

Appendix O: Biological Opinion

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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-08B0100-12F0547

DEC 31 2012

Mr. Vincent P. Mammano
Division Administrator
U. S. Department of Transportation
Federal Highway Administration
650 Capitol Mall, Suite 4-100
Sacramento, California 95814

Attention: Mr. Larry Vinzant, (11-SD-5; PM 28.4-55.4)

Subject: Formal Section 7 Consultation and Conference for the Interstate 5 North Coast Corridor Project, San Diego County, California

Dear Mr. Mammano:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological and conference opinion based on our review of the Interstate 5 (I-5) North Coast Corridor Project and its effects on the federally threatened coastal California gnatcatcher (*Polioptila californica californica*, gnatcatcher), federally endangered light-footed clapper rail (*Rallus longirostris levipes*, rail), tidewater goby (*Eucyclogobius newberryi*, goby), Del Mar manzanita (*Arctostaphylos glandulosa* subsp. *crassifolia*, manzanita), designated critical habitat for the gnatcatcher, and proposed critical habitat for the goby, in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). The California Department of Transportation (Caltrans) is receiving Federal funds through the Federal Highway Administration (FHWA) for the project. We initiated consultation on August 20, 2012, which is the day we received your August 16, 2012, request for consultation.

Based on conservation measures committed to by Caltrans, we concur with your determination that the proposed project is not likely to adversely affect the federally endangered least Bell's vireo (*Vireo bellii pusillus*, vireo), southwestern willow flycatcher (*Empidonax traillii extimus*; flycatcher), and California least tern [*Sternula* (= *Sterna*) *antillarum browni*]; the federally threatened western snowy plover [*Charadrius nivosus* (= *alexandrinus*) *nivosus*]; designated critical habitat for the vireo and flycatcher; and proposed critical habitat for the flycatcher (Enclosure). The project will affect habitat suitable for vireo and flycatcher, but the project is not scheduled to commence until 2014 and will be constructed in phases over approximately 21 years. Due to the expected delay between consultation with our agency and initiation of

project impacts, Caltrans has agreed to conduct protocol surveys for the vireo and flycatcher within 1 year prior to the commencement of vegetation clearing and construction activities for each project phase in and adjacent to suitable habitat for these species. FHWA/Caltrans will reinstate consultation if either the vireo or flycatcher are observed in the project impact footprint and/or implement conservation measures to avoid and minimize impacts to these species if either is found within 500 feet of the project impact footprint. Therefore, the vireo and flycatcher are not addressed in this biological opinion.

There is potential habitat for the federally endangered pacific pocket mouse (*Perognathus longimembris pacificus*) at the San Elijo Uplands restoration site. Caltrans has agreed to: conduct protocol surveys for the pacific pocket mouse during the 2013 survey season. If presence is confirmed, Caltrans will either design restoration work to avoid / benefit this species or relocate the proposed restoration to an alternate site with the review and approval of the Carlsbad Fish and Wildlife Office (CFWO). Therefore, the pacific pocket mouse is not addressed in this biological opinion.

This biological opinion is based on information provided in: 1) *I-5 North Coast Corridor Project Biological Assessment* (Caltrans 2012a, BA); 2) *Interstate 5 North Coast Corridor Project Draft Environmental Impact Report/ Environmental Impact Statement* (Caltrans 2010, DEIS); 3) *Interstate 5 North Coast Corridor Project Supplemental Draft Environmental Impact Report/ Environmental Impact Statement* (Caltrans 2012b, SDEIS); and 4) other sources of information including survey reports, technical reviews, and email correspondence. A complete project file of this consultation is maintained at the CFWO.

CONSULTATION HISTORY

Extensive and early coordination between Caltrans and the CFWO occurred on the project. The following chronology reflects a summary of significant events.

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|--------------|---|
| 2003-2012 | A series of coordination meetings was held between Caltrans, the CFWO, and other regulatory agencies in accordance with the NEPA/404 MOU Integration Process ¹ . The proposed project's purpose and need, selection criteria, and range of alternatives were developed and refined during these meetings in order to minimize impacts to biological resources. |
| May 10, 2004 | The CFWO provided written agreement to act as a Cooperating Agency pursuant to the NEPA/404 MOU Integration Process for the project. |

¹ In May 1992, the U.S. Department of Transportation, the U.S. Department of Army-Civil Works, and the U.S. Environmental Protection Agency (EPA) adopted a policy to improve interagency coordination and to integrate the National Environmental Policy Act (NEPA) and the Clean Water Act (CWA) Section 404 procedures. A Memorandum of Understanding (MOU) was developed for Arizona, California, and Nevada. As of 2006, Nevada and Arizona are no longer signatories.

Nov 18, 2004	The CFWO provided written comments on the Notice of Preparation of a DEIS for the project.
Jan 3, 2005	The CFWO provided written concurrence on the purpose and need for the project.
Jan 26, 2005	The CFWO provided a list of endangered and threatened species expected to be present in or near the proposed action area.
May 25, 2005	The CFWO provided written concurrence on the screening criteria for the project.
Oct 3, 2005	The CFWO provided written comments on the vegetation mapping conducted for the project.
Aug 24, 2006	The CFWO provided written concurrence on the range of alternatives for the project.
Dec 20, 2007	The CFWO consulted informally on geotechnical borings for the project, which were proposed to evaluate subsurface conditions at seven locations along the project.
Nov 13, 2007	The CFWO provided a list of endangered and threatened species and their critical habitats expected to be present in or near the proposed action area.
Sept 23, 2010	Representatives from Caltrans and the CFWO attended an onsite meeting to discuss the proposed project, impacts to listed species and critical habitats, and wildlife connectivity.
Sept 30, 2010	The Department of the Interior provided written comments, including specific comments provided by CFWO, on the DEIS for the project.
Nov 23, 2010	The CFWO provided written comments on the preliminary draft public works plan for the project.
Apr 25, 2011	The CFWO provided guidance regarding technical reviews prepared to inform bridge design and assist with the identification of restoration and mitigation opportunities for the project.
May 24, 2011	The CFWO provided a technical review to further inform bridge design and assist with the identification of restoration and mitigation opportunities for the project.

- Aug 8, 2011 The CFWO provided comments on the draft lagoon bridge matrices prepared for the project.
- Dec 15, 2011 The CFWO provided comments on the draft Resource Enhancement Program (REP) for the project.
- Feb 24, 2012 The CFWO provided comments on the San Dieguito Lagoon feasibility study for the project.
- June 28, 2012 The CFWO provided comments on the Mitigation Site Assessments for the project.
- July 2, 2012 The CFWO provided an updated list of endangered and threatened species and their critical habitats expected to be present in or near the proposed action area.
- July 6, 2012 The CFWO provided additional comments on the draft REP for the project.
- Aug 20, 2012 FHWA provided a letter dated August 16, 2012, requesting initiation of formal consultation on the proposed action, together with the BA.
- Sept 6, 2012 The CFWO provided a letter acknowledging initiation of formal consultation on the project, including a list of information requested in the first 90 days of consultation.
- Oct 15, 2012 The CFWO provided comments on the SDEIS for the project.
- Dec 19, 2012 The CFWO provided the *Description of the Proposed Action* section of the draft biological opinion to FHWA and Caltrans for review. Within this section, Conservation Measures, which Caltrans has committed to implement to avoid and minimize impacts to listed species, are described. Comments provided by the FHWA and Caltrans on this section of the draft biological opinion are addressed in this final biological opinion.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Using Federal funds provided through the FHWA, Caltrans proposes to construct the I-5 North Coast Corridor Project, which will widen the I-5 over a distance of 27 miles between La Jolla Village Drive at Post Mile (PM) 28.4 and Harbor Drive / Vandegrift overpass at PM 55.4 north of the City of Oceanside, in San Diego County (Figure 1). Construction of the project will result in the addition of two high occupancy vehicle (HOV) lanes in each direction to the existing 8-

lane freeway (Figures 2-4). The project also includes the addition of auxiliary lanes, two direct access ramps (DARs), park and ride facilities, bike and pedestrian trails, soundwalls, bioswales, and community enhancements such as parks and pedestrian overpasses (Figures 2-6). Project work will be constructed in three phases, beginning in 2014 and ending in 2035 (Table 1).

Table 1. Permanent Construction Impacts by Phase and Estimated Construction Time Period

Phase	Construction	Estimated Construction time period	Impacts (Permanent cut/fill)	
			Wetland	Sensitive Upland
1A	Ultimate widening from just north of Lomas Santa Fe to Union Street (includes Manchester DAR, bike paths, trails and new bridge at San Elijo.)	2014-2017	0.53 -1.1*	22.08
1B	1 NB/SB HOV in median, from Union to SR-78 interchange	2014-2017	0.79	1.06
1C	Ultimate widening from La Jolla Village Drive to 5/805 merge (includes Voight DAR and flyover over Peñasquitos Creek. Does not include braided ramps at Genesee.)	2015-2020	0.13	0.57
2A	Ultimate widening from 5/805 merge to SR-56 (Includes new Sorrento Valley Road bike / maintenance vehicle bridge, trails under I-5 at Carmel Creek, widening of I-5 at Carmel Creek, and trail under merge.)	2020-2022	-0.41*	0.99
2B	Ultimate widening from SR-56 to Lomas Santa Fe (includes San Dieguito widening and bike paths / trails).	2020-2025	3.59	20.60
2C	Ultimate widening from Union to Palomar Airport Road	2025-2030	1.33	3.28
2D	Batiquitos Bridge Replacement	2025-2030	4.78 -0.54*	9.91
3A	Ultimate widening from just north of Palomar Airport Road to SR-76	2030-2035	0.85	0.09
3B	Agua Hedionda Bridge	2030-2035	3.77	0.68
3C	Buena Vista Bridge	2030-2035	1.14 -0.47*	0
3D	Roselle to Genesee braided ramps	2030-2035	1.11	5.57
	Total		20.12 -2.52*	64.83
	Net Total		17.6	64.83

*Wetland creation from bridge lengthening.

