject to certain limitations noted under the *Down Payment* section below. The maximum amount payable to any eligible tenant and any owner-occupant of less than 180 days, in addition to moving expenses, is $5,250. If the total entitlement for rent supplement exceeds $5,250, the Last Resort Housing Program will be used.

In order to receive any relocation benefits, the displaced person must buy or rent and occupy a "decent, safe and sanitary" replacement dwelling within one year from the date the Department takes legal possession of the property, or from the date the displacee vacates the displacement property, whichever is later.

Down Payment

The down payment option has been designed to aid owner-occupants of less than 180 days and tenants in legal occupancy prior to Caltrans' initiation of negotiations. The down payment and incidental expenses cannot exceed the maximum payment of $5,250. The one-year eligibility period in which to purchase and occupy a "decent, safe and sanitary" replacement dwelling will apply.

Last Resort Housing

Federal regulations (49 CFR 24) contain the policy and procedure for implementing the Last Resort Housing Program on federal-aid projects. Last Resort Housing benefits are, except for the amounts of payments and the methods in making them, the same as those benefits for standard residential relocation as explained above. Last Resort Housing has been deigned primarily to cover situations where a displacee cannot be relocated because of lack of available comparable replacement housing, or when the anticipated replacement housing payments exceed the $22,500 and $5,250 limits of the standard relocation procedure, because either the displacee lacks the financial ability or other valid circumstances.

After the initiation of negotiations, Caltrans will within a reasonable length of time, personally contact the displacees to gather important information, including the following:

- Number of people to be displaced;
- Specific arrangements needed to accommodate any family member(s) with special needs;
- Financial ability to relocate into comparable replacement dwelling which will adequately house all members of the family;
- Preferences in area of relocation;
- Location of employment or school.

NONRESIDENTIAL RELOCATION ASSISTANCE

The Nonresidential Relocation Assistance Program provides assistance to businesses, farms and nonprofit organizations in locating suitable replacement property, and reimbursement for certain costs involved in relocation. The Relocation Advisory Assistance Program will provide current lists of properties offered for sale or rent, suitable for a particular business's specific relocation needs. The types of payments available to eligible businesses, farms and nonprofit organizations are: searching and moving expenses, and possibly reestablishment expenses; or a fixed in lieu payment instead of any moving, searching and reestablishment expenses. The payment types can be summarized as follows:

Moving Expenses

Moving expenses may include the following actual, reasonable costs:

- The moving of inventory, machinery, equipment and similar business-related property, including: dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting of personal property. Items acquired in the Right of Way contract may not be moved under the Relocation Assistance Program. If the displacee buys an Item Pertaining to the Realty back at salvage value, the cost to move that item is borne by the displacee.
- Loss of tangible personal property provides payment for actual, direct loss of personal property that the owner is permitted not to move.
- Expenses related to searching for a new business site, up to $2,500, for reasonable expenses actually incurred.

Reestablishment Expenses

Reestablishment expenses related to the operation of the business at the new location, up to $10,000 for reasonable expenses actually incurred.

Fixed In Lieu Payment

A fixed payment in lieu of moving, searching, and reestablishment payments may be available to businesses which meet certain eligibility requirements. This payment is an amount equal to half the average annual net earnings for the last two taxable years prior to the relocation and may not be less than $1,000 nor more than $20,000.

ADDITIONAL INFORMATION

Reimbursement for moving costs and replacement housing payments are not considered income for the purpose of the Internal Revenue Code of 1954, or for the purpose of determining the extent of eligibility of a displacee for assistance under the Social Security Act, or any other law, *except* for any Federal law providing local "Section 8" Housing Programs.

Any person, business, farm or nonprofit organization which has been refused a relocation payment by the Caltrans relocation advisor or believes that the payment(s) offered by the agency are inadequate, may appeal for a special hearing of the complaint. No legal assistance is required. Information about the appeal procedure is available from the relocation advisor.

California law allows for the payment for lost goodwill that arises from the displacement for a pubic project. A list of ineligible expenses can be obtained from Caltrans Right of Way. California's law and the federal regulations covering relocation assistance provide that no payment shall be duplicated by other payments being made by the displacing agency.

APPENDIX E

Environmental Commitments Record

Table E-1 Environmental Commitments Record

Interstate 5/State Route 56 Interchange Improvement Project

Environmental Generalist: Shay Lynn Harrison File:11-SD-005,056
Phone: 619-688-0190 KP: 52.6/56.0 (I-5-PM 32.7/34.8); 0.0/4.1 (SR-56-PM 0.0/2.5)
Date: April 2012 EA: 177900

Task and Brief Description	Responsible Branch/Staff	Timing/ Phase	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
Geotechnical Investigations								
Design Kick-Off								
Environmental PS&E Review Meeting								
Pre-Construction Meeting								
Pre-Job Meeting								
Mid Construction Meeting								
Design Features Memorandum								
Environmental Compliance Review								
Community Character and Cohesion								
Caltrans would make a targeted attempt to include contractors/employees from the surrounding community in the construction bidding process.								
Caltrans would issue all project-related documents (e.g., construction notices, operational updates, technical reports, environmental documents) to the affected community. These documents would take the form of summaries and would be published in English and Spanish.								
As part of a continued community involvement process, Caltrans would keep the public informed about potential construction closures and detours.								
Caltrans, after consulting with local agencies including fire and law enforcement, would implement a TMP for the construction phase throughout the duration of construction activities. The TMP would be made available to the public and to each jurisdiction within the study area. The TMP would be designed to minimize project-related traffic delays and accidents by adopting traditional traffic mitigation strategies and through an innovative combination of public and motorist information, demand management, incident management, system management, alternate route strategies, and construction strategies. The TMP would include detour signage, public transportation information, construction timing, and other useful construction information such as “businesses are open during construction” for the benefit of residents and motorists.								

Task and Brief Description	Responsible Branch/Staff	Timing/ Phase	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
Although lane closures and detours would be necessary at certain times during construction, at no time would an overpass or underpass be entirely closed to traffic.								
Cultural Resources								
A qualified archaeologist and a Native American monitor must be invited to the pre-construction meeting for the recommended sound wall construction at CA-SDI-16653 Locus I to consult with contractors regarding schedules and safety issues.		Pre- Construction						
Caltrans would depict the historic component of CA-SDI-4617/H, a historic cemetery, as an ESA on all project plans and the site will be completely avoided by all proposed construction activities.		Pre- Construction						
Caltrans would depict the eastern portion of CA-SDI-16653 Locus I, adjacent to the ADI for the recommended sound wall, as an ESA. This ESA will be depicted on all project plans, and will be completely avoided by the proposed construction activities by adhering to the ESA/AMA action plan.		Pre- Construction						
The ESA/AMA action plan calls for both a qualified archaeologist and a Native American monitor to be present when any ground disturbing activities occur within the ADI of the recommended sound wall at CA-SDI-16653 Locus I. Both monitors must be notified of any project activities within the subject area at least three working days prior to any work adjacent to an ESA and within an AMA.		Pre- Construction						
If cultural materials are discovered during construction, all earth moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.		Construction						
If human remains are discovered, further disturbances and activities would cease in any area or nearby area suspected to overlie remains, and the County Coroner would be contacted. Pursuant to PRC Section 5097.98, if remains are thought to be Native American, the coroner will notify the NAHC, which will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the Caltrans District 11 Environmental Analysis Branch D Chief so that Caltrans can work with the MLD on the respectful treatment and disposition of the remains.		Construction						
Relocations								
Relocation assistance payments and counseling would be provided to persons and businesses in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended to ensure adequate relocation and a decent, safe, and sanitary home for displaced residents. All eligible displacees would be entitled to moving expenses. All benefits and services would be provided equitably to all residential								

Task and Brief Description	Responsible Branch/Staff	Timing/ Phase	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
and business displacees without regard to race, color, religion, age, national origins, or disability, as specified under Title VI of the Civil Rights Act of 1964.								
Temporary impacts to businesses during construction of any of the build alternatives would be minimized through implementation of a traffic management plan that would include requiring signage for directions to commercial centers and providing for accessible ingress/egress routes into parking lots and other measures.								
A minimum of 24 months would be considered, especially in light of the potential for numerous permitting requirements for any replacement site.								
Fair market value would be paid for all of the land and improvements required to construct and operate the proposed project.								
Utilities								
Prior to construction, each utility facility would be evaluated for proper avoidance or relocation. When utility relocation would be necessary, Caltrans would coordinate closely with the utility companies to determine where and how to move these facilities in the most appropriate, safe, cost-effective, and non-disruptive manner.								
Utility poles are considered fixed objects within roadway shoulders that pose a danger to vehicles that may leave the roadway. Removing these fixed objects would assist in minimizing traffic accidents involving fixed objects. Placing these utilities underground would also minimize the occurrence of service interruption to customers when poles are interfered with or downed.								
Emergency Services								
To minimize any potential adverse delays to emergency access or response times, the following strategies would be employed by Caltrans to aid in incident management, as per Caltrans' standard practice: • The Construction Zone Enhancement Enforcement Program (COZEEP) would involve the presence of CHP to improve project safety by encouraging motorists to slow down and use care while driving through construction zones. • The Freeway Service Patrol program, a cooperative effort between Caltrans, SANDAG, and the CHP, would help to alleviate incident-related traffic congestion by operating tow services to aid stranded or disabled vehicles on urban freeways during morning and afternoon commuter periods. • A Traffic Management Plan (TMP) would be prepared								

Task and Brief Description	Responsible Branch/Staff	Timing/ Phase	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
that would ensure that clearly identifiable access to and from all homes, schools, and businesses would be maintained. The TMP would specify how through access for emergency providers would be maintained at all times during construction. Emergency service providers would be continually informed and updated of all detours and other traffic modifications or delays.								
Traffic and Transportation								
Preparation of a TMP by Traffic Operations staff would ensure clearly identifiable and safe access to and from homes and businesses and help minimize inconveniences resulting in traffic delays during construction. A TMP is a program of activities for alleviating or minimizing work-related traffic delays on the state highway and freeway systems by the effective application of traditional traffic-handling practices combining innovative strategies including public awareness, motorist information, incident management, construction methods and staging, demand management, and alternate route planning. The goals and objectives of the TMP are to reduce traffic delay or time spent in the queue to less than 30 minutes, maintain traffic flow throughout the corridor and the surrounding areas, provide a safe environment for the work force and motoring public, and minimize impacts to local businesses.								
Public Information – A public awareness program utilizing brochures, paid advertising, media releases, open houses, telephone hotlines, and the Caltrans District 11 website would be developed to inform the public of the upcoming detours and construction schedule.								
Motorist Information – Message signs, commercial and highway advisory traffic radio announcements, the Caltrans Highway Information Network, and SANDAG's 511 service would be used during construction to disseminate updated road conditions and routes to motorists.								
Incident Management – The TMP would prepare for incidents that negatively affect traffic by providing quick re-installation of call boxes and implementation of a Construction Zone Enhanced Enforcement Plan (COZEEP), which would offer police assistance and surveillance within construction areas, additional freeway service patrol during the midday gap in existing service, traffic surveillance stations, 911 cellular calls, and emergency pullouts.								
Construction Operations – The following strategies would aim to improve traffic congestion within construction zones: incentive/disincentive clauses to enforce lane closure deadlines, ramp metering to adjust traffic flow in the affected areas, off-peak/night/weekend work to limit the effects on								

Task and Brief Description	Responsible Branch/Staff	Timing/ Phase	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
commuter traffic, and planned ramp and lane closures.								
Demand Management – The promotion of alternate modes of transportation (e.g., park and ride lots, incentivizing public transportation) and the alteration of peak traffic times (e.g., encouraging employers in the surrounding businesses to implement variable work hours) would help lower loading on roadways.								
Alternate Route Strategies – The Coast Highway would be the only viable alternate route, and it currently operates at a low LOS. Any traffic impacts to schools in the project site area would be noted in the TMP. Furthermore, all access to schools would be maintained during the construction phase of the proposed project.								
Pedestrian and Bicycle Facilities – During construction of transportation facilities, particularly construction of new facilities, the work can act as both a physical and psychological barrier to pedestrians and bicycle users. Where freeway construction would cross bikeways and sidewalks, access may be restricted or severed entirely. The TMP also would include components for pedestrian and bicyclists along with consideration for the motoring public. In addition to the items listed for the motoring public, signs would be used, as appropriate, to provide notices of bikeway and pedestrian walkway closures, detours, and other pertinent information. Temporary access would be provided where possible.								
Visual/Aesthetics								
All visual mitigation would be designed and implemented with the concurrence of the FHWA District Landscape Architect.								
Refer to the Landscape Concept Plan for each build alternative has been developed for the reestablishment of landscaping following construction in Attachments A, B, C, and D of the Visual Impact Assessment prepared November 2010.								
Grading								
Where conditions permit, grading would be designed using the techniques of contour grading to promote smooth transitions to existing landforms, eliminate appearance of engineered slopes, and visually soften the contours.								
Grading adjacent to retaining walls would transition smoothly into the walls without dips and irregularities that would draw attention to the wall.								
For slopes less than 66 feet tall, stepped slopes would be avoided to reduce the visual impact of large-scale visually objectionable grading methods.								
Retaining Walls								

Task and Brief Description	Responsible Branch/Staff	Timing/ Phase	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
Retaining walls would be similar in color and form to those constructed at the Lomas Santa Fe and I-5 interchange, but they would also express a unique character to differentiate the Del Mar Heights to Carmel Valley area from other portions of the North Coastal corridor.								
The naturally eroded sandstone bluff formations visible in the vicinity would be reflected in the design for retaining wall treatments. Wall coloration would provide a connection with the natural bluffs.								
Tall retaining walls would be designed in a manner to reduce the apparent scale of the wall. A thick wall cap, and vertical partitions or columns are recommended to provide relief to the surface, reduce the reflectiveness of the flat wall, and provide shadow patterns.								
To relieve the vertical constraint of the walls, the walls would be battered at a 1:12 minimum ratio. This can be a function of the wall being narrower in thickness at the top.								
Retaining walls would be designed to taper back into the slope, reducing the height of the wall as it returns to slope. This may be repeated as the wall diminishes in height to create a cascading wall transition as it wraps into the slope. This allows planting at the base of the wall, sets the wall back from the road, and provides curved transitions at the ends to reduce hard geometry associated with high visual impact. In addition, the in-cut walls would be placed mid-slope, where feasible.								
Where it is necessary to construct walls adjacent to the roadway, the tops of retaining walls would be softly curved in elevation to conform with the grade rather than stepped or angled. The tops of walls would also feature a broad cap of concrete to create a precise finish at the top of the wall and emphasize the smooth line and shape of the wall.								
Retaining walls 3 to 5 feet high, relating mainly to traffic areas, may be constructed of smooth form finish, and natural colored concrete similar to those at I-5 and Lomas Santa Fe interchange. Where adjacent to colored concrete, retaining or sound walls, these walls would be colored to match the adjacent wall.								
Retaining wall variations for southbound I-5 -Two variations are being analyzed for the proposed retaining wall required along southbound I-5 between Del Mar Heights Road and Carmel Valley Road for the Direct Connector Alternative: • The first variation would construct the proposed retaining wall directly adjacent to the shoulder along southbound I-5.								