While the DEIS for the proposed project includes several alternatives, section 7 consultation has been requested for the 8+4 with buffer alternative (the Locally Preferred Alternative), which includes the following design features and elements:

- One additional HOV/Managed Lane in each direction from La Jolla Village Drive to just north of Lomas Santa Fe Drive.
- Two HOV/Managed Lanes in each direction from just north of Lomas Santa Fe Drive to Harbor Drive/Vandegrift Boulevard.
- Separation of general purpose lanes from HOV/Managed Lanes from near La Jolla Village Drive to Del Mar Heights Road, and from State Route 78 (SR-78) to near Harbor Boulevard, by a buffer varying in width up to 5 feet.
- Provision of a continuous HOV lane in each direction through the I-5 / I-805 junction with a freeway-to-freeway connector (flyover), crossing over the I-5 / I-805 merge and connecting the proposed project HOV/Managed Lanes to existing HOV lanes just north of that merge.
- DARs from grade-separated interchanges into Managed Lanes, thereby allowing direct access to the HOV/Managed Lanes without weaving across general-purpose lanes at Voigt Drive and Manchester Avenue. The DARs are compatible with carpools, bus transit, and value pricing, and will support HOV/Managed Lanes.
- Intermediate access points (IAPs) or at-grade access located near Carmel Mountain Road, Del Mar Heights Road-Via de la Valle, Lomas Santa Fe Drive, Santa Fe Drive, Poinsettia Lane, Tamarack Avenue, and Oceanside Boulevard; and access points at the ends of HOV/Managed Lanes at La Jolla Village Drive and Harbor Drive.
- Intelligent Transportation System (ITS) components, such as toll collection equipment, to allow single-occupancy vehicle users to purchase use of HOV/Managed Lanes (including overhead suspended scanner devices such as gantries, traffic monitoring stations, ramp meters, closed circuit television [CCTV] to view traffic on the facility and to help manage the traffic, changeable message signs [CMSs] to display the tolls, and loop detectors to measure traffic volume and speed).
- Twelve-foot-wide auxiliary, acceleration, and deceleration lanes (as needed in 14 locations; 5 southbound, 4 northbound, and 5 both north- and southbound) and 10- to 12- foot-wide shoulders.
- New park and ride facilities at Manchester Avenue and State Route 76 (SR-76) and enhanced park and ride facilities at Carmel Valley Road, Birmingham Drive, and La Costa Avenue.
- Reconfiguration of various local interchanges to improve vehicular, pedestrian, and bicycle circulation at northbound ramps for Leucadia Boulevard and La Costa Avenue; at southbound ramps for Roselle Street, Manchester Avenue, Encinitas Boulevard, Palomar

Airport Road and Oceanside Boulevard; and at both north- and southbound ramps at Genesee Avenue, Del Mar Heights Road, Via de la Valle, Birmingham Drive, Santa Fe Drive, Tamarack Drive, Carlsbad Village Drive, Mission Avenue, SR-76, and Harbor Drive.

- Redesign of lagoon bridges at Los Peñasquitos, San Dieguito, San Elijo, Batiquitos, Agua Hedionda, and Buena Vista lagoons.
- Ramp metering at various on-ramps (with ultimate metering at all 58 on-ramps at buildout), retaining walls (to reduce property acquisition needs, stabilize slopes, minimize impacts, and accommodate engineered structures), barriers, guard rails/end treatments, crash cushions, bridge rails, and signage, installed as appropriate and as needed.
- Project-related drainage abandonment or improvement including extension, replacement, or lining, with new drainage facilities constructed adjacent to cross roads (facility examples include storm drain inlets, storm ditches, rock slope protection, and headwalls).
- Relocation of existing overhead or underground utilities (water, sewer, gas, electricity telephone, and other communications), as needed and within existing utility easements, as possible.
- Sound barriers.

The project will permanently and temporarily impact approximately 20.12 acres and 13.59 acres of wetland habitats, respectively. Approximately 64.83 acres and 16.62 acres of sensitive upland habitats will also be permanently and temporarily impacted by the project, respectively (Table 2). Cut and fill slopes are included within the permanent impact area. The project will impact listed species and designated critical habitats as summarized in Tables 3 and 4 and shown in Figures 7-21.

Table 2. Summary of Permanent and Temporary Impacts to Sensitive Vegetation Communities from the Proposed Project

Vegetation Communities and Cover Type ¹	Project Impacts	
	Permanent Impacts	Temporary Impacts
<i>Wetland Habitat</i>	acres	acres
Arundo scrub	0.14	0.21
Coastal brackish marsh	1.31	0.58
Coastal brackish marsh (disturbed)	3.53	1.54
Drainage ditch	1.24	0.66
Disturbed wetland	1.76	0.73
Freshwater marsh	0.62	1.36
Freshwater marsh (disturbed)	0.54	0.38
Mudflat	2.36	0.44

Mulefat scrub	0.21	0.00
Open water	1.50	2.69
Salt flat	0.03	0.04
Coastal salt marsh	4.43	2.33
Salt marsh transition	0.06	0.21
Southern willow scrub	0.26	0.15
Southern willow scrub (disturbed)	1.25	1.38
Southern willow scrub/freshwater marsh	0.35	0.80
Tidal riprap at bridge abutments	0.22	0.03
Unvegetated channel	0.32	0.08
<i>Wetland Total</i>	<i>20.12</i>	<i>13.59</i>
<i>Sensitive Upland Habitat</i>		
Baccharis scrub	0.45	0.14
Baccharis scrub (disturbed)	1.02	1.01
Coastal Sage Scrub	12.14	4.06
Coastal Sage Scrub (disturbed)	48.06	9.20
Maritime succulent scrub	0.28	0.22
Native grassland	0.01	0.15
Southern maritime chaparral	1.82	0.47
Southern maritime chaparral (disturbed)	1.05	1.37
<i>Sensitive Upland Total</i>	<i>64.83</i>	<i>16.62</i>

¹The vegetation communities listed consist of a number of vegetation alliances and related associations that occur within the Northern Foothills Ecoregion of Western San Diego County as described in Sproul et al. 2011.

Table 3. Impacts to Federally Listed Species

Species	Project Impacts ¹	
	Permanent	Temporary
Coastal California Gnatcatcher ²	15	
Light-footed Clapper Rail	1	3
Tidewater Goby ³	5	
Del Mar manzanita	6	0

¹ Reported as territories for gnatcatcher and rail and individuals for goby and manzanita.

² Portions of 15 territories will be permanently and/or temporarily impacted by the project.

³ All gobies will be captured and relocated out of the project work area in the San Luis Rey River with accidental death of no more than 1 percent of gobies relocated and with goby mortality not to exceed a total of 5 individuals.

Table 4. Impacts to Designated Critical Habitat

Critical Habitat	Project Impacts	
	Permanent	Temporary
Coastal California Gnatcatcher	34.0 acres ¹	9.0 acres
Tidewater Goby	500 square feet (pilings) 0.3 acre (bridge shading)	1.75 acres ¹

¹ Not all critical habitat that will be impacted includes Primary Constituent Elements.

Caltrans has prepared a draft REP to support a regional approach to offset impacts from proposed transportation improvements including the I-5 North Coast Corridor Project, Los Angeles to San Diego Rail Corridor (LOSSAN), and I-5 / State Route-78 Interchange Project. The REP includes options for allocating funding from the San Diego Association of Government's (SANDAG) Environmental Mitigation Program (EMP) for a variety of regionally significant creation, restoration and preservation/enhancement opportunities. The TransNet Extension Ordinance, approved by the San Diego voters in November 2004, established the EMP to advance conservation to offset resource impacts associated with regional and local transportation projects. The REP is structured to support the region's efforts to develop a comprehensive regional conservation strategy to offset impacts of the regional and local transportation projects using the TransNet EMP. The REP includes creation, restoration, and preservation/enhancement of wetland and upland habitats to offset impacts to listed species and their habitats from the I-5 North Coast Corridor Project (Table 5). Implementation of specific conservation measures to offset project impacts will commence between 2013 and 2015 (Table 5) while the project impacts are phased over 21 years starting in 2014 (Table 2), such that the conservation gains anticipated are phased in advance of project impacts over time.

The REP also includes funding for large-scale lagoon restoration and lagoon management endowments that will provide a substantial additional benefit to listed species affected by the I-5 North Coast Corridor Project and their habitats. Large-scale lagoon restoration planning efforts at San Elijo and Buena Vista Lagoons are in process², and final cost estimates are not available at this time. The REP states, "In the context of the regional lagoon systems of the North Coast Corridor and their proximity to the ocean, the intent of the large-scale lagoon enhancement funding is to promote the ecological health and hydrological connectivity of the lagoons and to enhance habitat for listed species." The REP also states, "Large-scale lagoon restoration will only be eligible for this funding if it will result in created or restored habitat that is in alignment with resource needs in the corridor and impacts caused by the North Coast Corridor program of projects." Large-scale lagoon restoration funding from the REP will be used solely for salt water lagoon restoration efforts, which will restore tidally-influenced habitats that are comparable with project impacts, for the benefit of listed species. Allocation of funding for large-scale lagoon restoration will be overseen by a REP oversight committee, which will include a representative from the CFWO.

² The San Elijo Lagoon Restoration Project is in planning through a joint effort of the San Elijo Lagoon Conservancy, project stakeholders, the California State Coastal Conservancy and SANDAG. The Buena Vista Lagoon Restoration Project is in planning through a joint effort of the Buena Vista Lagoon Foundation, project stakeholders, the [California Coastal Conservancy](#), and SANDAG.

Table 5. Conservation Measures for the I-5 North Coast Corridor Project from the REP

Conservation Measure/Location		Coastal Wetland Created	Coastal Wetland Restored	Coastal Wetland Preserved	Upland Created	Upland Restored	Upland Preserved/Enhanced	Begin Construction	Projected to Meet Criteria
Creation, Restoration & Preservation/Enhancement by Watershed¹		Wetland (acres)			Upland (acres)				
<i>Los Peñasquitos</i>	Deer Canyon II				10			Fall 2013	Winter 2019
	Dean Family Trust				14.73		1.5	Fall 2013	Winter 2019
<i>San Dieguito</i>	San Dieguito W19	12.26						Fall 2015	Winter 2022
<i>San Elijo</i>	Laser*			0.02			4.1	Already Preserved*	
	Upland Restoration around Lagoon [†]				30			Fall 2014	Winter 2020
<i>Batiquitos</i>	La Costa*						18.8	Already Preserved*	
<i>Agua Hedionda</i>	Hallmark	4.37	0.97		3.5	6.6		Fall 2014	Winter 2021
Sub Total		16.63	0.97	0.02	58.23	6.6	24.4		
Lagoon Restoration²									
<i>San Elijo</i>	Restoration	\$90 Million						Fall 2015	
	New PCH outlet at lagoon							If selected, Fall 2015, concurrent with restoration	
<i>Buena Vista</i>	Restoration							Timing depends on Planning and process	
Lagoon Management/ Endowment³									
Regional Lagoon Maintenance Program		\$10 Million Non-wasting endowment for Batiquitos and Los Peñasquitos					2015 Endowment established		
Project Prioritization/Lagoon Management Technical Support⁴									
Scientific Advisory Committee		\$1.0 Million					2014		

* Sites are in gnatcatcher critical habitat and are already purchased and protected from development.

† Or another site approved by the CFWO that will provide an equivalent or greater benefit to gnatcatchers and their critical habitat.

1. All creation, restoration, preservation/enhancement sites include funding for long-term maintenance and management efforts.

2. These restoration planning efforts are in process, and final cost estimates are not available at this time. However, it is acknowledged that a large-scale lagoon restoration will be funded in full through the REP. Potential restoration at Buena Vista Lagoon will be eligible for inclusion in the REP providing the Buena Vista project results in created or restored habitat that is in alignment with resource needs in the corridor (and impacts caused by the North Coast Corridor program of improvements).

3. This cost could be increased if Southern California Edison requires the San Diego Association of Governments to pay for a portion of lagoon mouth restoration. The endowment will be used for lagoon inlet maintenance and dredging.

4. An interagency advisory committee will be formed to evaluate, prioritize, and oversee the implementation of the potential creation, restoration, and preservation/enhancement projects.

Conservation Measures

Caltrans³ is the project proponent responsible for constructing the project and implementing associated conservation to offset the impacts of the project. Thus, Caltrans has agreed to implement the following conservation measures as part of the proposed action to avoid, minimize, and offset impacts to gnatcatchers, rails, gobies, manzanita, designated critical habitat for the gnatcatcher, and proposed critical habitat for the goby:

Avoidance and Minimization through Project Design

1. To minimize impacts to all habitats, 2:1 slopes will be used along the freeway and retaining walls will be used on cut slopes.
2. No riprap will be used in channel bottoms for bridge construction to minimize impacts to aquatic habitats.
3. Retaining walls 6 feet or lower in height will be used as feasible on fill slopes within lagoons to minimize impacts to aquatic habitats from the bike/pedestrian path. Retaining walls will also be used as feasible on cut slopes through coastal mesas to minimize project impacts to sensitive upland habitats.
4. The I-5 lagoon bridges will be lengthened to accommodate a channel bottom width of at least 261, 134, and 105 feet at San Elijo, Batiquitos, and Buena Vista Lagoons, respectively, consistent with the recommendations in the lagoon bridge optimization studies (Moffatt & Nichol 2012a and b, Everest International Consultants, Inc. 2012).
5. Project work within open water habitat in the San Luis Rey River in occupied goby critical habitat will be minimized to approximately 500 square feet of permanent impacts from bridge pilings, 0.3 acre of bridge shading, and 0.2 acre of temporary impacts. Cofferdams at bridge footings will be used such that project construction will not require diversion or relocation of the active channel. The project will not conduct actions that will result in the breach of seasonal San Luis Rey River estuary berms. Construction berms will not be used within the San Luis Rey River and all lagoons to minimize impacts on the active channel and avoid sedimentation impacts.
6. Project landscaping will follow the provisions set forth in Executive Order 13112, which mandates preventing the introduction of and controlling the spread of invasive plant species on highway Right-of-ways. No invasive species listed in the National Invasive Species Management Plan, the State of California Noxious Weed List, or the California Invasive

³ Caltrans is working in conjunction with the FHWA and will receive Federal funds through the FHWA for the project.

Plant Council's (Cal-IPC) Invasive Plant Inventory list will be included in the landscaping plans for the proposed project. Landscaping will not use plants that require intensive irrigation, fertilizers, or pesticides adjacent to preserve areas, and water runoff from landscaped areas will be directed away from adjacent native habitats and contained and/or treated within the development footprint.

7. Permanent project lighting will be of the lowest illumination necessary for safety and will be directed toward the roadway, Park and Ride's, and other project facilities, and away from sensitive habitats. Light glare shields will be used to reduce the extent of illumination into sensitive habitats. Lighting adjacent to lagoons will be fitted with bird control spikes to ensure that raptors will not be able to use lighting as a perch to prey on listed bird species. With the exception of pathway lighting for the North Coast Bikeway, there will be no night lighting of trails within lagoons, wildlife corridors, and sensitive habitat areas. Pathway lighting for the North Coast Bikeway will be of the lowest illumination necessary for safety and will be designed to avoid light spill into adjacent sensitive habitats and wildlife movement areas. Caltrans will coordinate with the CFWO regarding the design of pathway lighting for the North Coast Bikeway to ensure that the lighting will not negatively affect wildlife movement in the project area. Caltrans will review the permanent lighting plans and then submit them to the CFWO for review and approval.
8. All pedestrian trails and bike paths will be fenced in a manner that will encourage users to remain on the trails and paths. In areas where wildlife movement is expected, such as along river and lagoon bridge benches, fencing will be designed in a manner that will encourage users to remain on the trails and paths but which will not preclude wildlife from moving through habitat areas and accessing pedestrian benches during flood events (e.g., spilt rail fencing). Signage will be posted and maintained at conspicuous locations to inform users about adjacent sensitive habitats and species as well as access restrictions. Plans for fencing and signage for each phase of project construction will be submitted to the CFWO for approval at least 5 days prior to initiating project impacts in each phase. Fencing and signage will be installed prior to completion of each phase of project construction.
9. The following wildlife connectivity features will be constructed to ensure that ecosystem functions are maintained for the benefit of listed species:
 - a. At Carmel Creek, a 10-foot-wide bench will be constructed at the south bridge abutment, and the existing 8-foot-wide bench at the north bridge abutment will be maintained. The south bench will be modified to allow for usage by pedestrians and bikes and is expected to provide for wildlife usage at night and during flood events. The project will elevate the Sorrento Valley Road Bike Path Connector to the west of the bridge and remove

sediment under and southwest of the bike path to remove an existing constraint to flood flows and to improve wildlife connectivity from east to west.

- b. At the proposed bridge over Los Penasquitos and Soledad Creeks, the existing bridge provides for a substantial dry movement area with a 2:1 slope to the north, which will be maintained. A new 16-foot-wide bench may be added at the south bridge abutment for both pedestrians and wildlife depending upon clearance.
- c. At San Dieguito Lagoon, the existing bridge provides for a substantial dry movement area to the south, and an existing 12-foot-wide pedestrian pathway will be maintained to the north that is expected to provide for wildlife movement at night and during flood events. Existing pier walls constrain visibility and openness under the bridge. If possible, Caltrans will cut openings in existing and proposed pier walls to improve visibility and openness. The south bank of the channel will not be armored.
- d. At San Elijo Lagoon, a 12-foot-wide wildlife bench will be constructed to the south, and existing pedestrian pathways to the north and south will be maintained and are expected to provide for wildlife movement at night and during flood events.
- e. At Batiquitos Lagoon, a 16-foot-wide wildlife bench will be constructed on the south bridge abutment and a 16-foot wide pedestrian path will be maintained on the north bridge abutment that is expected to provide for wildlife movement at night and during flood events.
- f. At Agua Hedionda Lagoon, 16-foot-wide benches for pedestrian and wildlife use will be constructed at both the north and south bridge abutments.
- g. At Buena Vista Lagoon, 16-foot-wide benches for wildlife movement will be constructed at both the north and south bridge abutments.
- h. At the San Luis Rey River, a pedestrian trail will be constructed mid-slope on the north bridge abutment that is expected to provide for wildlife movement at night and during flood events.
- i. Bridges where wildlife movement is expected will use columns rather than pier walls to improve visibility and openness and encourage usage by wildlife, including Carmel Creek, Los Peñasquitos and Soledad Creeks, and all lagoons (with the exception of San Dieguito Lagoon and the San Luis Rey River where pier walls may be required for stability).
- j. To the maximum extent feasible, rock slope protection will be avoided at wildlife benches. If rock slope protection is required, modifications (e.g., small pebble, dirt, soil

covered rip rap, or grouted movement pathways) will be made such that animals of all sizes can use the wildlife benches.

- k. Monitoring will be conducted on the effectiveness of the wildlife connectivity features such that the effectiveness of wildlife connectivity features can be improved and to inform decision-making for future projects. This monitoring will include research on the degree to which various undercrossings are used by target species. Remote cameras will be used to document use of wildlife undercrossings. Monitoring will be conducted over a minimum of 5 years following construction of each wildlife connectivity feature to allow wildlife to become accustomed to the wildlife connectivity features. Annual monitoring reports, including photographs, modifications made to wildlife connectivity features to improve their functionality, and recommendations, will be provided to the CFWO each year for the duration of the 5-year monitoring period following each phase of project construction.
 - l. Wildlife benches will be maintained in perpetuity to ensure that wildlife connectivity in the project area is not lost over time. The wildlife connectivity plan will include a detailed explanation of how wildlife benches will be maintained and how the maintenance will be funded.
10. Caltrans will submit final project design plans to the CFWO for review and approval, based on the draft plans dated August 22, 2012, with the following revisions: 1) measures, such as the use of fabric weed barriers and mulch, will be incorporated into the design plans to limit the establishment and spread of invasive species along the oleander median; 2) gateway undercrossings and overcrossings adjacent to lagoons will not include decorative night lighting or vertical features that may be used as a perch by raptors to prey upon listed species; 3) the design and elevation of suspended pedestrian bridges will not impede access by maintenance dredges at lagoons; 4) invasive species will be removed from planting palettes; 5) plans will clearly show that areas of temporary impact to native habitats will be replanted with native species; and 6) plans will specify that the height of vegetation planted near coastal lagoons will be limited (e.g., coastal sage and chaparral species up to approximately 8 feet in height) to prevent perching and predation by raptors on listed species.