Task and Brief Description	Responsible Branch/Staff	Timing/ Phase	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
• The second variation would construct the proposed retaining/sound wall several feet up the existing slope along southbound I-5 for the portion of wall north of Portofino Circle, allowing space for a landscape buffer between the retaining wall and the freeway shoulder. In addition, the second variation would provide homeowners with up to 20 feet of additional usable area for their property along Portofino Drive. This increase in backyard space would be accomplished by increasing the height of the proposed retaining wall, placing fill behind the retaining wall, and re-constructing the existing soundwall directly on top of the retaining wall. Visual impacts would be further reduced as setting back the retaining wall from the freeway shoulder would allow space for a landscape buffer with plant screening between the freeway and the proposed retaining wall. However, this would require additional permanent right-of-way (larger partial acquisitions and subsurface easements) because the proposed retaining wall would be located farther to the west.								
Local Street Realignment for Southbound I-5 – Under the Direct Connector Alternative, the Portofino development west of I-5 would need to be modified because of impacts to Portofino Circle. Portofino Circle would be shifted slightly to the west and modified. To replace the parking spaces lost adjacent to the freeway, some diagonal spaces would be added on the west side of the street. In addition, the recreation area would be enhanced, including addition of a new pool deck. Figure 3.8-19 shows the landscape concept plan for the Portofino development along southbound I-5.								
Sound Walls								
Many of the existing sound walls along the west side of I-5 may remain in place with the Auxiliary Lane Alternative (Alternative 2). These consist of solid slump block walls, or view walls (glass panels over a low slump block wall). Where walls are continuous with existing walls, the materials, colors, and forms would be repeated in the new walls.								
Where sound walls are to be constructed directly on top of retaining walls, the sound wall would be designed as a visual continuation of the retaining wall to be indistinguishable from the retaining wall.								
Where sound walls are to be constructed separately from the retaining walls, the sound walls would conform to the existing sound walls, adjacent colors, and architecture. Typically, this								

Task and Brief Description	Responsible Branch/Staff	Timing/ Phase	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
would be slump block or stucco walls with columns approximately 10 feet on center. Each required sound wall would be considered individually to select the type that will best blend with adjacent walls, including consideration of the proposed and existing retaining walls. When new sound walls are in proximity to the proposed retaining walls, consideration would be given to making the wall types match for visual compatibility. The selection would provide continuity in design when viewed from the road.								
Corridor Bridge Structures								
The connector bridge structures design would match the existing smooth, gently curving concrete bridge structures.								
Smooth, gently curving concrete bridge structures would be enhanced by a linear design treatment featuring shadow lines that enhance the clean horizontal lines and reduce the expanse of reflective smooth concrete surfaces as shown in the above photo of the existing crossover bridges at Carmel Valley Road.								
The side view of the bridge and flyover structures would be designed to present a thin appearance to the leading edge to minimize the thickness of the edge facing the viewer and create shadow under the rail.								
Bridge and flyover support columns would match the existing columns. These are cleanly designed to visually diminish the visual importance of the verticals to allow the smooth flowing horizontals of the concrete road structures to take visual precedence. Support columns would feature curved forms, in profile and section, to minimize stark shadow lines.								
Del Mar Heights Bridge								
The replacement bridge would be designed as a focal element and visual enhancement featuring a rich combination of aesthetic treatments to achieve a strongly positive viewer response. The bridge is viewed from both the northbound and southbound upward incline, making it extremely visible and potentially memorable and vivid. This is an opportunity to combine dramatic and high quality design in a focal element signaling the transition from Coastal North County to the symbolic entry to the City of San Diego.								
The bridge structure would be an elegant expression of fine modern bridge design, with clean lines and a graceful simplicity of form, but would also combine an intriguing combination of elements at the street level, also visible from the highway. This design of simple form below, and intriguing detail above, would combine to provide a memorable transition element that provides a sense of the communities it								

Task and Brief Description	Responsible Branch/Staff	Timing/ Phase	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
connects.								
Key pedestrian features may include a 12-foot sidewalk, fencing, lighting fixtures, sidewalk paving enhancements (such as grid paving), seating alcoves, protection from traffic, and artistic elements to provide a comfortable pedestrian experience and better separation from traffic. A low concrete barrier between the sidewalk and roadway would promote pedestrian safety and comfort.								
The bridge would be substantially consistent with the I-5 North Coast Corridor Transportation and Resource Enhancement Program and Highway Public Works Plan.								
Slope Paving								
Rounded creek cobble shall be used where possible for slope paving under the bridge structures and in shaded areas of the project where planting is feasible.								
Gore Paving								
To reflect the natural canyon bottom and continue the landscape treatment, the gore paving between the freeway and off- and on-ramps would be constructed of 0.79-inch exposed aggregate set in a matrix of warm-toned, earth-colored concrete, to provide a natural-appearing, river bottom gravel surface. The addition of 4 to 6 feet of creek bottom cobble in the gore paving would be preferable if permitted.								
The use of gore paving would be repeated, where possible, in areas of the design that are too narrow or shady for planting. Such areas would include turning gores, median tapers, and slope paving under the bridge structures.								
Planting								
Planting themes would be derived from the surrounding native plant community, selecting appropriate plants that fulfill specific functions of screening, accent planting, and erosion control.								
Surface cover of the planting spaces would utilize San Diego native plants, such as California sagebrush (Artemisia californica), California buckwheat (Eriogonum fasciculatum), and San Diego march-elder (Iva hayesiana) in a blend of plants, providing species diversity and the ability to naturalize over a 3-year establishment period.								
Screen shrubs would be planted to reduce exposure of large walls and slopes, and to provide mid-level screening. Shrubs would include, but not be limited to California holly (Heteromeles arbutifolia), Lemonade berry (Rhus integrifolia), Laurel Sumac (Malosma laurina), Hollyleaf cherry (Prunus ilicifolia), California buckthorn (Rhamnus californica),								

Task and Brief Description	Responsible Branch/Staff	Timing/ Phase	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
Goldenstar (Bloomeria crocea), and Barranca Brush (Ceanothus verrucosus).								
Tree planting would consist of trees native to the region, including Torrey Pines, Coast Live Oak (Quercus agrifolia), and in low areas where more moisture is available, Sycamore (Plantanus racemosa).								
Tall trees, such as Torrey Pines, would be planted in the vicinity of the flyover to help visually diminish the scale of the structures. Sycamores or cottonwoods are tall trees that would be appropriate to the Carmel Valley riparian area south of the I-5/56 interchange. The verticality of the trees will provide contrast with the horizontals of the road, promoting visual relief.								
Where planting space and maintenance access provisions would allow, the retaining walls would be planted with a clinging vine to provide visual relief of the large expanse of wall face and to visually soften the appearance, replacing the effect of the existing vegetation on the slopes. Each wall condition would be reviewed on a case-by-case basis for compatibility with native plants. A separate bubbler irrigation system would be included for vine plantings when combined with native plants.								
The subtle gray green of coast live oaks and chaparral plants would be planted to create a transition to a coastal sage/chaparral-type plant palette on the slopes, to increase contrast with the lush river vegetation.								
Native riparian tree species would be planted where possible in the lowland areas, to amplify and extend the visual connection with the Carmel River Valley.								
Where permitted by NPDES, large retention basins would incorporate the planting of riparian trees, such as Sycamore (*Platanus occidentalis*), Willow (*Salix spp*.), and Coast Live Oak (*Quercus agrifolia*), near the perimeter to reflect the character of ephemeral creek areas.								
Where appropriate, provide dense, native moderately low groundcover type planting along edges of roadways to contrast with the widened mass of concrete roadway and bring a sense of landscape toward the roadway. Plants may include low-growing prostrate coyote brush (*Baccharis pilularis*), California buckwheat (*Eriogonum fasciculatum*), and other low natives.								
All planted areas would be fully irrigated with below grade, automatically controlled irrigation systems to establish and support plant growth. Separately valved bubbler irrigation would be provided for the proposed tree and vine planting.								

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Landscape would be designed with the understanding that no irrigation or plant maintenance would likely be performed once the project is turned over to Caltrans after a 1-3-year establishment period.								
Specifically, along SR-56, planting would reflect the natural character of the Carmel River Valley and would include native plants.								
Specifically, along SR-56, planting would reflect the natural character of the Carmel River Valley and be composed of native plants similar to those proposed for I-5.								
Specifically, along SR-56, planting in proximity of buildings may be nonnative if necessary to fulfill aesthetic functions such as screening in narrow areas.								
Specifically, along SR-56, concrete retaining walls less than 7 feet high may be constructed of a muted shade of light tan-colored concrete and incorporate a textured band to help reduce the appearance of height of the wall.								
Specifically, along SR-56, where space permits, oleander shrubs would be planted in the median to replace those removed for this project. It appears that there is insufficient space to allow oleander planting in the Direct Connector, Hybrid, and Hybrid with Flyover alternatives.								
Planting Maintenance- The planting mitigation measures rely on growth, maintenance, and time to reach a size and maturity to perform their intended function. The mitigation measures itemized in this document are anticipated to begin to become effective approximately 5 years after implementation. This would be subject to variability in climate, growing conditions, irrigation, maintenance, and other factors. A cooperative agreement between the City of San Diego and Caltrans would be established to promote the full potential of the mitigation measures proposed.								
Bio-swales								
Bio-swales for temporary stormwater runoff storage would be placed, where required, and would include specially formulated soil and drainage layers, planted with a mixture of native noninvasive grasses and similar plants, tolerant of both dry and wet conditions.								
Retention and Infiltration Basins								
To provide a natural-appearing and sustainable solution for temporary storm water runoff storage, retention basins would be planted with self-sustaining native riparian vegetation, such as *Baccharis salicifolia* and *Artemesia douglasiana*, *dracunculus*, and *tridentata*. The low point of the basin would be constructed as a concrete pad around the overflow outlet								

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to allow cleaning. An access road may be constructed to the concrete pad to allow maintenance access. Paved or lined retention basins would be avoided.								
Signs and Lights								
Avoid placing signage, fencing, lighting, and distracting railings and other vertical elements along the direct connectors to avoid distracting elements that would be silhouetted against the sky or in front of distant views.								
To the full extent that illumination safety requirements allow, lighting would be designed to remain peripheral to the views and sight lines, and would be designed to remain in scale with perimeter planting and slopes.								
Densely arrayed lamp clusters on massive, strongly colored poles would not be used to avoid attracting attention to the lighting fixtures, and detracting from the views. Lights can create a strongly negative visual impact and view obstructions, resulting in a decrease in visual quality.								
Signs would feature standard Caltrans white letters on a green background, mounted on non-reflective galvanized tubular steel supports.								
Maintenance								
The maintenance for the project area would be determined by a cooperative agreement between the City of San Diego and Caltrans. Maintenance agreements would be designed to promote the full potential of the mitigation measures proposed.								
Water Quality and Storm Water Runoff								
Caltrans District 11 will require the construction contractor to comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002), and any subsequent permit, as they relate to construction activities for the project. This will include submission of the Permit Registration Documents, including a Notice of Intent (NOI), risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water Resources Control Board (SWRCB) at least 14 days prior to the start of construction. The SWPPP will meet the requirements of the Construction General Permit and will identify potential pollutant sources associated with construction activities; identify non-storm water discharges; develop a water quality monitoring and sampling plan; and identify, implement, and maintain best management practices (BMPs) to reduce or eliminate pollutants associated with the construction site. The								

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BMPs identified in the SWPPP will be implemented during project construction. A Notice of Termination (NOT) will be submitted to the SWRCB on the completion of construction and the stabilization of the site. SWRCB Resolution No. 2001-046 requiring sampling and analysis will also be implemented during project construction.								
Caltrans District 11 will require the construction contractor to comply with the provisions of the General Waste Discharge Requirements for Discharges from Groundwater Extraction and Similar Discharges to Surface Waters within the San Diego Region Except for San Diego Bay, Order No. R9-2008-0002, NPDES No. CAG919002, as they relate to discharge of non-storm-water dewatering wastes for the project.								
Caltrans District 11 will require the construction contractor to follow the procedures outlined in the Caltrans' Storm Water Quality Handbooks, Project Planning and Design Guide (July 2010 or subsequent issuance) for implementing Design Pollution Prevention and Treatment BMPs for the project. This will include coordination with the San Diego RWQCB with respect to the feasibility, maintenance, and monitoring of Treatment BMPs as set forth in Caltrans Statewide Storm Water Management Plan (SWMP, May 2003 or subsequent issuance). Caltrans District 11 will also require the construction contractor to comply with other provisions identified in the NPDES Permit, Statewide Storm Water Permit, and Waste Discharge Requirements for the State of California, Department of Transportation (Order No. 99-06-DWQ, NPDES No. CAS000003 or subsequent issuance).								
Design Pollution Prevention BMPs								
The following measures would be implemented to ensure that runoff from the I-5 and SR-56 interchange would not adversely degrade downstream hydrologic conditions and stability: ► Consideration of downstream channel stability related to potentially increased flow would include to: • Make modifications to channel (both natural and man-made) lining materials, including vegetation, geotextile mats, rock and riprap • Add energy dissipation devices at culvert outlets • Smooth the transition between culvert outlets/headwalls/wing walls and channels to reduce turbulence and scour • Incorporate retention or detention facilities to reduce peak discharges ► Preservation of existing vegetation would include to: • Identify and delineate on contract documents all								

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vegetation to be retained • Delineate areas to be preserved in the field before the commencement of soil disturbing activities • Minimize disturbed areas by locating temporary roadway to avoid impacting existing vegetation and follow existing contours to reduce cutting and filling • Consider impacts to adjacent vegetation that need to be preserved when removing vegetation ► Concentrated flow conveyance systems would include to: • Design all BMPs under this category in accordance with the *Highway Design Manual* (see Chapter 813, Chapter 830 [Topics 836 and 834.4], Chapter 860, Chapter 820 [Topics 826 and 827], and Chapter 870) • Consider outlet protection devices where localized scour is anticipated • Evaluate the risk because of erosion, overtopping, flow backup or washouts when selecting design flow • Consider run-on from off-site sources • Line conveyances when velocities exceed permissible limits • Use metal pipe downdrains on slopes 1:4 or flatter. For slopes flatter than 1:4, paved spillways would be used, and corrugated metal flumes with tapered entrance would be used on slopes 1:2 or flatter for low-flow rates. ► Slope and surface protection systems would include to: • Evaluate the project site based on soil type, climate, and topography for the selection of the appropriate vegetation and planting strategy (The vegetation cover would be selected to reduce concentrated flow depth and velocities and increase contact time between the runoff and the vegetation, which would improve infiltration and pollutant removal efficiency.) • Strip and stockpile topsoil (duff) and existing vegetation when feasible and use on the completed slopes before seeding application • Use slope rounding, roughening, or stepping where feasible to reduce concentrated flows and enhance the effectiveness of temporary and permanent hydroseeding • Implement hard surfaces in areas where it is difficult to maintain vegetation or when vegetation would not provide adequate erosion control because of slope or soil conditions, such as culvert outlets and gore								

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areas • Pave below bridge decks at abutments where it is difficult for vegetation to be established								
Construction BMPs								
Water quality standards and waste discharge requirements during construction would be addressed in the proposed project design and construction phase and would comply with the most current NPDES Construction General Permit requirements set forth by the SWRCB. The statewide SWMP describes how Caltrans would comply with these provisions and establish BMPs for construction of the proposed facilities, including source, erosion, sediment, and non-stormwater controls to be installed and maintained throughout construction. Construction BMPs are temporary and are removed as permanent design and treatment BMPs are established. As part of the evaluations, pollution prevention, treatment, and construction BMPs were evaluated and would be incorporated into proposed project plans to minimize the potential for nonpermitted discharges. Additionally, the proposed project would comply with the new Construction General Permit (2009-0009-DWQ) provisions for all discharges. As required per the General Construction Permit, construction BMPs would be implemented by the proposed project's SWPPP to ensure effective reduction or elimination of sediment and other pollutants in stormwater and non-stormwater discharges.								
Preservation (to the maximum extent possible) of existing vegetation would provide erosion and sediment control benefits. Temporary BMPs (i.e., soil stabilization, sediment control, wind erosion control, tracking control, non-stormwater management, and waste management and materials pollution control) would be implemented to contain both stormwater and non-stormwater discharges during construction.								
Typical measures used during construction would include applications of fiber rolls for and sediment control, temporary construction entrances to prevent sediment from tracking on paved surfaces, temporary drainage inlet protection, desilting basins, temporary concrete washouts for concrete spoils, street sweeping and vacuuming, temporary silt fence, temporary check dams, and temporary hydraulic mulch for slope stabilization.								
Other concerns would include potential pollutants from material storage and handling procedures. These would be addressed by incorporating appropriate control measures including, but not limited to, solid waste management, concrete waste management, proper practices for material								

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delivery and storage, material use, hazardous waste management, water conservation practices, stockpile management, street sweeping, spill prevention control, and designated staging areas for material and equipment. Specifically, all equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any related activities would occur in designated areas and within the fenced project impact limits. These designated areas would be located in previously compacted and disturbed areas to the maximum extent practicable, in such a manner as to prevent any runoff from entering wetlands or waters, and would be shown on the construction plans. Fueling of equipment would take place within existing paved areas greater than 100 feet from wetlands or waters. Contractor equipment would be checked for leaks before operation and repaired as necessary.								
Maintenance BMPs								
General maintenance BMPs to be implemented would include scheduling and planning; spill prevention and control; sanitary and septic waste management; material use; safe alternative product use; vehicle and equipment cleaning, fueling, and maintenance; illicit connection detection, reporting, and removal; illegal spill discharge control; and maintenance facility housekeeping practices, using technology-based controls to attain maximum extent practicable pollutant control.								
Treatment BMPs								
As required by the SWMP, biofiltration (strips/swales), infiltration devices, detention devices, traction sand traps, dry weather flow devices, gross solid removal devices, media filters, multi-chamber treatment trains, and wet basins would be considered for the proposed project.								
As the proposed project progressed through design, the locations of the treatment BMPs would be further evaluated to determine whether they could be incorporated or rejected because of right-of-way or environmental constraints. A detention basin is proposed near the northeast quadrant of the I-5/SR-56 interchange and at the northeast quadrant of SR-56/Carmel Creek Road. Even if the sites were found not to be practicable locations, vegetation would be maximized throughout the area. Based on the environmental recommendations, a Caltrans erosion control specialist, in coordination with a Caltrans biologist and landscape architect, would determine the appropriate planting/seeding mix that would meet the water quality objective as well as the landscaping scheme of the area. Permanent erosion and sedimentation control features may include, but would not be								

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limited to, planting, hydroseeding, permanent fiber rolls, and improvements of drainage facilities to handle excess runoff.								
Additionally, existing treatment BMPs are within the proposed project limits that were previously constructed; however, any BMPs that would be impacted by the construction of the proposed project would be replaced with equivalent Caltrans-approved treatment BMPs. The volume of runoff estimated to be treated by the preferred BMPs would vary for each build alternative; the higher the volume of runoff being treated by BMPs, the lower the amount of pollutant concentrations leaving the project site. The Direct Connector Alternative is estimated to treat the highest volume of water, and the Auxiliary Lane Alternative would treat the lowest volume (56 percent and 39 percent, respectively). The Hybrid with Flyover Alternative is estimated to treat 50 percent, and the Hybrid Alternative is estimated to treat 48 percent of runoff water from the proposed project site.								
Geology/Soils/Seismic/Topography								
All construction activities would adhere to the requirements of the City of San Diego, City of Del Mar, and the Caltrans Highway Design Manual.								
The relocation of existing utilities would be required for the proposed project. The utility excavations would follow the State of California Construction Safety Orders from the California Division of Occupational Safety and Health (Cal/OSHA). Caltrans and its contractor would make themselves familiar with applicable local, state, and federal safety regulations, including the current Cal/OSHA Excavation and Trench Safety Standards.								
For site preparation and grading operations, vegetation would be removed and surficial organic soils stripped prior to the installation of new pavements and other permanent structural improvements.								
Loose soil would be removed from the embankment footprint prior to fill placement.								
Clearing and grubbing operations and depressions left by any such removal would be backfilled in accordance with the Caltrans Standard Specifications.								
Future subsurface investigations for the project would carefully log the cemented layers (and strata that present difficult drilling) in the sedimentary rock units to help quantify potential hard rock excavation.								
If unsuitable materials (such as organic, soft, and/or yielding soil) are encountered during the grading operations, these areas would be stabilized prior to fill placement or paving. Stabilization methods may include complete excavation and replacement, and/or installation of a fabric or geo-grid for additional stabilization. The								

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depth and extent of required soil removal and remedial repair would be reviewed and approved in the field by the on-site Geotechnical Engineer.								
The granular site soils derived from sedimentary formations are acceptable for use as fill material.								
The fine-grained cohesive soils encountered within the project limits would not acceptable for re-use as fill material and would be disposed of off-site or used in non-structural applications.								
An analysis of the slope stability of proposed embankments constructed over lagoonal/alluvial materials would be performed during future investigations, following the acquisition of site-specific subsurface data. Future slope stability models would consider both short-term (unconsolidated, undrained) and long-term (consolidated, drained) loading conditions.								
Embankments would be protected from erosion caused by surface water or groundwater. Surface water would be directed to storm drain systems and not discharged over slope faces.								
Subsurface drainage devises would be installed where groundwater is present.								
The presence of groundwater would be determined using site-specific subsurface investigations, and the effects of groundwater would be incorporated into temporary slope design on a case-by-case basis.								
Berms, swales, and diversion ditches would be incorporated to prevent surface water from irrigation and storm water runoff from entering the excavations.								
The trench bottoms may become soft and pumping may be required if excess water is introduced into an open excavation.								
A representative of the Geotechnical Engineer of Record would be present during project construction to observe all cuts, foundation subgrade, and embankment subgrade, to ensure that the standards are appropriately enforced.								
A program of periodic surveying for ground movement would be included in project construction where the potential for ground movement and failure exists.								
Paleontology								
A Paleontological Mitigation Plan will be prepared and implemented.								
A qualified paleontologist (as defined in the Caltrans' Standard Environmental Reference) would be at the pre-construction meeting to consult with the grading and excavation contractors concerning excavation schedules, paleontological field techniques, and safety issues. A qualified paleontologist is defined as an individual with a MS or Ph.D. in paleontology or geology who is								

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familiar with paleontological procedures and techniques, who is knowledgeable in the geology and paleontology of San Diego County, and who has worked as a paleontological mitigation project supervisor in the county for at least one year.								
A paleontological monitor would be on-site on a full-time basis during the original cutting of previously undisturbed deposits of high or moderate paleontological resource potential, and on-site on a part-time basis during the original cutting of previously undisturbed deposits of low paleontological resource potential (sedimentary deposits of younger alluvium), to inspect exposures for contained fossils. (A paleontological monitor is defined as an individual who has experience in the collection and salvage of fossil materials. The paleontological monitor would work under the direction of a qualified paleontologist. As grading progresses, the qualified paleontologist and paleontological monitor will confer with the Resident Engineer regarding the level of effort needed and reduce the scope of the monitoring program to an appropriate level if it is determined that the potential for impacts to paleontological resources is lower than anticipated.								
When fossils are discovered, the paleontologist (or paleontological monitor) would recover them. In most cases this fossil salvage can be completed in a short period of time. However, some fossil specimens (such as a complete large mammal skeleton) may require an extended salvage period. In these instances the paleontologist (or paleontological monitor) would consult with the RE to temporarily, divert, or halt grading to allow recovery of fossil remains in a timely manner. Because of the potential for the recovery of small fossil remains, such as isolated mammal teeth, it may be necessary to set up a screenwashing operation on the site.								
During the monitoring and recovery phases of the PMP the qualified paleontologist and/or the paleontological monitor would also routinely collect stratigraphic data (e.g., lithology, vertical thickness, lateral extent of strata, nature of upper and lower contacts, and taphonomic character of exposed strata). Collection of such data is critical for providing a stratigraphic context for any recovered fossils.								
Fossil remains collected during monitoring and salvage would be cleaned (removal of extraneous enclosing sedimentary rock material), prepared, sorted (separating fossils of the different species), and cataloged (scientific identification of species, assignment of inventory tracking numbers, and recording of these numbers in a computerized collection database) as part of the mitigation program.								
Prepared fossils, along with copies of all pertinent field notes, photos, and maps, would be deposited in a scientific institution with permanent paleontological collections such as the San Diego								

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Natural History Museum.								
A final summary report would be completed that outlines the results of the mitigation program. This report would include discussions of the methods used, stratigraphic section(s) exposed and documented, fossils collected, and significance of recovered fossils.								
Hazardous Waste/Materials								
Specifically for the Direct Connector, Hybrid, and Hybrid with Flyover alternatives, if groundwater is encountered during subsurface activities in any of the build alternatives, a Ground Water Management Plan would be prepared that would address the notification, monitoring, sampling, testing, handling, storage, and disposal of potentially contaminated groundwater. If hazardous contaminant concentrations are not found in the groundwater, the groundwater may be discharged to a storm drain with proper NPDES permitting. It is recommended that a contingency be retained for the removal and disposal of impacted groundwater.								
Specifically for the Direct Connector, Hybrid, and Hybrid with Flyover alternatives, if yellow or white thermoplastic paint striping is to be removed, it would be removed in accordance with Standard Specification (SSP) 15.2.02c(2) since the existing paint stripe is documented to have been applied after 1997. A Lead Compliance Plan would be prepared and implemented for conducting all paint removal activities.								
Specifically for the Direct Connector, Hybrid, and Hybrid with Flyover alternatives, the treated wood waste (TWW) from sign removal and metal beam guard rail would not be relinquished to the contractor. It would be reused at the project site or disposed of at a Class II landfill facility or a composite-lined solid waste landfill facility, permitted to accept such wastes. Management of TWW would follow Title 22 CA Code of Regulations, Division 4.5, Chapter 34 and the Treated Wood Waste SSP 14-11.09 would be used.								
Specifically for the Direct Connector, Hybrid, and Hybrid with Flyover alternatives, a Compliance Plan shall be prepared prior to construction activities such as paint stripe, guardrail, and sign post removal to manage health and safety hazards to workers and the public. The Compliance Plan shall describe proper handling methods of the paint material and treated wood and provide information about limiting the exposure to lead and lead chromate.								
Specifically for the Direct Connector, Hybrid, and Hybrid with Flyover alternatives, as is the case for any project involving excavation, the potential exists for unknown hazardous contamination to be revealed during project construction. For any previously unknown hazardous waste/material encountered during								

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construction, the procedures outlined in Caltrans Hazards Procedures for Construction, Appendix F would be followed.								
Air Quality								
It is recommended that the following measures be incorporated into the project to minimize fugitive emissions of PM_{10}, and $PM_{2.5}$: • Minimize land disturbance to the extent feasible. • Use watering trucks to minimize dust; watering would be sufficient to confine dust plumes to the project work areas. • Suspend grading and earth moving when wind gusts exceed 25 mph unless the soil is wet enough to prevent dust plumes. • Cover all trucks hauling dirt when traveling at speeds greater than 15 mph. • Stabilize the surface of dirt piles if not removed within 2 days. • Limit vehicular paths on unpaved surfaces and stabilize any temporary roads. • Minimize unnecessary vehicular and machinery activities. • Sweep paved streets at least once per day where there is evidence of dirt that has been carried on to the roadway. • Revegetate disturbed land, including vehicular paths created during construction, to avoid future off-road vehicular activities. • Remove unused material.								
It is recommended that the following measures be incorporated into the project to minimize exposure to diesel PM: • Locate construction equipment and truck staging and maintenance areas as far as feasible and nominally downwind of schools, active recreation areas, and other areas of high population density.								
Noise								
Construction would be conducted in accordance with Caltrans' Standard Specifications. Sound control would conform to the provisions in Section 14-8.02, "Noise Control," of the Standard Specifications and S5-310 "Sound Control Requirements."								
Construction noise cannot exceed 86 dBA at 15 m (50 ft) from the job site activities from 9:00 PM. to 6:00 AM.								
Internal combustion engines would be equipped with the manufacturer-recommended muffler. An internal combustion engine cannot be operated on the job site without the appropriate muffler.								