Updated Surveys and Avoidance and Minimization during Vegetation Clearing/Project Construction

11. Because the project is expected to start in 2014 and be phased over approximately 21 years, Caltrans will conduct updated surveys for the gnatcatcher, rail, and manzanita within 1 year prior to the commencement of vegetation clearing and construction activities for each project phase to ensure that survey information remains up to date. FHWA and Caltrans acknowledge that section 7 consultation will be reinitiated if survey results indicate that

additional impacts to these species may occur beyond those addressed in this biological opinion⁴.

12. *Caulerpa taxifolia* surveys will be completed before and after construction at each of the lagoons to ensure there is no infestation within project limits. If *Caulerpa taxifolia* is found, measures will be implemented to eradicate it from the area.
13. Prior to construction equipment entering open water habitat in the San Luis Rey River, all gobies within the project impact footprint will be captured and relocated to a proximal and safe location, and gobies will be excluded from re-entering the project impact footprint. Caltrans will submit a goby capture, relocation and exclusion plan to the CFWO for review and approval. The plan will include relocation of native species and removal of non-native species captured with gobies during the relocation effort. Capture methods will follow commonly accepted techniques for fish capture such as seining. The plan will be prepared and implementation will be overseen by a CFWO-approved biologist knowledgeable of goby biology and ecology.
14. Prior to construction in areas with manzanita, all manzanita in the project impact footprint (including the approximately 6 individuals currently known and any other individuals found in updated surveys) will be salvaged and translocated to the Dean property, which is near the currently known salvage locations. Caltrans will submit a manzanita translocation plan to the CFWO for review and approval. The plan will be prepared and implementation will be overseen by a CFWO-approved biologist knowledgeable of manzanita biology and ecology and translocating sensitive plant species. There has been limited success with translocation of this species; therefore, seed will be collected prior to impacts and used to propagate additional plants at a facility that has experience working with manzanita and specializes in the propagation of native plants. The manzanita plants grown from seed will also be planted at the Dean property. A field review will be conducted with the CFWO to review and approve the locations where the manzanita plants will be planted on the Dean property. The translocated manzanita population will be monitored for a minimum of 5 years to document success or failure of the translocation efforts.
15. The clearing and grubbing of native wetland and riparian habitats will occur between September 16 and March 14 and the clearing and grubbing of native upland habitats for the project will occur between September 1 and February 14, to avoid the rail and gnatcatcher breeding seasons, respectively [or sooner than September 16 or September 1, if a biologist knowledgeable of gnatcatcher and rail biology and ecology approved by the CFWO demonstrates to the satisfaction of the CFWO that all rail or gnatcatcher nesting is complete].

⁴ The goby is a short-lived species that is subject to variability in local abundance and seasonal changes in distribution and abundance. The San Luis Rey River estuary has been determined to be occupied by the goby, and due to this variability in abundance from year to year and the long construction period for the project, the CFWO has determined that repeat surveys will not provide any new information relating to occupancy or abundance that would support the need to reinitiate consultation for this species. In accordance with this determination, Caltrans has not proposed to conduct updated surveys for goby.

Caltrans will submit the biologist's name, address, telephone number, and work schedule on the project to the CFWO at least 5 working days prior to initiating project impacts.

16. Pile driving for bridge construction near the lagoons and San Luis Rey River will be completed between September 16 and February 14 to minimize construction noise impacts to rail and gnatcatcher breeding. Pile driving may commence earlier in the fall if a biologist knowledgeable of gnatcatcher and rail biology and ecology approved by the CFWO demonstrates to the satisfaction of the CFWO that all rail and gnatcatcher breeding is complete within the area where construction noise will exceed ambient levels as a result of pile driving. Caltrans will submit the biologist's name, address, telephone number, and work schedule on the project to the CFWO at least 5 working days prior to initiating project impacts.
17. Noise barriers will be installed at the edge of temporary impact areas near sensitive resources where feasible depending on inundation and effective heights required for walls. Noise walls would not be effective where fill slopes are significantly higher than impact areas.
18. All construction equipment used for the project will be equipped with properly operating and maintained mufflers.
19. During in-water bridge construction activities at all lagoons and the San Luis Rey River, bubble curtains or other methods to minimize acoustical impacts to aquatic species will be implemented. These measures will be developed in coordination with the CFWO when project design and construction methodology is further developed.
20. If nighttime construction is necessary, all lighting used at night for project construction (e.g., staging areas, equipment storage sites, roadway) will be selectively placed and directed onto the roadway or construction site and away from sensitive habitats. Light glare shields will be used to reduce the extent of illumination into sensitive habitats.
21. Appropriate best management practices (BMPs) will be used to control erosion and sedimentation and to capture debris and contaminants from bridge demolition and construction to prevent their deposition in coastal lagoons and waterways. No sediment or debris will be allowed to enter lagoons, creeks, rivers, or other drainages. All debris from the demolition and construction of bridges will be contained so that it does not fall into channels. Appropriate BMPs will be used during construction to limit the spread of resuspended sediment and contain debris. These may include cofferdams, blasting mats, silt curtains, turbidity curtains and/or other barriers. Water within cofferdams will not be returned to the San Luis Rey River or lagoons until it is clear and clean. This may be accomplished through the use of desiltation tanks or other appropriate measures. Collected sediments will be removed from the site and disposed of properly. BMPs (e.g., gravel bags) will be used at the discharge point to avoid erosion.

22. Erosion and sediment control devices used for the proposed project, including fiber rolls and bonded fiber matrix, will be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard.
23. All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities will be restricted to designated areas that are a minimum of 100 feet from drainages/lagoons and associated plant communities, to preclude adverse water quality impacts. Fuel cans and fueling of tools will not be allowed inside the drainages.
24. Impacts from fugitive dust will be avoided and minimized through watering and other appropriate BMPs.
25. Cationic polymers are attracted to the hemoglobin in fish gills and can cause suffocation at relatively low concentrations. Cationic polymers will not be used for dust control.
26. Bioswales and detention basins will be placed to avoid impacts to wetlands (e.g., these features will not be located at the base of slope within lagoons).
27. The project site will be kept as clear of debris as possible. All food-related trash items will be enclosed in sealed containers and regularly removed from the site. All spoils and material disposal will be disposed of properly.
28. If fill must be borrowed from or disposed of offsite, the construction contractor will identify any necessary borrow and disposal sites and provide this information to Caltrans for review. Caltrans will review borrow and disposal site information and submit the information to the CFWO. If borrow or disposal activities may affect a listed species or critical habitat, FHWA/Caltrans will reinitiate section 7 consultation⁵.
29. Contractors and construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the fenced project footprint.
30. Project personnel will be prohibited from bringing domestic pets to construction sites to ensure that domestic pets do not disturb or depredate wildlife in adjacent habitats.
31. A CFWO-approved biologist (Biological Monitor⁶) will be on site during: a) initial clearing and grubbing; and b) weekly during project construction within 500 feet of offsite gnatcatcher, rail, goby, and manzanita habitat to ensure compliance with all conservation measures. Caltrans will submit the biologist's name, address, telephone number, and work schedule on the project to the CFWO at least 5 working days prior to initiating project impacts. The contract of the Biological Monitor will allow direct communication with the

⁵ Under the current process, FHWA would reinitiate formal consultation and Caltrans (acting for FHWA) would reinitiate informal consultation.

⁶ The Biological Monitor will be familiar with the federally listed species potentially affected by the project (i.e., gnatcatcher, rail, goby and manzanita) and with the habitats that support these species.

CFWO at any time regarding the proposed project. The Biological Monitor will be provided with a copy of this consultation. The Biological Monitor and a Caltrans Project Biologist⁷ will be available during pre-construction and construction phases to review grading plans, address protection of sensitive biological resources, monitor ongoing work, and maintain communications with the Resident Engineer to ensure that issues relating to biological resources are appropriately and lawfully managed. The Biological Monitor will perform the following duties :

- a. Perform a minimum of three focused preconstruction surveys, on separate days, to determine the presence of gnatcatchers or rails in the project impact footprint. Surveys will begin a maximum of 30 days prior to performing vegetation clearing/grubbing, and one survey will be conducted the day immediately prior to the initiation of vegetation clearing. If any gnatcatchers or rails are found in the project impact footprint, the Biological Monitor will direct construction personnel to begin vegetation clearing/grubbing in an area away from the gnatcatchers and/or rails. It will be the responsibility of the Biological Monitor to ensure that gnatcatchers and rails will not be injured or killed by vegetation clearing/grubbing. The Biological Monitor will also record the number and location of gnatcatchers and rails disturbed by vegetation clearing/grubbing. Caltrans will notify the CFWO at least 7 days prior to vegetation clearing/grubbing to allow the CFWO to coordinate with the Caltrans Project Biologist on potential bird flushing activities;
- b. Oversee installation of and inspect the construction fencing and erosion control measures a minimum of once per week to ensure that any breaks in the fencing or erosion control measures are repaired immediately and that rails have not entered the project impact footprint;
- c. Implement the goby capture, relocation and exclusion plan; and manzanita translocation plan;
- d. Periodically monitor the work area to ensure that work activities do not generate excessive amounts of dust;
- e. Train all contractors and construction personnel on the biological resources associated with the project and ensure that training is implemented by construction personnel. At a minimum, training will include: 1) the purpose for resource protection; 2) a description of the gnatcatcher, rail, goby, and manzanita and their habitats; 3) the conservation measures that should be implemented during project construction to conserve the