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Construction equipment cannot be operated between the hours of 7:00 PM. and 7:00 AM, or on Sundays. However, equipment may be operated during the restricted hours due to (a) service traffic control facilities and (b) service construction equipment.								
To ensure noise limits would not be exceeded, detailed calculation must be conducted prior to start of construction activities to determine the noise levels associated with various construction phases. If there is a possibility of noise impacts, appropriate noise control measures must be considered to meet Caltrans requirements. Noise monitoring must also be considered during the construction activities to verify that these activities did not exceed the applicable noise limits.								
Energy								
Caltrans is incorporating energy saving measures into the project in these described efforts to minimize energy consumption during construction: • Public awareness campaigns to encourage carpooling and commuting during non-peak traffic hours • The recycling of materials • The use of recycled materials • The use of energy-efficient or alternative fuel construction vehicles								
Caltrans will reuse and incorporate existing materials (those that can be) into the final product. Such opportunities likely would include the use of the existing materials in roadway base and the incorporation of solid rock into the proposed erosion/slope protection measures. To ensure the maximum use of this concept, the processing of materials on--site would be allowed. Any pavement and construction debris that is removed would be hauled back to the materials plant for recycling or re use, or it would be broken into smaller pieces and buried in the deep fill.								
If there is excess material, Caltrans could allow that material to be absorbed by local materials processors, if feasible, to avoid the need to have it hauled away from the project and disposed of in an appropriate location.								
Natural Communities								
Limits of construction (including construction staging areas and access routes) would be clearly marked on project maps provided to the contractor(s) to indicate “no construction” zones. Natural vegetation communities outside of or adjacent to impact areas would be designated as Environmentally Sensitive Areas (ESAs) and be delineated with ESA fencing (orange snow fencing) to prevent work from occurring in these areas. Temporary construction fencing would be removed upon project completion. A biological monitor would be present during vegetation clearing to								

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ensure that work stays within designated construction limits.								
Vegetation clearing would occur outside of the breeding season (February 15 through August 31) so that impacts to nesting birds can be avoided. In addition, nest clearance surveys would be completed by a qualified biologist immediately prior to vegetation clearing to verify that no birds are nesting in the area.								
All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or related activities would occur in designated areas and within the fenced project impact limits. These designated areas would be located in previously compacted and disturbed areas to the maximum extent practicable in such a manner as to prevent runoff from entering wetlands or waters, and would be shown on the construction plans. Fueling of equipment would take place within existing paved areas greater than 100 feet from wetlands or waters. Contractor equipment would be checked for leaks prior to operation and repaired as necessary. “No-fueling” zones would be designated on construction plans.								
In areas not requiring excavation or grading, vegetation would be trampled instead of completely removed.								
The project site would be kept as clean of debris as possible to avoid attracting predators of sensitive wildlife. All food-related trash items would be enclosed in sealed containers and regularly removed from the site.								
Pets would not be allowed on the project site.								
A majority of construction is expected to be undertaken during daylight; however, when nighttime construction is necessary, lighting would be of the lowest illumination necessary for human safety, would be diverted away from any native vegetation communities, and would consist of lighting equipped with shields to focus light downward onto the appropriate subject area.								
Compensatory mitigation for impacts to sensitive upland habitats would be completed at the Dean Mitigation Parcel on the slopes of San Dieguito Lagoon immediately east of I-5 in a former tomato field. Specifically, permanent impacts to coastal sage scrub and southern maritime chaparral would be completed on Caltrans mitigation property on the slopes of San Dieguito Lagoon at a proposed 2:1 ratio, subject to discussions with the California Coastal Commission and other resource agencies.								
Wetlands and Other Waters of the U.S.								
All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any related activities would occur in designated areas and within the fenced project impact limits. These designated areas would be located in previously compacted and disturbed areas to the maximum extent practicable in such a manner as to prevent any runoff from entering jurisdictional wetlands or waters,								

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and would be shown on the construction plans. Fueling of equipment would take place within existing paved areas greater than 100 feet from jurisdictional wetlands or waters. Contractor equipment would be checked for leaks prior to operation and repaired as necessary. “No-fueling” zones would be designated on construction plans.								
Plant Species								
Seed will be collected from any Del Mar sand aster plants that would be temporarily impacted by the project. The seed will be sown in the temporary impact areas upon completion of the project.								
Animal Species								
Consultation with the resource agencies would determine the type and extent of mitigation measures required for unavoidable impacts to special-status animals of their habitats (if any).								
Invasive Species								
In compliance with the Executive Order on Invasive Species, E.O. 13112, and subsequent guidance from the Federal Highway Administration, the landscaping and erosion control included in the project would not use species listed as invasive. In areas of particular sensitivity, extra precautions would be taken if invasive species are found in or adjacent to construction areas. These would include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur. Special care would be taken when transporting, using, and disposing soils with invasive weed seeds. All heavy equipment would be washed and cleaned of debris before entering sensitive areas, to minimize the possible spread of invasive weeds. Special care would be taken when transporting, using, and disposing of soils containing invasive weed seeds.								
Species listed by the Cal-IPC will not be planted onsite.								

APPENDIX F

Nonstandard Features/Design Exceptions

Nonstandard features would be required for each of the build alternatives. Nonstandard features are design exceptions to standards established in Caltrans's Highway Design Manual (HDM). For each of the alternatives, the locations of nonstandard features, descriptions of the design exception, and references to the standard from the Caltrans HDM Index are provided in Tables E-1 through E-4.

Table F-1. Design Exceptions for the Direct Connector Alternative (Alternative 2)

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Transition Run-off Length and superelevation rate	A	202.2 and 202.5(1)
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Rate	M	Table 202.2
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Runoff Length	A	202.5(2)
Carmel Creek Road WB Off-Ramp	Embankment north of ramp	Embankment Slope Grading	A	304.1(a)
Carmel Creek Road EB On-Ramp	Second vertical curve	Length of Vertical Curve	A	204.4
Carmel Creek Road EB On-Ramp	EB Carmel Creek On- Ramp	Freeway Entrance - Design Speed	A	504.2 (4)(b)
Carmel Creek Road EB On-Ramp	First vertical curve	Stopping Sight Distance	M	201.1 and Table 201.1
Carmel Creek Road EB On-Ramp	Second vertical curve	Stopping Sight Distance	M	201.1 and Table 201.1
Carmel Creek Road EB On-Ramp	Second vertical curve	Length of Vertical Curve	A	204.4
Carmel Creek Road EB On-Ramp	First horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Creek Road EB On-Ramp	First horizontal curve	Superelevation Runoff Length	A	202.5(2)
Carmel Creek Road EB On-Ramp	NA	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Creek Road EB On-Ramp	Inlet nose of entance ramp	Inlet Nose Design Speed	A	504.2(4)(b)
Carmel Creek Road EB Off-Ramp	First vertical curve	Length of Vertical Curve	A	204.4
Carmel Creek Road EB Off-Ramp	EB Carmel Creek Off-Ramp	Freeway Exit - Design Speed	A	504.2 (4)(a)
Carmel Creek Road EB Off-Ramp	Second horizontal curve	Stopping Sight Distance	M	201.1 and Table 201.1
Carmel Creek Road EB Off-Ramp	First horizontal curve	Stopping Sight Distance	M	201.1 and Table 201.1
Carmel Creek Road EB Off-Ramp	First vertical curve	Length of Vertical Curve	A	204.4
Carmel Creek Road EB Off-Ramp	First horizontal curve	Interchange Grades - Freeway Exits	A	504.2(5)(a)
Carmel Creek Road EB Off-Ramp	Single lane exit ramp	Single Lane Exit Designed With Provision for Second Lane	A	504.3(6)

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
Carmel Creek Road WB Loop On-Ramp	Second horizontal curve	Superelevation Transition Run-off Length and Superelevation Rate	A	202.2 and 202.5(1)
Carmel Creek Road WB Loop On-Ramp	Gore area	Gore Cross Slope	A	504.2(5)
Carmel Creek Road WB Loop On-Ramp	WB Carmel Creek Loop On-Ramp	Horizontal Geometrics	A	504.4(2)
Carmel Creek Road WB Loop On-Ramp	Station 527+72.024 to 530+37.339	Compound Curve	A	203.5
Carmel Creek Road WB Loop On-Ramp	First horizontal curve	Superelevation Rate	M	Table 202.2
Carmel Creek Road WB Loop On-Ramp	First horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Creek Road WB Loop On-Ramp	First and second horizontal curves	Superelevation Transition for Compound Curves	A	202.5(6)
Carmel Creek Road WB Loop On-Ramp	WB Carmel Creek Loop On-Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Country Road EB On-Ramp	Station 40+43.717 to 42+16.982	Compound Curve	A	203.5
Carmel Country Road EB On-Ramp	EB Carmel Country Off-Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Country Road WB Loop On-Ramp	Gore area	Gore Cross Slope	A	504.2(5)
Carmel Country Road WB Loop On-Ramp	Station 38+80.198 to 40+97.219	Compound Curve	A	203.5
Carmel Country Road WB Loop On-Ramp	WB Carmel Creek Loop On-Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Valley Road NB On-Ramp	Second vertical curve	Length of Vertical Curve	A	204.4
Carmel Valley Road NB On-Ramp	First horizontal curve	Superelevation Transition Runoff Length	A	202.5(1)
Carmel Valley Road NB On-Ramp	First horizontal curve	Superelevation Runoff Length	A	202.5(2)
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition Run-off Length and Superelevation Rate	A	202.2 and 202.5(1)
Carmel Valley Road NB Off-Ramp	Second vertical curve	Length of Vertical Curve	A	204.4
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Rate	M	Table 202.2
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition Runoff Length	A	202.5(1)
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition Runoff Length	A	202.5(2)
Carmel Valley Road NB Off-Ramp	NB Carmel Valley Rd Off-Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Valley Road NB Off-Ramp	First horizontal curve	Deceleration Length	A	504.2(2)

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
Carmel Valley Road SB Off-Ramp	Gore area	Deceleration Length	A	504.2(2)
Carmel Valley Road SB Off-Ramp	First horizontal curve	Stopping Sight Distance	M	201.1 and Table 201.1
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superelevation Rate	M	Table 202.2
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superelevation Runoff Length	A	202.5(2)
Carmel Valley Road SB Off-Ramp	SB Carmel Valley Rd Off-Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Valley Road SB Off-Ramp	First horizontal curve	Deceleration Length	A	504.2(2) and Fig 504.2B
Carmel Valley Road SB Off-Ramp	Ramp terminus	Ramp Terminus Design Speed	A	504.3(1)(a)
Del Mar Heights Road	First vertical curve	Length of Vertical Curve	A	204.4
Del Mar Heights Road	Third vertical curve	Length of Vertical Curve	A	204.4
Del Mar Heights Road NB Off-Ramp	Second horizontal curve	Superelevation Rate	M	Table 202.2
Del Mar Heights Road NB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
Del Mar Heights Road NB Off-Ramp	Second horizontal curve	Superelevation Runoff Length	A	202.5(2)
Del Mar Heights Road SB On-Ramp	Gore area	Gore Cross Slope	A	504.2(5)
Del Mar Heights Road SB On-Ramp	SB Del Mar Heights On-Ramp	Profile Grade	A	504.2(5)
Del Mar Heights Road SB On-Ramp	SB Del Mar Heights On-Ramp	Lane Drop Taper	A	Fig 504.3G
Del Mar Heights Road SB On-Ramp	Second horizontal curve	Stopping Sight Distance	M	201.1 and Table 201.1
Del Mar Heights Road SB On-Ramp	Second vertical curve	Length of Vertical Curve	A	204.4
Del Mar Heights Road SB On-Ramp	Second horizontal curve	Superelevation Rate	M	Table 202.2
Del Mar Heights Road SB On-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
Del Mar Heights Road SB On-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
Del Mar Heights Road SB On-Ramp	Second horizontal curve	Superelevation Runoff Length	A	202.5(2)
Del Mar Heights Road SB On-Ramp	Embankment	Embankment Slope Grading	A	304.1(a)

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
Del Mar Heights Road Ramps	Del Mar Heights Overcrossing	Location of Ramp Intersection on Crossroad	A	504.3(3)
Del Mar Heights Road SB Loop On-Ramp	SB Del Mar Heights Rd Loop On-Ramp	Superelevation Transition	A	202.5(2)
Del Mar Heights Road SB Loop On-Ramp	SB Del Mar Heights Loop On-Ramp	Profile Grade	A	504.2(5)
Del Mar Heights Road SB Loop On-Ramp	Third horizontal curve	Stopping Sight Distance	M	201.1 and Table 201.1
Del Mar Heights Road SB Loop On-Ramp	Second horizontal curve	Headlight Sight Distance	M	201.1 and Table 201.1
Del Mar Heights Road SB Off-Ramp	First horizontal curve	Superelevation Rate	M	Table 202.2
Del Mar Heights Road SB Off-Ramp	First horizontal curve	Superelevation Transition	A	202.5(1)
El Camino Real	Vertical clearance at El Camino Real	Falsework Vertical Clearance	M	204.8 (5)
El Camino Real EB On-Ramp	EB El Camino Real On- Ramp	Horizontal Geometrics	A	504.4(2)
El Camino Real EB On-Ramp	First vertical curve	Length of Vertical Curve	A	204.4
El Camino Real EB On-Ramp	Right shoulder	Shoulder Widths	M	302.1
El Camino Real EB On-Ramp	Embankment	Embankment Slope Grading	A	304.1(a)
El Camino Real EB On-Ramp	Embankment	Embankment Slope Grading	A	304.1(a)
El Camino Real WB Off-Ramp	First horizontal curve	Stopping Sight Distance	M	201.1 and Table 201.1
El Camino Real WB Off-Ramp	First vertical curve	Length of Vertical Curve	A	204.4
El Camino Real WB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
El Camino Real WB Off-Ramp	Second horizontal curve	Superelevation Runoff Length	A	202.5(2)
El Camino Real WB Off-Ramp	First vertical curve	Stopping Sight Distance	A	504.2(5)(a)
El Camino Real WB Off-Ramp	Auxiliary lane prior to exit ramp	Auxiliary Lane Minimum Length	A	504.3(6)
El Camino Real WB Off-Ramp	Second horizontal curve	Superelevation Rate	M	Table 202.2
El Camino Real WB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
I–5 Mainline	SB I–5 Mainline	Lane Widths	M	301.1
I–5 Mainline	SB I–5 left shoulder at SE Connector and Del Mar Heights overcrossings	Shoulder Width	M	302.1
I–5 Mainline	Distance between I–5/SR–56 Interchange and I–5/ Del Mar Heights Interchange	Interchange Spacing	M	501.3
I–5 Mainline	I–5 Left Shoulders where proposed overhead sign posts are to be placed.	Shoulder Widths	M	302.1

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
I–5 Mainline	I–5 Medians	Median Widths	A	305.1
I–5 Mainline	I–5 Left Shoulders at SE Connector and Del Mar Heights overcrossings	Shoulder Widths	M	Table 301.2 and 309.1(3)
I–5 Mainline	I–5 Left Shoulders where proposed overhead sign posts are to be placed.	Shoulder Widths	M	Table 301.2 and 309.1(3)
NA	NA	Uniform Catch Point	A	304.1
NB I–5 Bypass	First horizontal curve	Superelevation Transition Run-off Length and Superelevation Rate	A	202.2 and 202.5(1)
NB I–5 Bypass	Second vertical curve	Length of Vertical Curve	A	204.4
NB I–5 Bypass	Third vertical curve	Length of Vertical Curve	A	204.4
NB I–5 Bypass	First horizontal curve	Superelevation Transition	A	202.5(1)
NB I–5 Bypass	First horizontal curve	Superelevation Runoff Length	A	202.5(2)
NB I–5 Bypass	First horizontal curve	Superelevation Runoff Length	A	202.5(2)
NB I–5 Bypass	Between 'CV1' and 'NT'	Embankment Slope Grading	A	304.1(a)
SB I–5 to EB SR–56 Direct Connector	SB to EB Freeway-to-Freeway Connector	Compound Curve	A	203.5
SB I–5 to EB SR–56 Direct Connector	Third horizontal curve (Compound curve)	Superelevation Transition Run-off Length and Superelevation Rate	A	202.2 and 202.5(1)
SB I–5 to EB SR–56 Direct Connector	SB to EB Freeway-to-Freeway Connector	Horizontal Curve - Design Speed	A	504.4(2)
SB I–5 to EB SR–56 Direct Connector	Second horizontal curve	Minimum Curve Radii	M	203.2 and Table 203.2
SB I–5 to EB SR–56 Direct Connector	Second horizontal curve	Stopping Sight Distance	M	203.1, 201.1 and Table 201.1
SR–56 Mainline	SR56 left shoulders at Carmel Creek Road and Carmel Country Road undercrossings	Shoulder Widths	M	302.1
SR–56 Mainline	SR56 Left Shoulders where proposed overhead sign posts are to be placed.	Shoulder Widths	M	302.1
SR–56 Mainline	SR56	Median Widths	A	305.1
SR–56 Mainline	SR56 Left Shoulders at Carmel Creek Road and Carmel Country Road undercrossing	Shoulder Widths	M	Table 301.2 and 309.1(3)
SR–56 Mainline	SR56 Left Shoulders where proposed overhead sign posts are to be placed.	Shoulder Widths	M	Table 301.2 and 309.1(3)
SR–56 Mainline	Distance between I–5/SR–56 Interchange and SR-56/El Camino Real Interchange	Interchange Spacing	M	501.3
SR–56 Mainline	Distance between SR–56/El Camino Real Interchange and SR–56/Carmel Creek Interchange	Interchange Spacing	M	501.3
SR–56 Mainline	Distance between	Weaving Length	A	504.7