⁷ The Caltrans Project Biologist will be a Caltrans biologist familiar with the federally listed species potentially affected by the project and with the habitats that support these species; he/she will be the primary contact for the CFWO during project implementation.

gnatcatcher, rail, goby, and manzanita, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced project footprint to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing); 4) environmentally responsible construction practices; 5) the protocol to resolve conflicts that may arise at any time during the construction process; and 6) the general provisions of the Act, the need to adhere to the provisions of the Act, and the penalties associated with violating the Act;

- f. Request that the Resident Engineer halt work, if necessary, and confer with the Caltrans Project Biologist and the CFWO to ensure the proper implementation of species and habitat protection measures. The Caltrans Project Biologist will report any non-compliance issue to the CFWO within 24 hours of its occurrence;
- g. Monitor the project site immediately prior to and during construction to identify the presence of invasive weeds and recommend measures to avoid their inadvertent spread in association with the project. Such measures may include inspection and cleaning of construction equipment and use of eradication strategies. All heavy equipment will be washed and cleaned of debris prior to entering a lagoon area to minimize the spread of invasive weeds;
- h. Submit monthly email reports (including photographs of impact areas) to the Caltrans Project Biologist during clearing of, and construction within, 500 feet of gnatcatcher, rail, goby, and manzanita habitats. The monthly reports will document that authorized impacts were not exceeded and general compliance with all conditions. The reports will also outline the location of construction activities, the type of construction that occurred, and equipment used. These reports will specify numbers, locations, and sex of gnatcatchers, rails, and gobies (if observed), their observed behavior (especially in relation to construction activities), and remedial measures employed to avoid and minimize impacts to these species. The Caltrans Project Biologist will review reports and forward them to the CFWO. Raw field notes should be available upon request by the CFWO; and
- i. Submit a final report to Caltrans Project Biologist within 120 days of the completion of construction for each project phase that includes: photographs of habitat areas that were to be avoided and other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with all conservation measures was achieved. As-built construction drawings with an overlay of habitat that was impacted and avoided will be provided as well once they have been completed. The Caltrans Project Biologist will review the report and forward it to the CFWO.

32. All native or sensitive habitats outside and adjacent to the permanent and temporary construction limits will be designated as Environmentally Sensitive Areas (ESAs) on project maps. ESAs will be temporarily fenced during construction with orange plastic snow fence, orange silt fencing, or in areas of flowing water, with stakes and flagging. No personnel, equipment or debris will be allowed within the ESAs. Fencing and flagging will be installed in a manner that does not impact habitats to be avoided and such that it is clearly visible to personnel on foot and operating heavy equipment. At the bridge construction areas where there is the potential for rail movement under the bridges, fencing will be installed in a manner that will direct rails to the open channel under bridges to the extent feasible. Caltrans will submit to the CFWO for approval, at least 5 days prior to initiating project impacts (except for impacts resulting from clearing to install temporary fencing), the final plans for initial clearing and grubbing of habitat and project construction. These final plans will include photographs that show the fenced and flagged limits of impact and all areas to be impacted or avoided. If work occurs beyond the fenced or demarcated limits of impact all work will cease until the problem has been remedied to the satisfaction of the CFWO. Temporary construction fencing and markers will be maintained in good repair until the completion of each phase of project construction and removed upon completion of each project phase.
33. During project construction all invasive species included on National Invasive Species Management Plan, the State of California Noxious Weed List, and the California Invasive Plant Council's (Cal-IPC) Invasive Plant Inventory list found growing within the project right-of-way will be removed. Weed removal will be conducted within the project right-of-way at least once per year during the construction period. Special care will be taken during transport, use, and disposal of soils containing invasive weed seeds and all weedy vegetation removed during construction will be properly disposed of to prevent spread into areas outside of the construction area.
34. A channel large enough for fish and rail movement will be kept open throughout project construction in the San Luis Rey River and each of the lagoons. Prior to initiation of construction in the San Luis Rey River and each of the lagoons, Caltrans will submit a plan to the CFWO for maintaining a channel for fish and/or rail movement in the San Luis Rey River and each of the lagoons.

Measures to Offset Impacts to Listed Species and their Habitats

35. Permanent and temporary impacts to gnatcatchers, rails, gobies, manzanita, and critical habitat for the gnatcatcher and goby (as summarized in Tables 3 and 4 above) resulting from the I-5 North Coast Corridor Project will be offset through habitat creation restoration, and preservation/enhancement as shown in Table 5 and Figures 22-31. Implementation of these

conservation measures is phased ahead of project impacts. In addition, large-scale lagoon restoration and lagoon management endowments shown in Table 5 above will be implemented to provide additional conservation to offset impacts from the I-5 North Coast Corridor Project, Los Angeles to San Diego Rail Corridor, and I-5 / State Route-78 Interchange Project (with project elements as listed in the REP).

36. Caltrans will submit draft San Dieguito Lagoon W19, Hallmark, Dean, San Elijo Uplands, Deer Canyon, Laser, and La Costa wetland and upland creation / restoration / enhancement plans to the CFWO for review and approval prior to initiating project impacts. Caltrans will provide the final plans to the CFWO. The final plans will include the following information and conditions:
- a. All final specifications and topographic-based grading, planting and irrigation plans (0.5-foot contours and typical cross-sections for wetlands and 10-foot contours for uplands) for the creation/restoration/enhancement sites. All wetland mitigation areas will be graded to the same elevation as adjacent existing Corps jurisdictional wetlands areas, and/or to within 1-foot of the groundwater table, and will be left in a rough grade state with micro topographic relief (including channels for wetlands) that mimics natural topography. All upland habitat creation/restoration/enhancement sites will be prepared for planting by decompacting the top soil in a way that mimics natural upland habitat top soil to the maximum extent practicable while maintaining slope stability. Topsoil and plant materials salvaged from the impacted areas (including live herbaceous, shrub and tree species) will be transplanted to, and/or used as a seed/cutting source for, the creation and enhancement areas to the maximum extent practicable. Planting and irrigation will not be installed until the CFWO has approved of the site grading. All plantings will be installed in a way that mimics natural plant distribution and not in rows.
 - b. Planting palettes (plant species, size and number/acre) and seed mix (plant species and pounds/acre). The multitude of plant palettes proposed in the draft plans will include native species specifically associated with the habitat type(s). Unless otherwise approved by the CFWO, only locally native species (no cultivars) obtained within San Diego County available from as close to the project area as possible will be used. The source and proof of local nativeness of all plant material and seed will be provided.
 - c. Container plant survival will be 80 percent of the initial plantings for the first 5 years. At the first and second anniversary of plant installation, all dead plants will be replaced unless their function has been replaced by natural recruitment.
 - d. A final implementation schedule that indicates when all native habitat impacts, as well as native habitat creation / restoration / enhancement grading, planting and irrigation will begin and end. Necessary site preparation and planting will be completed during the

concurrent or next planting season (i.e., late fall to early spring) after receiving the CFWO's approval of grading.

- e. Five years of success criteria for creation / restoration / enhancement areas including: separate percent cover criteria for herbaceous understory, shrub midstory, and tree overstory, and a total percent absolute cover for all three layers at the end of 5 years for wetlands, and a total percent absolute cover for uplands; evidence of natural recruitment of multiple species for all habitat types; 0 percent coverage will be maintained for Cal-IPC's "Invasive Plant Inventory" species, and no more than 10 percent coverage for other exotic/weed species.
- f. A minimum 5 years of maintenance and monitoring of creation / restoration / enhancement areas, unless success criteria are met earlier and all artificial water supplies have been off for at least 2 years.
- g. A qualitative and quantitative vegetation monitoring plan with a map of proposed sampling locations. Photo points will be used for qualitative monitoring and stratified-random sampling will be used for all quantitative monitoring.
- h. Contingency measures in the event of creation/restoration/enhancement failure.
- i. Annual mitigation maintenance and monitoring reports will be submitted to the CFWO no later than December 1 of each year.
- j. If maintenance of a wetland creation / restoration / enhancement area potentially occupied by rails is necessary between March 15 and September 15, a biologist with knowledge of rail biology and ecology and approved by the CFWO will survey for rails within the creation / restoration / enhancement area, access paths to it, and other areas susceptible to disturbances by creation / restoration / enhancement site maintenance. Surveys will consist of three visits separated by 2 weeks starting April 1 of each maintenance/monitoring year. Restoration work will be allowed to continue on the site during the survey period. However, if rails are found during any of the visits, the applicant will notify and coordinate with the CFWO to identify measures to avoid and/or minimize effects to the rail (e.g., nests and an appropriate buffer will be flagged by the biologist and avoided by the maintenance work).
- k. If maintenance of a coastal sage scrub restoration / enhancement area is necessary between February 15 and August 31, a biologist with knowledge of the biology and ecology of gnatcatchers and approved by the CFWO will survey for gnatcatchers within the creation / restoration / enhancement area, access paths to it, and other areas susceptible to disturbances by site maintenance. Surveys will consist of three visits

separated by 2 weeks starting March 1 of each maintenance/monitoring year. Work will be allowed to continue on the site during the survey period. However, if gnatcatchers are found during any of the visits, Caltrans will notify and coordinate with the CFWO to identify measures to avoid and/or minimize effects to the gnatcatcher (e.g., nests and an appropriate buffer will be flagged by the biologist and avoided by the maintenance work).

37. Perpetual biological conservation easements or other conservation mechanisms acceptable to the CFWO will be recorded over the areas created, restored, and/or preserved / enhanced by the project at the San Dieguito Lagoon W19, Hallmark, Dean, San Elijo Uplands, Deer Canyon, Laser, and La Costa properties. The conservation mechanisms will specify that no easements or activities (e.g., fuel modification zones, public trails, drainage facilities, walls, maintenance access roads, utility easements) that will result in soil disturbance and/or native vegetation removal will be allowed within the biological conservation easement areas, with exceptions as documented in the Constraints sections of Mitigation Site Assessments for these properties and where the acreage of impacts is not included in the mitigation acreage totals in Table 5 above. Draft Mitigation Site Assessments have been provided to the CFWO for our review and comment. A copy of final Mitigation Site Assessments will be provided to the CFWO that clearly document constraints and demonstrate compliance with the requirement that the acreage of impacts resulting from constraints is not included in the mitigation acreage totals in Table 5 above. Revised draft conservation mechanisms will be provided to the CFWO for review and approval. Caltrans will also submit the final conservation mechanisms to the CFWO. Caltrans anticipates that they will not be able to place the conservation easements or other conservation mechanisms for these properties prior to initiating project impacts; however, annual reports will be provided on their status until the conservation mechanisms are recorded over the properties, which will occur either within 1-year of the issuance of this biological opinion, or within 1-year of purchase of each property, unless a written extension is requested by Caltrans showing good faith efforts to achieve the recordation and the extension request is granted by the CFWO.
38. Caltrans will prepare and implement perpetual management, maintenance, and monitoring plans for the San Dieguito Lagoon W19, Hallmark, Dean, San Elijo Uplands, Deer Canyon, Laser, and La Costa properties. Caltrans will also establish non-wasting endowments for amounts approved by the CFWO based on Property Analysis Records (PAR) (Center for Natural Lands Management ©1998) or similar cost estimation methods, to secure the ongoing funding for the perpetual management, maintenance and monitoring of these properties. Caltrans will submit draft long-term management plans for the properties to the CFWO for review and approval. The long-term management plans will include, but not be limited to, the following: 1) the PAR or other cost estimation results for the non-wasting endowment; 2) proposed land manager's name, qualifications, business address, and contact

information; 3) method of protecting the resources in perpetuity (e.g., conservation easement), monitoring schedule, measures to prevent human and exotic species encroachment, funding mechanism, and contingency measures should problems occur. Caltrans will submit the final long-term management plans to the CFWO. Caltrans anticipates that the long-term management plans will not be prepared prior to initiating project impacts; however, annual reports will be provided on their status until the final management plans have been provided and the endowments have been established, which is anticipated to occur when the projects are projected to meet criteria (as documented in Table 5 above) and will occur within 1 year of achieving applicable success criteria for each property.

39. Caltrans will establish a non-wasting endowment for an amount approved by the CFWO, based on reliable and current estimates of maintenance costs, for long-term maintenance of Batiquitos and Los Peñasquitos Lagoons, including lagoon inlet maintenance and dredging. Caltrans will submit the estimates and information to demonstrate that the endowment will be non-wasting, and will adequately cover the costs of maintenance, to the CFWO for review and approval. Caltrans will make the endowment available for use within 1 year of establishment of the endowment, which will be established no later than December 1, 2015. Any delay in availability of funds will be reviewed and approved by the CFWO.
40. Caltrans will fund, in full, a large-scale salt water lagoon restoration at San Elijo Lagoon and/or Buena Vista Lagoon through the REP⁸. Caltrans will submit revised drafts of the REP to the CFWO for review and comment. Large-scale lagoon restoration funding will be used solely for salt water lagoon restoration, which will restore tidally-influenced habitats that are comparable with project impacts, for the benefit of listed species. Allocation of funding for large-scale salt water lagoon restoration will be determined, in coordination with the CFWO, prior to initiating project impacts. Caltrans will submit a copy of the final REP and funding proposal to the CFWO for review and approval.
41. Caltrans will establish non-wasting endowments for amounts approved by the CFWO, based on reliable and current estimates of maintenance costs, for long-term maintenance of the large-scale lagoon restoration at San Elijo Lagoon and/or Buena Vista Lagoon. Caltrans will submit the endowment estimates to the CFWO for review and approval. The endowments are anticipated to be established during the year in which the large-scale lagoon restoration work is completed and no later than December 1, 2019 unless a written extension is requested by Caltrans showing good faith efforts to establish the endowment and the extension request is granted by the CFWO. Funds will be available for use within one year of establishment of the endowments.

⁸ A separate section 7 consultation with the Federal lead agency for the restoration project will be required to address impacts to listed species resulting from large-scale lagoon restoration.

42. All areas of temporary impact, as quantified in Table 2 above, will be revegetated and restored with native species. These areas will be returned to original grade, as feasible. Prior to initiating project impacts, a restoration plan will be developed for the temporary impact areas. The plan will be submitted to the CFWO for review and approval. This plan will include a detailed description of restoration methods, slope stabilization, and erosion control, criteria for restoration to be considered successful, and monitoring protocol(s). Following the completion of construction activities within each area of impact, the restoration plan will be implemented for a minimum of 5 years, unless success criteria are met earlier and all artificial water has been off for at least 2 years. Temporary impact areas will be planted as soon as possible following re-grading after completion of construction to prevent encroachment by nonnative plants.
43. Cut and fill slopes adjacent to native habitats will be revegetated with native habitats with similar composition to those within the project study area as feasible, including over 86 acres of slopes near lagoons and other open space that will be revegetated with coastal sage scrub. Duff and rare plants from areas with coastal sage scrub, maritime succulent scrub, and maritime chaparral may be salvaged from the project impact footprint to the extent practicable to aid in revegetating slopes with native habitats (excluding areas with invasive nonnative species such as African veldt grass and onion weed). The revegetated areas will have temporary irrigation and will be planted with native container plants and seeds selected in coordination with the Caltrans Project Biologist. At least 3 years of plant establishment/maintenance on these slopes will be conducted to control nonnative plants. Bioswales and detention basins will be planted with appropriate species as determined in coordination with the Caltrans Project Biologist and storm water pollution prevention professional. These areas will be planted as soon as possible following completed construction to prevent encroachment by nonnative plants. Slopes and interchanges located adjacent to developed urban areas will be planted with native and drought tolerant non-invasive species selected by the biologist and landscape architect.

Action Area

According to 50 CFR § 402.02 pursuant to section 7 of the Act, the “action area” means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area. For this project, we have defined the action area to be the 27 mile project site, which includes 64.83 acres of permanent and 16.62 acres of temporary impacts to sensitive native upland habitats and 20.12 acres of permanent and 13.59 acres of temporary impacts to wetland habitats. The action area also includes the surrounding habitat within about 500 feet, which may be exposed to project-related effects such as increased noise, light, and dust levels and human activity during project construction and operation of the facilities. In addition, the action area includes the San Dieguito Lagoon W19,

Hallmark, Dean, San Elijo Uplands, Deer Canyon, Laser, and La Costa conservation properties, which are located in proximity to the project site in coastal San Diego County, California (Figures 22-23). The Regional Lagoon Maintenance Program at Batiquitos and Los Peñasquitos Lagoons and the large-scale lagoon restoration at San Elijo and Buena Vista Lagoons are also addressed below.

STATUS OF THE SPECIES/CRITICAL HABITAT

The status of the gnatcatcher was described in detail in a biological opinion for the Caltrans-sponsored State Route 76 Melrose Drive to South Mission Highway Improvement Project, San Diego County, California (FWS-SDG-08B0136-08F0900, dated October 1, 2008). The status of the goby was described in detail in a biological opinion for the Caltrans-sponsored Bridge Repairs at San Mateo Creek and Interstate Highway 5, San Diego County, California (FWS-MCBCP-3062.2, dated December 19, 2002). Additional information can be found in the recovery plans for the rail and goby (Service 1985, 2005) and the 5-year reviews for the gnatcatcher, rail, goby and manzanita. Please refer to these documents for detailed information on the life history requirements of the species, threats to the species, and conservation needs of the species.

Updated information on species' numbers and distribution, critical habitat, threats and conservation needs since issuance of the 2008 and 2002 biological opinions is summarized below to provide context to this biological opinion and is generally taken from the 5-year reviews for the gnatcatcher, rail, goby, and manzanita (Service 2010a, 2009, 2007a, 2010b).

Summary of Species' Distribution and Numbers Range-wide, Critical Habitat, Threats and Conservation Needs

Coastal California Gnatcatcher

The gnatcatcher occurs in coastal sage scrub and associated habitats from southern Ventura County to Baja California, Mexico. In 1993, the Service estimated that about 2,562 gnatcatcher pairs remained in the United States, with the highest densities occurring in Orange and San Diego counties (Service 1993). In a recent study using more rigorous sampling techniques, Winchell and Doherty (2008) estimated there were 1,324 (95 percent confidence interval: 976–1,673) gnatcatcher pairs over an 111,006-acre area on public and quasi-public lands in Orange and San Diego counties. Their sampling frame covered only a portion of the U.S. range, focusing on the coast, and was limited to 1 year. Although it is not valid to extrapolate beyond the sampling frame, especially in light of known differences in population densities across the range of the gnatcatcher (Atwood 1992), it is likely there are more gnatcatchers in the U.S. portion of the range than was suggested by earlier estimates; Winchell and Doherty (2008) estimated nearly as many gnatcatchers in the portion of the U.S. range sampled in their study as was originally estimated for the entire U.S. range. We are not aware of any recent estimates of gnatcatcher populations in Baja California.

Critical habitat for the gnatcatcher was designated on December 19, 2007 (Service 2007b). There are 11 designated critical habitat units for the gnatcatcher that include 197,303 acres of Federal, State, local, and private land in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties. Designated critical habitat includes habitat throughout the species' range in a variety of climatic zones and vegetation types to preserve the genetic and behavioral diversity that currently exists within the species. The individual units contain essential habitat for the gnatcatcher and help to identify special management considerations for the species. The project is located within and adjacent to Unit 3 of designated gnatcatcher critical habitat.