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
El Camino Real EB On-Ramp	Right shoulder	Minimum Horizontal Clearance	M	309.1 and 1102.2
I–5 Mainline	I–5 left shoulder at SE Connector and Del Mar Heights overcrossings	Minimum Horizontal Clearance	M	309.1 and 1102.2
SR–56 Mainline	SR56 left shoulders at Carmel Creek Road undercrossing	Minimum Horizontal Clearance	M	309.1 and 1102.2
SR–56 Mainline	SR56 Left Shoulders where proposed overhead sign posts are to be placed.	Minimum Horizontal Clearance	M	309.1 and 1102.2
I–5 Mainline	I–5 Left Shoulders where proposed overhead sign posts are to be placed.	Minimum Horizontal Clearance	M	309.1 and 1102.2
SR–56 Mainline	Distance between	Weaving Length	A	504.7
Del Mar Heights Road	Eastbound Del Mar Heights Rd	Shoulder Width Adjacent to Right-Turn Lanes	M	405.3(2)(a)
Del Mar Heights Road	Westbound Del Mar Heights Rd	Shoulder Width Adjacent to Right-Turn Lanes	M	405.3(2)(a)
SB I–5 Bypass	Third horizontal curve	Superelevation Transition Run-off Length and superelevation rate	A	202.2 and 202.5(1)
SB I–5 Bypass	Second vertical curve	Length of Vertical Curve	A	204.4
SB I–5 Bypass	Second horizontal curve	Stopping Sight Distance	M	201.1 and Table 201.1
SR–56 West to I–5 North Connector	At I–5 entrance	Superelevation Transition	A	202.5(2)
SR–56 West to I–5 North Connector	WB to NB Freeway-to-Freeway Connector	Horizontal Curve - Design Speed	A	504.4(2)
SR–56 West to I–5 North Connector	Second horizontal curve	Minimum Curve Radii	M	203.2 and Table 203.2
SR–56 West to I–5 North Connector	Second horizontal curve	Stopping Sight Distance	M	203.1, 201.1 and Table 201.1
SR–56 West to I–5 North Connector	Tangent from station 557+37.726 to 557+69.628	Superelevation Transition Runoff Length	A	Figure 202.5
SR–56 West to I–5 North Connector	Between 'EC3' and 'WN'	Embankment Slope Grading	A	304.1(a)
I–5/SR–56 West to I–5 North Connector	Branch connection	Branch Connection Geometric Design	A	504.3(6)
SR–56 West to I–5 North Connector/NB I–5 Bypass	Branch connection	Branch Connection Geometric Design	A	504.3(6)

Table F-2. Design Exceptions for the Auxiliary Lane Alternative (Alternative 3)

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Transition Run-off Length	A	202.5(1)
Carmel Creek Road WB Off-Ramp	First horizontal curve	Stopping Sight Distance	A	201.1
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Rate	M	202.2
Carmel Creek Road WB Off-Ramp	First horizontal Curve	Superevelevation Transition Runoff Length	A	202.5 (2)
Carmel Creek Road WB Loop On-Ramp	First horizontal curve	Superelevation Run-off Length	A	202.5(1)
Carmel Creek Road WB Loop On-Ramp	Second horizontal curve	Superelevation Transition Run-off Length and superelevation rate	A	202.6
Carmel Creek Road WB Loop On-Ramp	Second horizontal curve	Curve Radii	M	203.2
Carmel Creek Road WB Loop On-Ramp	Station	Compound Curve	A	203.5
Carmel Creek Road WB Loop On-Ramp	WB Carmel Creek On-Ramp	Freeway Entrance/ Exit Design	A	504.2 (2) and 107.1
Carmel Creek Road WB Loop On-Ramp	WB Carmel Creek On-Ramp	Inlet Nose Design Speed	A	504.2 (4)
SR–56 Mainline	WB Carmel Creek on-ramp and WB El Camino Real off-ramp	Weaving Length	A	504.7
Carmel Country Road WB Loop On-Ramp	WB Carmel Country Off-Ramp	Freeway Exit - Design Speed	A	504.2 (4)(b)
Carmel Country Road WB Loop On-Ramp	First vertical Curve	Length of Vertical Curve	A	204.4
Carmel Country Road WB Loop On-Ramp	Gore area	Gore Cross Slope	A	504.2(5)
Carmel Country Road WB Loop On-Ramp	Vertical curve	Headlight Sight Distance for Vertical Curve	M	201.1 and 201.5
Carmel Country Road WB Loop On-Ramp	First and second horizontal curve	Compound Curve	A	203.5
Carmel Country Road WB Loop On-Ramp	WB Carmel Country Off-Ramp	Freeway Entrance/ Exit Design	A	504.2 (2) and 107.1
Carmel Country Road WB Loop On-Ramp	Gore area	Exit Nose Design Speed	A	504.2 (4)
Carmel Country Road WB Loop On-Ramp	Horizontal curve	Curve Radii	M	203.2
Carmel Valley Road NB Off-Ramp	NB Carmel Valley Rd off-ramp horizontal curve	Superelevation Transition Run-off Length and Superlevation Rate	A	202.2 and 202.5(1)
Carmel Valley Road NB Off-Ramp	NB Carmel Valley Rd off-ramp horizontal curve	Superelevation Transition Run-off Length and	A	202.2 and 202.5(1)

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
		Superlevation Rate		
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition Run-off Length and Superlevation Rate	A	202.2 and 202.5(1)
Carmel Valley Road NB Off-Ramp	Second vertical curve	Length of Vertical Curve	A	204.4
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Rate	M	Table 202.2
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Run-off Length	A	202.5(2)
Carmel Valley Road NB Off-Ramp	NB Carmel Valley Rd Off-Ramp	Freeway entrance and exit - Geometrics	A	504.2(2) and 107.1
Carmel Valley Road NB Off-Ramp	First horizontal curve	Deceleration Length	A	504.2(2)
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superevelevation Rate	M	Table 202.2
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superevelevation Rate Run-off Length	A	Index 202.5 (2)
CVR and CV1	Carmel Valley Rd and NB Carmel Valley Rd On-ramp	Intersection	A	403.3 and Figure 403.3
CVR and CV2	Carmel Valley Rd and NB Carmel Valley Rd Off-ramp	Intersection	A	403.3 and Figure 403.3
Del Mar Heights Road	Bridge embankments	Embankment Slopes	A	304.1(a)
Del Mar Heights Road SB Off-Ramp	I–5 SB off-ramp to Del Mar Heights Road	Embankment Slopes	A	304.1(a)
Del Mar Heights Road Ramps	I–5 Southbound ramps intersecting Del Mar Heights Road	Intersecting Profile Grades	A	504.3 (3)
Del Mar Heights Road SB Loop On-Ramp	SB Del Mar Heights Loop On-Ramp	Profile Grade	A	504.2(5)
Del Mar Heights Road SB Loop On-Ramp	Horizontal curve	Curve Radii	M	203.2
Del Mar Heights Road SB Loop On-Ramp	Vertical curve	Stopping Sight Distance	M	201.1
Del Mar Heights Road SB Loop On-Ramp	I–5 SB Del Mar Heights Loop On-Ramp	Lane Drop Taper	A	504.2 (2)
Del Mar Heights Road	Eastbound Del Mar Heights Rd right turn lane at I–5 southbound ramps intersection	Shoulder Widths	M	405.3(2)(a)
Del Mar Heights Road	Westbound Del Mar Heights Rd right turn lane at I–5 northbound ramps intersection	Shoulder Widths	M	405.3(2)(a)
El Camino Real EB On-Ramp	First and second horizontal curve	Superelevation Transition Run-off Length	A	202.5(1)
El Camino Real EB On-Ramp	Second horizontal curve	Superelevation Transition Run-off Length and Superelevation Rate	A	202.2 and 202.5(1)

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
El Camino Real EB On-Ramp	First horizontal curve	Superevelevation Rate	M	Table 202.2
El Camino Real EB On-Ramp	First and second horizontal curves	Superevelevation Transition Runoff Length	A	202.5 (2)
El Camino Real WB Off-Ramp	First vertical curve	Length of Vertical Curve	A	204.4
El Camino Real WB Off-Ramp	WB El Camino Real Off-ramp	Freeway Entrance/ Exit Design	A	504.2 (2) and 107.1
El Camino Real WB Off-Ramp	WB El Camino Real Off-ramp	Standard Deceleration Length	M	504.2 (2)
I–5 Mainline	Distance between CV4 and ST	Distance between successive off-ramps	A	504.3(10)
I–5 Mainline	Distance between I–5/SR–56 Interchange and I–5/Del Mar Heights Interchange	Interchange Spacing	M	501.3
I–5 Mainline	At the Del Mar Heights overcrossing	Shoulder Widths	M	302.1
I–5 Mainline	Locations where overhead sign posts are to be placed	Shoulder Widths	M	302.1
I–5 Mainline	Median	Median	A	305.1
NA	Light grading areas	Uniform Catch Point	A	304.1
SR–56 Mainline	At the Carmel Creek Road and Carmel Country Road undercrossing	Shoulder Widths	M	302.1
SR–56 Mainline	Locations where overhead sign posts are to be placed	Shoulder Widths	M	302.1
SR–56 Mainline	Distance between I–5/SR–56 Interchange and SR–56/El Camino Real Interchange	Interchange Spacing	M	501.3
SR–56 Mainline	Distance between SR–56/El Camino Real Interchange and SR–56/Carmel Creek Interchange	Interchange Spacing	M	501.3

Table F-3. Design Exceptions for the Hybrid Alternative (Alternative 4)

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superelevation Transition Run-off Length	A	202.5(1)
Carmel Valley Road SB Off-Ramp	Second horizontal curve	Superelevation Transition Run-off Length	A	202.2 and 202.5(1)
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superevelevation Rate	M	Table 202.2
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superevelevation Rate Runoff Length	A	202.5 (2)
Carmel Valley Road	Carmel Valley Rd and NB Carmel Valley Rd On-ramp	Intersection	A	403.3 and Figure 403.3
Carmel Valley Road	Carmel Valley Rd and NB Carmel Valley Rd Off-ramp	Intersection	A	403.3 and Figure 403.3
Del Mar Heights Road	Bridge embankments	Embankment Slopes	A	304.1(a)
Del Mar Heights Road SB On-Ramp	I–5 SB off-ramp to Del Mar Heights Road	Embankment Slopes	A	304.1(a)
Del Mar Heights Road Ramps	I–5 Southbound ramps intersecting Del Mar Heights Road	Intersecting Profile Grades	A	Index 504.3 (3)
Del Mar Heights Road SB Loop On-Ramp	SB Del Mar Heights Loop On-Ramp	Profile Grade	A	504.2(5)
Del Mar Heights Road SB Loop On-Ramp	Horizontal curve	Curve Radii	M	203.2
Del Mar Heights Road SB Loop On-Ramp	Horizontal curve	Stopping Sight Distance	M	201.1
Del Mar Heights Road SB Loop On-Ramp	I–5 SB Del Mar Heights Loop On-Ramp	Lane Drop Taper	A	504.2 (2)
El Camino Real EB On-Ramp	Between first two horizontal curves	Superelevation Transition Run-off Length	A	202.5(1)
El Camino Real EB On-Ramp	Second horizontal curve	Superelevation Transition Run-off Length	A	202.2 and 202.5(1)
El Camino Real EB On-Ramp	First horizontal curve	Superevelevation Rate	M	Table 202.2
El Camino Real EB On-Ramp	First and second horizontal curves	Superevelevation Rate Runoff Length	A	202.5 (2)
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Transition Run-off Length and Superelevation Rate	A	202.2 and 202.5(1)
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Rate	M	Table 202.2
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Transition Runoff Length	A	202.5(2)
Carmel Creek Road WB Off-Ramp	Embankment north of ramp	Embankment Slope Grading	A	304.1(a)
Carmel Creek Road WB Loop On-	Second horizontal curve	Superelevation Transition Run-off Length and	A	202.2 and 202.5(1)

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
Ramp		Superelevation Rate		
Carmel Creek Road WB Loop On-Ramp	Gore area	Gore Cross Slope	A	504.2(5)
Carmel Creek Road WB Loop On-Ramp	WB Carmel Creek Loop On-Ramp	Horizontal Geometrics	A	504.4(2)
Carmel Creek Road WB Loop On-Ramp	Station 527+72.024 to 530+37.339	Compound Curve	A	203.5
Carmel Creek Road WB Loop On-Ramp	First horizontal curve	Superelevation Rate	M	Table 202.2
Carmel Creek Road WB Loop On-Ramp	First horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Creek Road WB Loop On-Ramp	First horizontal curve	Superelevation Transition for Compound Curves	A	202.5(6)
Carmel Creek Road WB Loop On-Ramp	WB Carmel Creek Loop On-Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Country Road WB Loop On-Ramp	Gore area	Gore Cross Slope	A	504.2(5)
Carmel Country Road WB Loop On-Ramp	Station 38+80.198 to 40+97.219	Compound Curve	A	203.5
Carmel Country Road WB Loop On-Ramp	WB Carmel Creek Loop On-Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition Run-off Length and rate	A	202.2 and 202.5(1)
Carmel Valley Road NB Off-Ramp	Second vertical curve	Length of Vertical Curve	A	204.4
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Rate	M	Table 202.2
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Runoff Length	A	202.5(2)
Carmel Valley Road NB Off-Ramp	NB Carmel Valley Rd Off-Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Valley Road NB Off-Ramp	First horizontal curve	Deceleration Length	A	504.2(2)
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superevelevation Rate	M	Table 202.2
Carmel Valley Road SB Off-Ramp	First Horizontal Curve	Superevelevation Rate Runoff Length	A	202.5 (2)
Del Mar Heights Road	First vertical curve	Length of Vertical Curve	A	204.4
Del Mar Heights Road	Third vertical curve	Length of Vertical Curve	A	204.4
Del Mar Heights Road NB Off-Ramp	Second horizontal curve	Superelevation Rate	M	Table 202.2
Del Mar Heights Road NB Off-	Second horizontal curve	Superelevation Transition	A	202.5(1)