Unit 3 [planning area for the North San Diego County Multiple Habitat Conservation Plan (MHCP) in northwestern San Diego County] includes 17,325 acres and contains the last significant gnatcatcher populations remaining south of Marine Corps Base Camp Pendleton abutting the coast. Coastal populations of the gnatcatcher have been found to be denser than inland locales (Preston et al. 1998), and they are essential to support more inland populations through emigration. This unit also provides connectivity between significant populations at Marine Corps Base Camp Pendleton (adjacent to Unit 5), San Diego Multiple Species Conservation Program (MSCP) reserve areas in Unit 1, and populations in northern San Diego County (Unit 4). Specific information for each of the remaining critical habitat units can be found within the final rule designating critical habitat for the gnatcatcher (Service 2007b). This unit may require special management considerations or protection to minimize impacts associated with habitat type conversion and degradation occurring in conjunction with urban and agricultural development.

Primary Constituent Elements (PCEs) for the gnatcatcher are those habitat components that are essential for the primary biological needs of foraging, nesting, rearing of young, intra-specific communication, roosting, dispersal, genetic exchange, or sheltering. These include: 1) sage scrub habitats that provide space for individual and population growth, normal behavior, breeding, reproduction, nesting, dispersal, and foraging; and 2) non-sage scrub habitats such as chaparral, grassland, and riparian areas, in proximity to sage scrub habitats that provide space for dispersal, foraging, and nesting.

Although declines in numbers and distribution of the gnatcatcher have resulted from numerous factors, the current significant threats of the gnatcatcher include habitat fragmentation and degradation, which can lead to type conversion (Service 2010a). Several stressors, including livestock grazing, anthropogenic atmospheric pollutants, and wildland fire, can lead to type conversion of gnatcatcher habitat. As regional Habitat Conservation Plans (HCPs) permitted under section 10(a)(1)(B) of the Act and under the State of California's Natural Community Conservation Planning (NCCP) Act are implemented over time, an increasing amount of habitat will receive beneficial management that will address these threats. However, these plans are mostly in the early stages of implementation or are still in development. Therefore, the gnatcatcher continues to meet the definition of threatened, and no change in listing status was made following our 5-year review (Service 2010a).

Light-footed Clapper Rail

The rail occurs in coastal marsh habitat in California, ranging from Ventura County in the north to the Mexican border in the south. When annual statewide rail censuses began in 1980, 203 pairs of rails were detected within 11 coastal wetlands surveyed (Service 2009). Since 1980, the lowest number of pairs detected was 142 in 1985 when 14 coastal wetlands were surveyed (Service 2009). The highest number of pairs detected was 520 in 2012 when the census surveyed 30 coastal wetlands (Zembal and Hoffman 2012). Approximately 92 percent of the rail pairs counted in 2012 were found in only 9 of the 30 coastal wetlands surveyed. These coastal wetlands include, from north to south; Mugu Lagoon, Seal Beach National Wildlife Refuge, Upper Newport Bay, Batiquitos Lagoon, San Elijo Lagoon, San Dieguito Lagoon, Los Peñasquitos Lagoon, Kendall-Frost Mission Bay Marsh Reserve, and Tijuana Slough National Wildlife Refuge. Rails have been documented in two coastal wetlands in Baja California, Mexico (Zembal and Massey 1986); however the status of the rail in Mexico is not well documented and an abundance estimate is unavailable (Service 2009).

At the current time, small population sizes, isolation, and habitat quality are the predominant factors limiting rail abundance. Progress has been made to increase the number of rails since listing, and regulatory mechanisms have been successful at stopping destruction and degradation of marsh lands. Conservation efforts have included habitat restoration, installing artificial nesting platforms, captive breeding and translocation, predator control, and annual range wide censuses. However, in its best year since listing, the rail population was only 65 percent of the way to the 800 pairs suggested by the recovery plan for downlisting despite these conservation efforts. Therefore, the rail continues to meet the definition of endangered, and no change in listing status was made following our five-year review (Service 2009).

Tidewater Goby

The goby is generally restricted to brackish water habitats in California's coastal lagoons and streams, ranging from Tillas Slough at the mouth of the Smith River (Del Norte County, near the California/Oregon border) in the north (Service 2007a) to the San Luis Rey River Estuary (San Diego County) in the south (Lafferty 2010). Because of the variability in local abundance and seasonal changes in distribution and abundance, it is difficult to derive population size estimates for this short-lived species (Service 2007a). When the species was listed in 1994, 48 localities were known to be occupied by the goby (Service 2007a). Currently, 106 localities are presumed to be occupied (Smith, *in litt.* 2007). Gobies have not been documented in Mexico or Oregon despite extensive surveys outside of California (Service 2005).

The action area does not support designated critical habitat for the goby. A proposed revision to critical habitat for the goby was published on October 19, 2011 (Service 2011). There are 65 proposed critical habitat units for the goby that include 12,157 acres of Federal, State, local, and private land in Del Norte, Humboldt, Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego Counties, California. Proposed critical habitat includes habitat throughout the species' range to

preserve the genetic diversity that currently exists within the species. The individual units contain essential habitat for the goby and help to identify special management considerations for the species. The project is located within and adjacent to Unit SAN-1 of proposed goby critical habitat.

Unit SAN-1 (San Luis Rey River) includes 56 acres and contains the southernmost habitat known to be occupied by the species. This unit allows for connectivity between tidewater goby source populations and supports gene flow and metapopulation dynamics of the genetically unique South Coast Recovery Unit described in the recovery plan for the species (Service 2005). Unit SAN-1 supports a goby population and may help facilitate colonization of currently unoccupied locations to the south. Specific information for each of the remaining critical habitat units can be found within the proposed rule (Service 2011).

The PCEs for the goby are those habitat components that provide for the species' life-history processes of foraging, reproducing, development of offspring, dispersal, genetic exchange, or sheltering. The PCEs for goby have been defined as: Persistent, shallow (in the range of approximately 0.3 to 6.6 feet), still-to-slow-moving, lagoons, estuaries, and coastal streams ranging in salinity from 0.5 parts per thousand to about 12 parts per thousand, which provides adequate space for normal behavior and individual and population growth that contain: (a) Substrates (e.g., sand, silt, mud) suitable for the construction of burrows for reproduction; (b) Submerged and emergent aquatic vegetation, such as *Potamogeton pectinatus*, *Ruppia maritima*, *Typha latifolia*, and *Scirpus* spp., that provides protection from predators and high flow events; or (c) Presence of a sandbar(s) across the mouth of a lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, thereby providing relatively stable water levels and salinity.

The current significant threats to the goby include limited loss and alteration of habitat resulting from development projects, flood control, anthropomorphic breaching of coastal lagoons, and freshwater withdrawal. Predation by and competition with native and non-native species also continues to be a concern. In addition, the metapopulation dynamics aspect of goby biology results in localized extirpation events and subsequent recolonized from adjacent occupied areas. Habitat loss can isolate the subpopulations that make up a metapopulation such that local extirpations may become permanent because they are outside of the recolonization ability of the species. However, based on the more than doubling of the number of occupied localities since the goby was listed (from 48 to 106), we now consider the species to be more resilient to perturbations and climatic factors than previously believed. Our 5-year review for the species recommends downlisting the species to threatened, but deferring action until taxonomic research is published to allow for review of taxonomic changes of the listed entity prior to publication of a proposed downlisting rule. In addition, conservation needs for the species remain, including continued monitoring, in particular during and after drought events, and developing a metapopulation viability analysis to gain a better understanding of tidewater goby metapopulation dynamics. Therefore, at this time, the goby remains endangered, and no change in listing status was made following our 5-year review (Service 2007a).

Del Mar Manzanita

Del Mar manzanita is associated with southern maritime chaparral and occurs on sandstone terraces and bluffs. In 1996, when the species was listed, 17 occurrences were known which supported 9,400 to 10,300 individuals (Service 1996). Currently, 50 occurrences in the United States are considered extant or presumed extant and we have no current population estimates (Service 2010b). The species range extends from the City of Carlsbad south along the coast to Torrey Pines State Reserve, east to Marine Corps Air Station Miramar, and southeast to Mission Trails Regional Park in San Diego County, California. The status of Del Mar manzanita in Mexico is not well documented. Prior to 1982, the species was reported from five localities in northwestern Baja California, Mexico, from the border just east of Tijuana, south 25 miles to Cerro el Coronel and Mesa Descanso. The listing rule states that while little is known about these occurrences, this region in Mexico was severely impacted by the same factors (urban and agricultural development) that had been affecting the United States populations (Service 1996). Currently, we have no additional information about these occurrences and no new occurrences have been reported from Mexico.

The current significant threats to manzanita include habitat destruction and fragmentation from development, fuel modification practices, human access, and military training. In addition, altered fire regime and small population size threaten the species. The lack of a natural fire regime is likely related to the threat of small population size as evidenced by the lack of seedlings in populations. In some locations, individuals are old with elongated stems with significant dead portions and small leaf canopies. A decrease in the number of individuals at many locations, coupled with a lack of evidence of reproduction, suggests that manzanita still faces a high degree of threat. Therefore, manzanita continues to meet the definition of endangered, and no change in listing status was made following our 5-year review (Service 2010b).

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR §402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation and the impacts of State and private actions that are contemporaneous with the consultation in progress.

Project Site Characteristics and Surrounding Land Uses

The Biological Study Area (BSA) for the project totals approximately 4,714 acres and includes the footprint of the proposed project along I-5 from La Jolla Village Drive in the south to Vandegrift Boulevard in the north, and extends out approximately 500 feet from the edge of pavement on average, with a wider extent at rivers and lagoons, and a narrower extent in developed areas. The BSA encompasses portions of several drainages that cross under I-5 before terminating in the ocean, including Los Peñasquitos Creek, Carmel Valley Creek, and the San

Luis Rey River. The project also crosses five coastal lagoons, San Dieguito, San Elijo, Batiquitos, Agua Hedionda, and Buena Vista, and is adjacent to the eastern border of a sixth lagoon, Los Peñasquitos. These drainages and lagoons provide connectivity for wildlife movement from inland San Diego County to the coastal region. The overall topography of the project area rises and falls between the numerous drainages and lagoons and adjacent coastal mesas. Elevation in the BSA ranges from sea level to terrace elevations of up to 328 feet above mean sea level (AMSL).