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
Ramp				
Del Mar Heights Road NB Off-Ramp	Second horizontal curve	Superelevation Runoff Length	A	202.5(2)
El Camino Real	Vertical clearance at El Camino Real	Falsework Vertical Clearance	M	204.8 (5)
El Camino Real WB Off-Ramp	First horizontal curve	Stopping Sight Distance	M	201.1 and Table 201.1
El Camino Real WB Off-Ramp	First vertical curve	Length of Vertical Curve	A	204.4
El Camino Real WB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
El Camino Real WB Off-Ramp	Second horizontal curve	Superelevation Runoff Length	A	202.5(2)
El Camino Real WB Off-Ramp	First vertical curve	Stopping Sight Distance	A	504.2(5)(a)
El Camino Real WB Off-Ramp	Auxiliary lane prior to exit ramp	Auxiliary Lane Minimum Length	A	504.3(6)
El Camino Real WB Off-Ramp	Second horizontal curve	Superelevation Rate	M	Table 202.2
El Camino Real WB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
NA	NA	Uniform Catch Point	A	304.1
NB I–5 Bypass	First horizontal curve	Superelevation Transition Run-off Length	A	202.2 and 202.5(1)
NB I–5 Bypass	Second vertical curve	Length of Vertical Curve	A	204.4
NB I–5 Bypass	Third vertical curve	Length of Vertical Curve	A	204.4
NB I–5 Bypass	First horizontal curve	Superelevation Transition	A	202.5(1)
NB I–5 Bypass	First horizontal curve	Superelevation Runoff Length	A	202.5(2)
NB I–5 Bypass	First horizontal curve	Superelevation Runoff Length	A	202.5(2)
NB I–5 Bypass	Between 'CV1' and 'NT'	Embankment Slope Grading	A	304.1(a)
I–5 Mainline	SB I–5 left shoulder at SE Connector and Del Mar Heights overcrossings	Shoulder Width	M	302.1
I–5 Mainline	Distance between I–5/SR–56 Interchange and I–5/Del Mar Heights Interchange	Interchange Spacing	M	501.3
I–5 Mainline	I–5 Left Shoulders where proposed overhead sign posts are to be placed.	Shoulder Widths	M	302.1
I–5 Mainline	I–5 Medians	Median Widths	A	305.1
I–5 Mainline	I–5 Left Shoulders at SE Connector and Del Mar Heights overcrossings	Shoulder Widths	M	Table 301.2 and 309.1(3)
I–5 Mainline	I–5 Left Shoulders where proposed overhead sign posts are to be placed.	Shoulder Widths	M	Table 301.2 and 309.1(3)
SR–56 Mainline	SR56 left shoulders at Carmel Creek Road and Carmel Country Road undercrossings	Shoulder Widths	M	302.1

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
SR–56 Mainline	SR56 Left Shoulders where proposed overhead sign posts are to be placed.	Shoulder Widths	M	302.1
SR–56 Mainline	SR–56	Median Widths	A	305.1
SR–56 Mainline	SR56 Left Shoulders at Carmel Creek Road and Carmel Country Road undercrossing	Shoulder Widths	M	Table 301.2 and 309.1(3)
SR–56 Mainline	SR56 Left Shoulders where proposed overhead sign posts are to be placed.	Shoulder Widths	M	Table 301.2 and 309.1(3)
SR–56 Mainline	Distance between I–5/SR–56 Interchange and SR–56/El Camino Real Interchange	Interchange Spacing	M	501.3
SR–56 Mainline	Distance between SR–56/El Camino Real Interchange and SR–56/Carmel Creek Interchange	Interchange Spacing	M	501.3
SR–56 Mainline	Distance between	Weaving Length	A	504.7
SR–56 West to I–5 North Connector	At I–5 entrance	Superelevation Transition	A	202.5(2)
SR–56 West to I–5 North Connector	WB to NB Freeway-to-Freeway Connector	Horizontal Curve - Design Speed	A	504.4(2)
SR–56 West to I–5 North Connector	Second horizontal curve	Minimum Curve Radii	M	203.2 and Table 203.2
SR–56 West to I–5 North Connector	Second horizontal curve	Stopping Sight Distance	M	203.1, 201.1 and Table 201.1
SR–56 West to I–5 North Connector	Tangent from station 557+37.726 to 557+69.628	Superelevation Transition Runoff Length	A	Figure 202.5
SR–56 West to I–5 North Connector	Between 'EC3' and 'WN'	Embankment Slope Grading	A	304.1(a)
I–5/SR–56 West to I–5 North Connector	Branch connection	Branch Connection Geometric Design	A	504.3(6)
SR–56 West to I–5 North Connector/NB I–5 Bypass	Branch connection	Branch Connection Geometric Design	A	504.3(6)

Table F-4. Design Exceptions for the Hybrid with Flyover Alternative (Alternative 5)

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Creek Road WB Off-Ramp	First horizontal curve	Superelevation Rate	M	Table 202.2
Carmel Creek Road WB Off-Ramp	Embankment north of ramp	Embankment Slope Grading	A	304.1(a)
Carmel Creek Road EB On-Ramp	Second vertical curve	Length of Vertical Curve	A	204.4
Carmel Creek Road EB On-Ramp	EB Carmel Creek On- Ramp	Freeway Entrance - Design Speed	A	504.2 (4)(b)
Carmel Creek Road EB On-Ramp	First vertical curve	Stopping Sight Distance	M	201.1 and Table 201.1
Carmel Creek Road EB On-Ramp	Second vertical curve	Headlight Sight Distance	M	201.1 and Table 201.1
Carmel Creek Road EB On-Ramp	First horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Creek Road EB On-Ramp	First horizontal curve	Superelevation Runoff Length	A	202.5(2)
Carmel Creek Road EB On-Ramp	EB Carmel Creek On- Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Creek Road EB On-Ramp	Inlet nose of entance ramp	Inlet Nose Design Speed	A	504.2(4)(b)
Carmel Creek Road WB Loop On-Ramp	Second horizontal curve	Superelevation Transition Run-off Length and superelevation rate	A	202.2 and 202.5(1)
Carmel Creek Road WB Loop On-Ramp	Gore area	Gore Cross Slope	A	504.2(5)
Carmel Creek Road WB Loop On-Ramp	WB Carmel Creek Loop On-Ramp	Horizontal Geometrics	A	504.2(2)
Carmel Creek Road WB Loop On-Ramp	Station 527+72.024 to 530+37.339	Compound Curve	A	203.5
Carmel Creek Road WB Loop On-Ramp	First horizontal curve	Superelevation Rate	M	Table 202.2
Carmel Creek Road WB Loop On-Ramp	First horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Creek Road WB Loop On-Ramp	First and second horizontal curves	Superelevation Transition for Compound Curves	A	202.5(6)
Carmel Creek Road WB Loop On-Ramp	WB Carmel Creek Loop On-Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Country Road EB On-Ramp	Station 40+43.717 to 42+16.982	Compound Curve	A	203.5
Carmel Country Road EB On-Ramp	EB Carmel Country Off-Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
Carmel Country Road WB Loop On-Ramp	Gore area	Gore Cross Slope	A	504.2(5)
Carmel Country Road WB Loop On-Ramp	Station 38+80.198 to 40+97.219	Compound Curve	A	203.5
Carmel Country Road WB Loop On-Ramp	WB Carmel Creek Loop On-Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition Run-off Length and rate	A	202.2 and 202.5(1)
Carmel Valley Road NB Off-Ramp	Second vertical curve	Length of Vertical Curve	A	204.4
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Rate	M	Table 202.2
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
Carmel Valley Road NB Off-Ramp	Second horizontal curve	Superelevation Runoff Length	A	202.5(2)
Carmel Valley Road NB Off-Ramp	NB Carmel Valley Rd Off-Ramp	Freeway entrance and exit- Geometrics	A	504.2(2) and 107.1
Carmel Valley Road NB Off-Ramp	First horizontal curve	Deceleration Length	A	504.2(2)
Carmel Valley Road SB Off-Ramp	Between Intersection & 1st horizontal curve	Superelevation Transition Run-off Length	A	202.5(1)
Carmel Valley Road SB Off-Ramp	Second horizontal curve	Superelevation Transition Run-off Length	A	202.2 and 202.5(1)
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superevelevation Rate	M	Table 202.2
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superevelevation Rate Runoff Length	A	202.5 (2)
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superevelevation Rate	M	Table 202.2
Carmel Valley Road SB Off-Ramp	First horizontal curve	Superevelevation Rate Runoff Length	A	202.5 (2)
CVR and CV1	Carmel Valley Rd and NB Carmel Valley Rd On-ramp	Intersection	A	403.3 and Figure 403.3
CVR and CV2	Carmel Valley Rd and NB Carmel Valley Rd Off-ramp	Intersection	A	403.3 and Figure 403.3
Del Mar Heights Road	First vertical curve	Length of Vertical Curve	A	204.4
Del Mar Heights Road	Third vertical curve	Length of Vertical Curve	A	204.4
Del Mar Heights Road	Bridge embankments	Embankment Slopes	A	304.1(a)
Del Mar Heights Road NB Off-Ramp	Second horizontal curve	Superelevation Rate	M	Table 202.2
Del Mar Heights Road NB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
Del Mar Heights Road NB Off-Ramp	Second horizontal curve	Superelevation Runoff Length	A	202.5(2)

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
Del Mar Heights Road SB On-Ramp	I–5 SB off-ramp to Del Mar Heights Road	Embankment Slopes	A	304.1(a)
Del Mar Heights Road Ramps	I–5 Southbound ramps intersecting Del Mar Heights Road	Intersecting Profile Grades	A	504.3 (3)
Del Mar Heights Road SB Loop On-Ramp	SB Del Mar Heights Loop On-Ramp	Profile Grade	A	504.2(5)
Del Mar Heights Road SB Loop On-Ramp	Horizontal curve	Curve Radii	M	203.2
Del Mar Heights Road SB Loop On-Ramp	Horizontal curve	Stopping Sight Distance	M	201.1
Del Mar Heights Road SB Loop On-Ramp	I–5 SB Del Mar Heights Loop On-Ramp	Lane Drop Taper	A	504.2 (2)
El Camino Real	Vertical clearance at El Camino Real	Falsework Vertical Clearance	M	204.8 (5)
El Camino Real EB On-Ramp	Between first two horizontal curves	Superelevation Transition Run-off Length	A	202.5(1)
El Camino Real EB On-Ramp	Second horizontal curve	Superelevation Transition Run-off Length	A	202.2 and 202.5(1)
El Camino Real EB On-Ramp	First horizontal curve	Superevelevation Rate	M	Table 202.2
El Camino Real EB On-Ramp	First and second horizontal curves	Superevelevation Rate Runoff Length	A	Index 202.5 (2)
El Camino Real EB On-Ramp	EB El Camino Real On- Ramp	Horizontal Geometrics	A	504.2(2)
El Camino Real EB On-Ramp	First vertical curve	Length of Vertical Curve	A	204.4
El Camino Real EB On-Ramp	Right shoulder	Shoulder Widths	M	302.1
El Camino Real EB On-Ramp	Embankment	Embankment Slope Grading	A	304.1(a)
El Camino Real EB On-Ramp	Embankment	Embankment Slope Grading	A	304.1(a)
El Camino Real WB Off-Ramp	First horizontal curve	Stopping Sight Distance	M	201.1 and Table 201.1
El Camino Real WB Off-Ramp	First vertical curve	Length of Vertical Curve	A	204.4
El Camino Real WB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
El Camino Real WB Off-Ramp	Second horizontal curve	Superelevation Runoff Length	A	202.5(2)
El Camino Real WB Off-Ramp	First vertical curve	Stopping Sight Distance	A	504.2(5)(a)
El Camino Real WB Off-Ramp	Auxiliary lane prior to exit ramp	Auxiliary Lane Minimum Length	A	504.3(6)
El Camino Real WB Off-Ramp	Second horizontal curve	Superelevation Rate	M	Table 202.2
El Camino Real WB Off-Ramp	Second horizontal curve	Superelevation Transition	A	202.5(1)
I–5 Mainline	SB I–5 left shoulder at SE Connector and Del Mar Heights overcrossings	Shoulder Width	M	302.1
I–5 Mainline	Distance between I–5/SR–56 Interchange and I–	Interchange Spacing	M	501.3

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
	5/Del Mar Heights Interchange			
I–5 Mainline	I–5 Left Shoulders where proposed overhead sign posts are to be placed.	Shoulder Widths	M	302.1
I–5 Mainline	I–5 Medians	Median Widths	A	305.1
I–5 Mainline	I–5 Left Shoulders at SE Connector and Del Mar Heights overcrossings	Shoulder Widths	M	Table 301.2 and 309.1(3)
I–5 Mainline	I–5 Left Shoulders where proposed overhead sign posts are to be placed.	Shoulder Widths	M	Table 301.2 and 309.1(3)
NA	NA	Uniform Catch Point	A	304.1
NB I–5 Bypass	First horizontal curve	Superelevation Transition Run-off Length	A	202.2 and 202.5(1)
NB I–5 Bypass	Second vertical curve	Length of Vertical Curve	A	204.4
NB I–5 Bypass	Third vertical curve	Length of Vertical Curve	A	204.4
NB I–5 Bypass	First horizontal curve	Superelevation Transition	A	202.5(1)
NB I–5 Bypass	First horizontal curve	Superelevation Runoff Length	A	202.5(2)
NB I–5 Bypass	First horizontal curve	Superelevation Runoff Length	A	202.5(2)
NB I–5 Bypass	Between 'CV1' and 'NT'	Embankment Slope Grading	A	304.1(a)
SR–56 Mainline	SR56 left shoulders at Carmel Creek Road and Carmel Country Road undercrossings	Shoulder Widths	M	302.1
SR–56 Mainline	SR56 Left Shoulders where proposed overhead sign posts are to be placed.	Shoulder Widths	M	302.1
SR–56 Mainline	SR56	Median Widths	A	305.1
SR–56 Mainline	SR56 Left Shoulders at Carmel Creek Road and Carmel Country Road undercrossing	Shoulder Widths	M	Table 301.2 and 309.1(3)
SR–56 Mainline	SR56 Left Shoulders where proposed overhead sign posts are to be placed.	Shoulder Widths	M	Table 301.2 and 309.1(3)
SR–56 Mainline	Distance between I–5/SR–56 Interchange and SR–56/El Camino Real Interchange	Interchange Spacing	M	501.3
SR–56 Mainline	Distance between SR–56/El Camino Real Interchange and SR–56/Carmel Creek Interchange	Interchange Spacing	M	501.3
SR–56 Mainline	Distance between	Weaving Length	A	504.7
SR–56 West to I–5 North Connector	At I–5 entrance	Superelevation Transition	A	202.5(2)
SR–56 West to I–5 North Connector	WB to NB Freeway-to-Freeway Connector	Horizontal Curve - Design Speed	A	504.4(2)
SR–56 West to I–5 North Connector	Second horizontal curve	Minimum Curve Radii	M	203.2 and Table 203.2

Alignment	Location	Description	Mandatory/ Advisory (M/A)	Standard (HDM Index)
SR–56 West to I–5 North Connector	Second horizontal curve	Stopping Sight Distance	M	203.1, 201.1 and Table 201.1
SR–56 West to I–5 North Connector	Tangent from station 557+37.726 to 557+69.628	Superelevation Transition Runoff Length	A	Figure 202.5
SR–56 West to I–5 North Connector	Between 'EC3' and 'WN'	Embankment Slope Grading	A	304.1(a)
I–5/SR–56 West to I–5 North Connector	Branch connection	Branch Connection Geometric Design	A	504.3(6)
SR–56 West to I–5 North Connector/NB I–5 Bypass	Branch connection	Branch Connection Geometric Design	A	504.3(6)

APPENDIX G

Utility Relocations

Construction of the build alternatives would require relocation of existing utilities within the roadway construction zone and permanent ROW. The sections of existing roadway requiring relocation of utilities include the Del Mar Heights Road east-west arterial roadway, westbound SR-56 to northbound I-5, the northbound I-5 off-ramp at Del Mar Heights Road, the northbound I-5 on-ramp at Carmel Valley Road, and the Portofino Circle north-south arterial roadway west of I-5. Tables F-1 through F-3 below list the utilities that would require relocation or further evaluation within the Caltrans ROW, require relocation or further evaluation outside of the Caltrans ROW, or have no conflicts with the proposed project and would not require relocation or further evaluation.

Table G-1. Utilities Requiring Relocation within the Caltrans ROW

	Center Line Station Limit # (Pole #)	Alignment Location	Agency Contact	Size and Material	Proposed Work	Potential Conflict	Resolution	Alternatives Affected			
								Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
1	527+20	WB SR-56 Loop On-Ramp at Carmel Creek Rd	**Pac Bell**	6-4" CPC Telephone Conduit	Replace structural section	Underground clearance	Further evaluation required.	X	X	X	X
2	38+90	WB SR-56 Loop On-Ramp at Carmel Country Rd	**SDG&E**	8" H.P. Gas Line	Replace structural section	Underground clearance	Further evaluation required.	X	X	X	X
3	538+00 to 543+80	Carmel Valley Rd crossing under I-5	**Pac Bell**	Telephone	Replace structural section	Underground clearance	Further evaluation required.	X	X	X	X
4	538+00 to 541+20	Carmel Valley Rd crossing under I-5	**Pac Bell**	Telephone	Replace structural section	Underground clearance	Further evaluation required.	X	X	X	X
5	11+50 to 15+10	Carmel Valley Rd	**Pac Bell**	Telephone	Replace structural section, widen road, ramp construction, retaining wall construction	Underground clearance	Further evaluation required.				X
6	11+50 to 12+60	Carmel Valley Rd	**Pac Bell**	Telephone	Replace structural section, widen road, ramp construction	Underground clearance	Further evaluation required.				X
7	11+50 to 12+60	Carmel Valley Rd	**AT&T Long Distance**	Trans-continental Fiber Optic Telephone	Replace structural section, widen road, ramp construction	Underground clearance	Further evaluation required.				X

	Center Line Station Limit # (Pole #)	Alignment Location	Agency Contact	Size and Material	Proposed Work	Potential Conflict	Resolution	Alternatives Affected			
								Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
8	11+50 to 15+10	Carmel Valley Rd	**City of San Diego**	39" RCP Sewer	Replace structural section, widen road, ramp construction	Underground clearance	Further evaluation required.				X
9	12+60	Carmel Valley Rd	**City of San Diego**	18" VC Sewer	Replace structural section, widen road	Underground clearance	Further evaluation required.				X
10	11+50 to 12+40	Carmel Valley Rd	**Private Line Shell Gas Station**	8" AC Water	Replace structural section, widen road, ramp construction	Underground clearance	Further evaluation required.				X
11	11+50 to 12+50	Carmel Valley Rd	**City of San Diego**	4" Plastic Water	Replace structural section, widen road, ramp construction	Underground clearance	Further evaluation required.				X
12	12+60	Carmel Valley Rd	**Private Line Nurseryland**	6" AC Water	Replace structural section, widen road	Underground clearance	Further evaluation required.				X
13	12+80 to 15+10	Carmel Valley Rd	**City of San Diego**	16" AC Water	Replace structural section, widen road, ramp construction, retaining wall construction	Underground clearance	Further evaluation required.				X
14	11+50 to 15+10	Carmel Valley Rd	**SDG&E**	Electric	Replace structural section, widen road, ramp construction, retaining wall construction	Underground clearance	Further evaluation required.				X
15	538+00 to 541+20	Carmel Valley Rd crossing under I-5	**AT&T Long Distance**	Trans-continental Fiber Optic Telephone	Replace structural section	Underground clearance	Further evaluation required.	X	X	X	X
16	538+00 to 541+10	Carmel Valley Rd crossing under I-5	**City of San Diego**	4" Plastic Water	Replace structural section	Underground clearance	Further evaluation required.	X	X	X	X
17	538+00 to 541+10	Carmel Valley Rd crossing under I-5	**Private Line Shell Gas Station**	8" AC Water	Replace structural section	Underground clearance	Further evaluation required.	X	X	X	X

	Center Line Station Limit # (Pole #)	Alignment Location	Agency Contact	Size and Material	Proposed Work	Potential Conflict	Resolution	Alternatives Affected			
								Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
18	541+20	Carmel Valley Rd crossing under I-5	**Private Line Nurseryland**	6" ACP Water	Replace structural section	Underground clearance	Further evaluation required.	X	X	X	
19	541+20 to 543+80	Carmel Valley Rd crossing under I-5	**City of San Diego**	16" AC Water	Replace structural section	Underground clearance	Further evaluation required.	X	X	X	
20	538+00 to 543+80	Carmel Valley Rd crossing under I-5	**SDG&E**	Electric	Replace structural section	Underground clearance	Further evaluation required.	X	X	X	X
21	538+00 to 543+80	Carmel Valley Rd crossing under I-5	**City of San Diego**	39" RCP Sewer	Replace structural section	Underground clearance	Further evaluation required.	X	X	X	X
22	556+00 to 562+50	Del Mar Heights Rd crossing over I-5	**Time Warner**	750 STD & 750 STY CATV	Replace structural section, bridge demolition, bridge construction	(1) Underground clearance, (2) Bridge demo/construction	Relocation - Temporarily divert line, then re-route through new bridge.	X	X	X	X
23	562+00	NB I-5 On-Ramp at Del Mar Heights Rd	**City of San Diego**	24" SCRWP Water	Freeway widening, retaining wall construction, cut and fill	(1) Underground clearance, (2) Conflict with retaining wall	Further evaluation required to establish depth and compare against retaining wall.	X		X	X
24	557+00 to 562+50	Del Mar Heights Rd crossing over I-5	**SDG&E**	Electric	Replace structural section, bridge demolition, bridge construction	(1) Underground clearance, (2) Bridge demo/construction	Relocation - Temporarily divert line, then re-route through new bridge.	X	X	X	X
25	556+00 to 561+40	Del Mar Heights Rd crossing over I-5	**Pac Bell**	18-4" CPC & 6-4" CPC Telephone Conduit	Replace structural section, bridge demolition, bridge construction	(1) Underground clearance, (2) Bridge demo/construction	Relocation - Temporarily divert line, then re-route through new bridge.	X	X	X	X
26	556+00 to 562+00	Del Mar Heights Rd crossing over I-5	**SDG&E**	Gas	Replace structural section, bridge demolition, bridge construction	(1) Underground clearance, (2) Bridge demo/construction	Relocation - Temporarily divert line, then re-route through new bridge.	X	X	X	X

	Center Line Station Limit # (Pole #)	Alignment Location	Agency Contact	Size and Material	Proposed Work	Potential Conflict	Resolution	Alternatives Affected			
								Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
27	556+70	Del Mar Heights Rd crossing over I-5	**City of San Diego**	10" VC Sanitary Sewer	Replace structural section, retaining wall construction	(1) Underground clearance, (2) Conflict with retaining wall	Further evaluation required to establish depth and compare against retaining wall.	X	X	X	X
28	562+10	SB I-5 Off-Ramp at Del Mar Heights Rd	**City of San Diego**	24" SCRWP Water	Freeway widening, retaining wall construction, cut and fill	(1) Underground clearance, (2) Conflict with retaining wall	Further evaluation required to establish depth and compare against retaining wall.	X			
29	15+45	EB SR-56 On-Ramp at El Camino Real	**Time Warner**	CATV	Replace structural section	Underground clearance	Further evaluation required.	X	X	X	X
30	17+00	EB SR-56 On-Ramp at El Camino Real	**City of San Diego**	39" RCP Sewer	Freeway widening, retaining wall construction, cut and fill	(1) Underground clearance, (2) Conflict with retaining wall	Further evaluation required to establish line alignment and compare against pier location.	X	X	X	X
31	12+80	EB SR-56 Flyover Structure	**SDG&E**	Electric	Flyover structure construction	Underground clearance	Further evaluation required.				X
32	12+60 to 16+00	EB SR-56 Flyover Structure	**City of San Diego**	39" RCP Sewer	Flyover structure construction	Underground clearance	Further evaluation required to establish line alignment and compare against pier location.				X
33	12+00 to 14+40	Portofino Cir west of I-5	**City of San Diego**	8" AC Water	Replace structural section	Underground clearance	Relocate within realigned Portofino Circle.	X			
34	12+00 to 14+40	Portofino Cir west of I-5	**City of San Diego**	8" VC Sewer	Replace structural section	Underground clearance	Relocate within realigned Portofino Circle.	X			
35	12+00 to 14+40	Portofino Cir west of I-5	**Time Warner**	860 QR CATV Line	Replace structural section	Underground clearance	Relocate within realigned Portofino Circle.	X			

	Center Line Station Limit # (Pole #)	Alignment Location	Agency Contact	Size and Material	Proposed Work	Potential Conflict	Resolution	Alternatives Affected			
								Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
36	12+00 to 14+40	Portofino Cir west of I-5	**SDG&E**	Electric	Replace structural section	Underground clearance	Relocate within realigned Portofino Circle.	X			
37	12+00 to 14+40	Portofino Cir west of I-5	**SDG&E**	Gas	Replace structural section	Underground clearance	Relocate within realigned Portofino Circle.	X			
38	12+00 to 14+40	Portofino Cir west of I-5	**Pac Bell**	Telephone - Joint Trench	Replace structural section	Underground clearance	Relocate within realigned Portofino Circle.	X			
39	562+00	I-5 Freeway	**City of San Diego**	24" SCRWP Water	Freeway widening	Underground clearance	Further evaluation required.	X	X	X	X
40	16+50	SR-56 Freeway	**City of San Diego**	39" RCP Sewer	Freeway widening, retaining wall construction	(1) Underground clearance, (2) Conflict with retaining wall	Further evaluation required including coordination with the City when establishing line depth and conflicts.	X	X	X	X
41	30+40	SR-56 Freeway	**Kinder & Morgan**	16" & 10" Oil Pipelines	Widen freeway	Underground clearance	Further evaluation required including coordination with K&M when establishing line depth and conflicts.	X	X	X	X
42	30+40	SR-56 Freeway	**SDG&E**	30" Transmission Gas Main	Widen freeway	Underground clearance	Further evaluation required including coordination with SDG&E when establishing line depth and conflicts.	X	X	X	X
43	31+00	SR-56 Freeway	**AT&T Local**	OH Fiber Optic Telephone	Widen freeway	Overhead clearance	Further evaluation required.	X	X	X	X
44	31+00	SR-56 Freeway	**XO Communications**	OH Fiber Optic	Widen freeway	Overhead clearance	Further evaluation required.	X	X	X	X

	Center Line Station Limit # (Pole #)	Alignment Location	Agency Contact	Size and Material	Proposed Work	Potential Conflict	Resolution	Alternatives Affected			
								Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
45	31+00 (Z731192, Z731193, Z92796, Z92797)	SR-56 Freeway	**SDG&E**	OH Electric	Widen freeway	Overhead clearance	Further evaluation required.	X	X	X	X
46	30+80 (Z33180, Z33182, Z33183)	SR-56 Freeway	**SDG&E**	OH Fiber Optic Electric	Widen freeway	Overhead clearance	Further evaluation required.	X	X	X	X
47	538+90 to 539+10	SB I-5 to EB SR-56 Direct Connector	**AT&T Long Distance**	Trans-continental Fiber Optic Telephone	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X			
48	538+90 to 539+10	SB I-5 to EB SR-56 Direct Connector	**Pac Bell**	Telephone	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X			
49	539+50	SB I-5 to EB SR-56 Direct Connector	**Pac Bell**	Telephone	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X			
50	538+40 to 548+50	SB 1-5 to EB SR-56 Direct Connector	**Private Line Nurseryland**	6" AC Water	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Relocate to avoid conflict with pier foundation.	X			
51	538+70	SB I-5 to EB SR-56 Direct Connector	**City of San Diego**	4" Plastic Water	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X			
52	534+50	SB I-5 to EB SR-56 Direct Connector	**City of San Diego**	39" RCP Sewer	Freeway widening, retaining wall construction, cut and fill	(1) Underground clearance, (2) Conflict with retaining wall	Further evaluation required to establish depth and compare against retaining wall.	X			

	Center Line Station Limit # (Pole #)	Alignment Location	Agency Contact	Size and Material	Proposed Work	Potential Conflict	Resolution	Alternatives Affected			
								Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
53	539+00	SB I-5 to EB SR-56 Direct Connector	**SDG&E**	Electric	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X			
54	538+90 to 539+10	SB I-5 to EB SR-56 Direct Connector	**SDG&E**	Electric	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X			
55	538+20	SB I-5 to EB SR-56 Direct Connector	**Time Warner**	OH CATV	Direct connector bridge construction	Vertical clearance with bridge	Further evaluation required.	X			
56	536+00	SB I-5 to EB SR-56 Direct Connector	**Time Warner**	CATV	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X			
57	536+00	SB I-5 to EB SR-56 Direct Connector	**SDG&E**	Electric	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X			
58	539+55 to 539+80	WB SR-56 to NB I-5 Direct Connector	**Pac Bell**	Telephone	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X		X	X
59	539+55 to 539+70	WB SR-56 to NB I-5 Direct Connector	**SDG&E**	Electric	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X		X	X
60	539+00 to 539+20	WB SR-56 to NB I-5 Direct Connector	**City of San Diego**	39" RCP Sanitary Sewer	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X		X	X

	Center Line Station Limit # (Pole #)	Alignment Location	Agency Contact	Size and Material	Proposed Work	Potential Conflict	Resolution	Alternatives Affected			
								Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
61	536+70	WB SR-56 to NB I-5 Direct Connector	**City of San Diego**	39" RCP Sanitary Sewer	Direct connector bridge construction	(1) Underground clearance, (2) Conflict with retaining wall	Further evaluation required to establish depth and compare against retaining wall.	X		X	X
62	539+00 to 539+20	WB SR-56 to NB I-5 Direct Connector	**City of San Diego**	16" AC Water	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X		X	X
63	537+70	WB SR-56 to NB I-5 Direct Connector	**Time Warner**	CATV	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X		X	X
64	537+80	WB SR-56 to NB I-5 Direct Connector	**SDG&E**	Gas	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Further evaluation required to establish line alignment and compare against pier location.	X		X	X

Table F-2. Utilities Requiring Relocation Outside of the Caltrans ROW

	Center Line Station Limit #	Alignment Location	Agency Contact	Size and Material	Proposed Work	Potential Conflict	Resolution	Alternatives Affected			
								Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
1	541+20 to 544+30	NB I-5 On-Ramp at Carmel Valley Rd	**AT&T Long Distance**	Trans-continental Fiber Optic Telephone	Ramp construction, retaining wall construction	(1) Underground clearance, (2) Conflict with retaining wall	Relocate alignment within El Camino Real and High Bluff Drive	X	X	X	X
2	541+20 to 544+30	NB I-5 On-Ramp at Carmel Valley Rd	**City of San Diego**	18" VC Sewer	Ramp construction, retaining wall construction	(1) Underground clearance, (2) Conflict with retaining wall	Relocate outside proposed state ROW. Utility easement needed.	X	X	X	X
3	541+20 to 544+30	NB I-5 On-Ramp at Carmel Valley Rd	**Pac Bell**	Telephone	Ramp construction, retaining wall construction	(1) Underground clearance, (2) Conflict with retaining wall	Relocate alignment within El Camino Real and High Bluff Drive	X	X	X	X
4	542+00 to 542+40	SB I-5 Off-Ramp at Carmel Valley Rd	**City of San Diego**	8" VC Sewer	Ramp construction, retaining wall construction	(1) Underground clearance, (2) Conflict with retaining wall	Relocate outside proposed state ROW. Utility easement needed.	X	X	X	X
5	555+40 to 557+40	NB I-5 Off-Ramp at Del Mar Heights Rd	**Pac Bell**	Telephone	Ramp construction, retaining wall construction	(1) Underground clearance, (2) Conflict with retaining wall	Relocate alignment within El Camino Real and High Bluff Drive.	X		X	X
6	555+40 to 557+40	NB I-5 Off-Ramp at Del Mar Heights Rd	**AT&T Long Distance**	Trans-continental Fiber Optic Telephone	Ramp construction, retaining wall construction	(1) Underground clearance, (2) Conflict with retaining wall	Relocate alignment within El Camino Real and High Bluff Drive.	X		X	X
7	560+40 to 561+70	Del Mar Heights Rd crossing over I-5	**AT&T Long Distance**	Trans-continental Fiber Optic Telephone	Replace structural section, retaining wall construction	(1) Underground clearance, (2) Conflict with retaining wall	Relocate alignment within Del Mar Heights Road.	X	X	X	X
8	544+30 to 546+40	NB I-5 Bypass	**AT&T Long Distance**	Trans-continental Fiber Optic Telephone	Ramp construction, retaining wall construction	(1) Underground clearance, (2) Conflict with retaining wall	Relocate alignment within El Camino Real and High Bluff Drive.	X		X	X
9	544+30 to 546+40	NB I-5 Bypass	**Pac Bell**	Telephone	Ramp construction, retaining wall construction	(1) Underground clearance, (2) Conflict with retaining wall	Relocate alignment within El Camino Real and High Bluff Drive.	X		X	X
10	544+30 to 545+60	NB I-5 Bypass	**City of San Diego**	18" VC Sewer	Ramp construction, retaining wall construction	(1) Underground clearance, (2) Conflict with retaining wall	Relocate outside proposed state ROW. Utility easement needed.	X		X	X

	Center Line Station Limit #	Alignment Location	Agency Contact	Size and Material	Proposed Work	Potential Conflict	Resolution	Alternatives Affected			
								Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
11	541+70 to 542+00	WB SR-56 to NB I-5 Direct Connector	**AT&T Long Distance**	Trans-continental Fiber Optic Telephone	Freeway widening, retaining wall construction, cut and fill	Underground conflict with bridge pier/foundation	Relocate alignment within El Camino Real and High Bluff Drive.	X		X	X
12	541+70 to 542+00	WB SR-56 to NB I-5 Direct Connector	**Pac Bell**	18-4" MCD Telephone Conduit	Freeway widening, retaining wall construction, cut and fill	Underground conflict with bridge pier/foundation	Relocate alignment within El Camino Real and High Bluff Drive.	X		X	X
13	541+70 to 542+00	WB SR-56 to NB I-5 Direct Connector	**City of San Diego**	18" VCP Sanitary Sewer	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Relocate outside proposed state ROW. Utility easement needed.	X		X	X
14	542+20 to 542+60	WB SR-56 to NB I-5 Direct Connector	**AT&T Long Distance**	Trans-continental Fiber Optic Telephone	Freeway widening, retaining wall construction, cut and fill	Underground conflict with bridge pier/foundation	Relocate alignment within El Camino Real and High Bluff Drive.	X		X	X
15	542+20 to 542+60	WB SR-56 to NB I-5 Direct Connector	**Pac Bell**	18-4" MCD Telephone Conduit	Freeway widening, retaining wall construction, cut and fill	Underground conflict with bridge pier/foundation	Relocate alignment within El Camino Real and High Bluff Drive.	X		X	X
16	546+40 to 555+40	WB SR-56 to NB I-5 Direct Connector	**AT&T Long Distance**	Trans-continental Fiber Optic Telephone	Freeway widening, retaining wall construction, cut and fill	(1) Underground clearance, (2) Conflict with retaining wall	Relocate alignment within El Camino Real and High Bluff Drive.	X		X	X
17	546+40 to 555+40	WB SR-56 to NB I-5 Direct Connector	**Pac Bell**	18-4" MCD Telephone Conduit	Freeway widening, retaining wall construction, cut and fill	(1) Underground clearance, (2) Conflict with retaining wall	Relocate alignment within El Camino Real and High Bluff Drive.	X		X	X

Table F-3. Utilities with No Relocation Conflicts

	Center Line Station Limit #	Alignment Location	Agency Contact	Size and Material	Proposed Work	Potential Conflict	Resolution	Alternatives Affected			
								Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
1	529+50	WB SR-56 Loop On-Ramp at Carmel Creek Rd	**Pac Bell**	6-4" CPC Telephone Conduit	Replace structural section	Underground clearance	Assure that conduit runs inside bridge box girders	X	X	X	X
2	529+60	WB SR-56 Loop On-Ramp at Carmel Creek Rd	**City of San Diego**	8" PVC Sewer	Replace structural section	Underground clearance	Assure that conduit runs inside bridge box girders	X	X	X	X
3	529+70	WB SR-56 Loop On-Ramp at Carmel Creek Rd	**City of San Diego**	30" SCRW Water	Replace structural section	Underground clearance	Assure that conduit runs inside bridge box girders	X	X	X	X
4	529+80	WB SR-56 Loop On-Ramp at Carmel Creek Rd	**SDG&E**	Electric	Replace structural section	Underground clearance	Assure that conduit runs inside bridge box girders	X	X	X	X
5	529+80	WB SR-56 Loop On-Ramp at Carmel Creek Rd	**Time Warner**	750 STD CATV Line	Replace structural section	Underground clearance	Assure that conduit runs inside bridge box girders	X	X	X	X
6	39+20	WB SR-56 Loop On-Ramp at Carmel Country Rd	**SDG&E**	Electric	Replace structural section	Underground clearance	Assure that conduit runs inside bridge box girders	X	X	X	X
7	38+90 to 39+10	WB SR-56 Loop On-Ramp at Carmel Country Rd	**Time Warner**	750 STD & 860 QR CATV Lines	Replace structural section	Underground clearance	Assure that conduit runs inside bridge box girders	X	X	X	X
8	38+90	WB SR-56 Loop On-Ramp at Carmel Country Rd	**Pac Bell**	6-4" CPC Telephone Conduit	Replace structural section	Underground clearance	Assure that conduit runs inside bridge box girders	X	X	X	X
9	540+90	E-W Arterial Roadway crossing under I-5	**Cox**	OH CATV	Replace structural section	Overhead clearance	Protect in Place	X	X	X	
10	12+30	E-W Arterial Roadway	**Cox**	OH CATV	Replace structural section	Overhead clearance	Protect in Place				X

	Center Line Station Limit #	Alignment Location	Agency Contact	Size and Material	Proposed Work	Potential Conflict	Resolution	Alternatives Affected			
								Direct Connector	Auxiliary Lane	Hybrid	Hybrid with Flyover
11	539+40	SB I-5 to EB SR-56 Direct Connector	**Private Line Shell Gas Station**	8" AC Water	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Establish line alignment and compare against pier location	X			
12	539+30	SB I-5 to EB SR-56 Direct Connector	**City of San Diego**	39" RCP Sewer	Direct connector bridge construction	Underground conflict with bridge pier/foundation	Establish line alignment and compare against pier location	X			

APPENDIX H

List of Acronyms

%	percent
$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
ac	acre(s)
AADT	Average Annual Daily Traffic
ADA	American Disabilities Act
ADI	Area of Direct Impact
ADT	Average Daily Traffic
AMSL	above mean sea level
APE	Area of Potential Effect
ASBS	Area of Special Biological Significance
ASR	Archaeological Survey Report
BE	Built Environment
BMPs	Best Management Practices
BNSF	Burlington Northern and Santa Fe
BRT	Bus Rapid Transit
BSA	Biological Study Area
BTU	British thermal unit
C	Circulation
C-D	Collector-Distributor System
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal-IPC	California Invasive Plant Council
Cal/OSHA	California Division of Occupational Safety and Health
CAFE	Citizens Against Freeway Expansion
CALINE4	California Line Source Dispersion Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBI	Corridors and Borders Infrastructure Program
CCC	California Coastal Commission
CD	Community Design
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
CESA	California Endangered Species Act
CF	Community Facilities
CFR	Code of Federal Regulations
CH_4	methane
CHP	California Highway Patrol
CIA	Community Impact Assessment
CMA	Congestion Management Agency
CMIA	Corridor Mobility Improvement Account
CMP	Congestion Management Program

CNDDB	California Natural Diversity Database
CNG	compressed natural gas
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
COZEEP	Construction Zone Enhanced Enforcement Plan
CPA	community planning area
CRHR	California Register of Historical Resources
CSMP	Corridor System Management Plan
CUP	Conditional Use Permit
CVREP	Carmel Valley Restoration Enhancement Project
CWA	Clean Water Act
CZ	Coastal Zone
CZMA	Coastal Zone Management Act of 1972
DAR	Direct Access Ramp
dB	decibel
dBA	A-weighted decibel
dBA L_{eq}	A-weighted decibel equivalent sound level
DEMO	High Priority Demonstration Program
diesel PM	diesel particulate matter
DSA	Disturbed Soil Area
DRIS	Draft Relocation Impact Statement
du	dwelling unit
EB	eastbound
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMFAC	Emission Factor Model
EMP	Environmental Mitigation Program
EO	Executive Order
ESA	Environmentally Sensitive Area
ESHA	Environmental Sensitive Habitat Area
^{o}F	degrees Farenheit
FBFM	Flood Boundary and Floodway Map
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FRA	Federal Rail Administration
ft	feet
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
FY	fiscal year

GHG	greenhouse gas
GP	general purpose
H_2S	hydrogen sulfides
HCM	Highway Capacity Manual
HDM	Highway Design Manual
HDPE	high-density polyethylene
HEC-RAS	Hydrologic Engineering Centers River Analysis System
HEI	Health Effects Institute
HFC	Hydrofluorocarbons
HFC-23	fluoroform
HFC-134a	s, s, s, 2-tetrafluoroethane
HFC-152a	difluoroethane
HHS	Health and Human Services
HOV	High Occupancy Vehicle
HPSR	Historic Property Survey Report
I-15	Interstate 15
I-5	Interstate 5
I-5 NCC Project	I-5 North Coast Corridor High Occupancy Vehicle/Managed Lanes Project
I-8	Interstate 8
I-805	Interstate 805
IGR	intergovernmental review
IM	Interstate Maintenance Discretionary
IPCC	Intergovernmental Panel on Climate Change
IRIS	Integrated Risk Information System
ISA	Initial Site Assessment
ITS	Intelligent Transportation System
JPA	San Dieguito River Park Joint Powers Authority
kph	kilometers per hour
kv	kilovolts
LCP	Local Coastal Program
LEDPA	least environmentally damaging practicable alternative
Leq	equivalent sound level
Leq(h)	equivalent sound level over one hour
Lmax	maximum noise Level
LHS	Location Hydraulic Study
LNG	liquid natural gas
LOS	Level of Service
LOSSAN	Los Angeles to San Diego
LU	Land Use
LUE	Land Use Element
LUFT	Leaking Underground Fuel Tanks

m	meter
MBTA	Migratory Bird Treaty Act
MCE	Maximum Credible Earthquake
ME	Mobility Element
mg/m^3	milligrams per cubic meter
MHCP	Multiple Habitat Conservation Program
MHPA	Multiple Habitat Planning Area
MLD	Most Likely Descendant
mph	Miles per hour
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
MSAT	Mobile Source Air Toxic
MSCP	Multiple Species Conservation Program
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NADR	Noise Abatement Decision Report
NAHC	Native American Heritage Commission
NATA	National Air Toxics Assessment
NAVD88	North American Vertical Datum of 1988
NB	northbound
NCC	North Coast Corridor
NCCP	Natural Communities Conservation Planning
NCFUA	North City Future Urbanizing Area
NCHRP	National Cooperative Highway Research Program
NCTD	North County Transit District
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOD	Notice of Determination
NOI	Notice of Intent
NOID	notice of impending development
Noise Protocol	Caltrans' Traffic Noise Analysis Protocol
NOP	Notice of Preparation
NOT	Notice of Termination
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSR	Noise Study Report
O_3	ozone
OPR	Governor's Office of Planning and Research
OS	Open Space and Resource Management
OSHA	Occupational Safety and Health Act

OSTP	Office of Science and Technology Policy
PA	Programmatic Agreement
Pb	lead
PDT	Project Development Team
PFC	perfluorocarbons
PHR	Pacific Highlands Ranch
PID	project initiation document
PLAGUE	Prevent Los Angeles Gridlock Usurping Environment group
PM	post mile
PM_{10}	particulate matter sized 10 microns and under
$PM_{2.5}$	particulate matter sized 2.5 microns and under
PM Guidance	Transportation Conformity Guidance for Qualitative Hot-spot Analysis in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas
PMP	Pedestrian Master Plan
POAQC	Projects of Air Quality Concern
ppm	parts per million
PRA	Paleontological Resource Assessment
PRC	Public Resources Code
PSR	Project Study Report
PWP	Public Works Plan
RAP	Relocation Assistance Program
RCB	reinforced concrete box
RCP	Regional Comprehensive Plan
RCRA	Resource Conservation and Recovery Act
RLU	residential land use
RMOS	Resource Management and Open Space
ROD	Record of Decision
ROG	reactive organic gases
ROW	right-of-way
RSA	Resource Study Area
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
S-E	southbound I-5 to eastbound SR-56
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users
SANDAG	San Diego Association of Governments
SB	Southbound
SCS	Sustainable Communities Strategy
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SDG&E	San Diego Gas and Electric
SER	standard environmental reference
SF_6	Sulfur Hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide

SR-52	State Route 52
SR-56	State Route 56
SSP	Standard Specification
STOP	Stop Taking Our Property group
STP	Surface Transportation Program
SWDR	Storm Water Data Report
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
T	Transportation
TASAS	Traffic Accident Surveillance and Analysis System
TCR	Transportation Concept Report
TDM	Transportation Demand Management
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TMP	Traffic Management Plan
TNM	Traffic Noise Model
TREP	Transportation and Resource Enhancement Program
TSCA	Toxic Substances Control Act
TSM	Transportation System Management
TSS	Total Suspended Solids
TWW	treated wood waste
UCSD	University of California at San Diego
UP	Union Pacific
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
UTC	University Town Center
VA	Value Analysis Report
VIA	Visual Impact Assessment
VMT	vehicle miles traveled
VOC	volatile organic compounds
W-N	westbound SR-56 to northbound I-5
WB	westbound
WDRS	waste discharge requirements
WPCP	Water Pollution Control Plan
XP1	Extended Phase 1 Report