Soils within the BSA are dominated by sandy or loamy clays that are derived from unconsolidated marine sandstones and shales (Bowman 1973). A broad range of vegetation communities and other cover types were identified within the BSA during the surveys, including native riparian and wetland, native upland, and nonnative vegetation types such as ornamental and nonnative grassland (Table 1). Gnatcatcher, rail, goby, and manzanita all occur within the BSA along the I-5 North Coast Corridor.

The environmental baseline is expected to change during the 21-year duration of the project, depending on when impacts occur. Updated surveys will be done prior to each project phase to determine if the environmental baseline has changed.

Relationship to Regional Preserves

The project passes through the planning areas for two regional habitat conservation plans, the City of San Diego's MSCP Subarea Plan and the northwestern San Diego County MHCP. These programs constitute subregional plans under the State of California's Natural Community Conservation Planning Act of 1991. The California Department of Fish and Game's Natural Community Conservation Planning program (NCCP) (CDFG 2007) is a cooperative effort between public and private entities to protect habitats and species. The program's primary objective is to conserve local and regional biological diversity while accommodating compatible land use. The NCCP attempts to prevent/resolve issues related to species' listings by concentrating on the long-term stability of wildlife and plant communities, and including key interests in the process.

The MSCP is a comprehensive habitat conservation planning program that provides for a streamlined process to authorize incidental take for urban development and for the conservation of multiple species and their habitats within a 582,243-acre planning area in southwestern San Diego County. Each subarea plan prepared pursuant to the MSCP is intended to serve as a multiple species habitat conservation plan (HCP) pursuant to Section 10(a)(2)(A) of the Act. The MSCP covers southwestern San Diego County from the San Dieguito River Valley to Mexico, and eastward from the Pacific Ocean to national forest lands. In 1997, the Service issued a section 10(a)(1)(B) permit for the City of San Diego's MSCP Subarea Plan.

Like the MSCP, the MHCP is a regional habitat conservation plan that provides for a streamlined process to authorize incidental take for urban development and for the conservation of multiple species and their habitats. The planning area for the MHCP covers 111,908 acres in

northwestern San Diego County. Each subarea plan prepared pursuant to the MHCP is also intended to serve as a multiple species HCP pursuant to Section 10(a)(2)(A) of the Act. The City of Carlsbad is the only participating jurisdiction that has completed a subarea plan (i.e., the Carlsbad Habitat Management Plan) for which the Service issued a section 10(a)(1)(B) permit in 2004. The other two jurisdictions within the project area, the cities of Oceanside and Encinitas, are working on draft subarea plans at this time.

Within the MSCP and MHCP, lands have been identified that are targeted for conservation with the objective of creating a connected system of habitats in a manner that maximizes the protection of sensitive species. These lands are referred to as the Multi-Habitat Planning Area (MHPA) of the MSCP and the Focused Planning Area (FPA) of the MHCP. While the proposed project will result in some impacts to MHPA and FPA lands, most project impacts will occur within the existing right-of-way of I-5, which does not include these land designations. However, there are numerous important regional wildlife corridors that provide connectivity for wildlife movement from inland San Diego County to the coastal region and are identified as MHPA or FPA lands outside of the I-5 right-of-way along the project alignment. These include the six coastal lagoons traversed by the project, Los Peñasquitos Creek, Carmel Valley Creek, and the San Luis Rey River.

Status of Species and Critical Habitats within the Action Area

Coastal California Gnatcatcher

Gnatcatchers were detected in the BSA during protocol surveys conducted from 2003 to 2012 (Caltrans 2003a, 2003b, 2004, 2005, 2008a, 2008b, 2009, 2012a). Gnatcatchers were observed along fill slopes and cut slopes adjacent to lagoons and in adjacent canyons with coastal sage scrub (Figures 7-15). A total of 15 gnatcatcher territories were documented within the action area for the project.

A total of 43 acres in Unit 3 of designated critical habitat for the gnatcatcher is located within the action area for the project, of which 36.7 acres contain PCEs of critical habitat and the remaining 6.3 acres consists of disturbed habitat [consisting of stands of broad-leaved weeds such as mustard (*Brassica* sp.)] that lack PCEs. Of the area with PCEs, 6.1 acres are nonnative grassland, which are likely used for gnatcatcher dispersal and foraging but not breeding.

Light-footed Clapper Rail

Rails were observed in Los Peñasquitos, San Elijo, Batiqitos, and Buena Vista Lagoons within the BSA during focused surveys conducted between 2003 and 2011 (Konecny Biological Services 2003, 2005, 2007; Zembal 2003, 2011; Caltrans 2012a) (Figures 7-15). Rails were observed in coastal marsh habitats within these lagoons and are expected to use the project area for foraging, breeding, and sheltering. Rails are also known to occur within San Dieguito Lagoon, Agua Hedionda Lagoon, and the San Luis Rey River, outside of the BSA for the project (Zembal and Hoffman 2012). Two pairs of rails were observed within the project's impact

footprint at Batiquitos Lagoon, one pair was observed within the project's impact footprint at San Elijo Lagoon, and one pair was observed within the project's impact footprint at Buena Vista Lagoon.

Tidewater Goby

Gobies were observed in the San Luis Rey River estuary, just south of Oceanside Harbor, in 2010 (Lafferty 2010), and are expected to use the project area for foraging, reproducing, development of offspring, dispersal, and sheltering. The species had not been observed at this location since 1958 (Service 2005). Surveys in 2010 in the San Luis Rey River were conducted on a single day as a part of a larger survey effort in the Camp Pendleton area, and the number of individuals observed in the San Luis Rey River was not reported. As a result of these positive surveys, suitable habitat in the San Luis Rey River estuary in the project area is now known to be occupied by the goby, and occupancy by the species is not disputed by FHWA or Caltrans. As noted in the Status of the Species above, this is a short-lived species that is subject to variability in local abundance and seasonal changes in distribution and abundance, which makes it difficult to derive population size estimates (Service 2007a). Surveys were conducted in coastal lagoons traversed by the project where suitable habitat occurred with negative results (Merkel and Associates, Inc. 2012).

A total of approximately 2.06 acres of the project site is within Unit SAN-1 of proposed goby critical habitat. Of this area, 0.51 acre includes PCEs of critical habitat and the remaining 1.55 acres do not.

Del Mar Manzanita

Rare plant surveys in 2012 documented a total of 41 Del Mar Manzanita plants in patches within the BSA north of Del Mar Heights Road (Figure 16) and east of I-5 in the vicinity of the San Elijo Viewpoint (Figure 17) (Caltrans 2012a). Of these, six Del Mar Manzanita plants were observed growing along the brow ditch at the northwestern corner of the Del Mar Heights interchange within the project impact footprint, and the remaining (Caltrans 2012a) 35 plants were observed outside of the project impact footprint.

Proposed Offsite Conservation

Caltrans will provide for the restoration/enhancement and perpetual conservation and management of the following lands, or fund restoration and enhancement work, as detailed in Table 5 above, to offset impacts of the project on gnatcatchers, rails, gobies, manzanita, designated critical habitat for the gnatcatcher, and proposed critical habitat for the goby. All constraints on the offsite conservation properties such as existing easements and trails are documented and mapped in the Constraints/Existing Utilities/Infrastructure/Easements section of the Mitigation Site Assessment (Dudek 2012) and are not included in the offset acreage totals in Table 5 of this biological opinion.

San Dieguito Lagoon W19

The San Dieguito Lagoon W19 Property consists of a total of approximately 107 acres and is located east of I-5, south of Via De La Valle and the San Dieguito River, and west of El Camino Real, in the eastern portion of San Dieguito Lagoon, in the MHPA of the City of San Diego's Subarea Plan boundary (Figure 24). The majority of the site has been previously disturbed by agricultural activities. Habitats on the property are mapped and quantified in Figure 24.

The property does not contain any critical habitat. The California Natural Diversity Database includes records for listed species in the vicinity of the property, including the gnatcatcher, rail, and vireo (CNDDDB 2011). Surveys conducted in 2012 for the rail documented approximately 45 pairs of rails directly upstream of the project site within freshwater marsh habitat east of El Camino Real (Zemba and Hoffman 2012).

Hallmark

The Hallmark Property consists of three parcels located along the margins of the northeastern portion of Agua Hedionda Lagoon in the City of Carlsbad. The western parcel (Hallmark West) is approximately 11.1 acres in size and is located between Park Drive and Agua Hedionda Lagoon. The other two parcels (Hallmark East), totaling 8.2 acres, are next to one another between the lagoon and the neighborhoods along Via Hinton and Via Marta (Figures 25, 26).

The Hallmark East parcel is located within the FPA of the City of Carlsbad's Habitat Management Plan boundary and supports coastal sage scrub, baccharis scrub, freshwater marsh, coastal brackish marsh, riparian forest, nonnative woodland, ornamental, disturbed habitat, and bare ground. The Hallmark West parcel is composed of coastal sage scrub, salt marsh, salt marsh transition, freshwater marsh, southern willow scrub, disturbed habitat, and bare ground, as mapped and quantified in the Mitigation Site Assessment for the properties (Dudek 2012).

The Hallmark Property does not contain any designated critical habitat. Three pairs of gnatcatchers were identified on the Hallmark Property (Dudek 2012).

Dean

The Dean Property is approximately 23.11 acres in size and is located along and immediately east of the I-5 right-of-way between Del Mar Heights Road and the I-5 San Dieguito Lagoon Bridge in the MHPA of the City of San Diego Subarea Plan boundary (Figure 28). It is dominated by disturbed habitat and disturbed baccharis scrub with a small area of coastal sage scrub/southern maritime chaparral in the southeastern corner of the parcel and some bare ground on the road around the perimeter (Figure 28). The Dean Property does not contain any critical habitat. Two individual gnatcatchers were identified on the Dean Property (Caltrans 2009).

San Elijo Uplands

The San Elijo Uplands Property totals approximately 30 acres in size and is located in the uplands around San Elijo Lagoon both east and west of I-5 in the proposed FPA of the City of Encinitas' draft Subarea Plan boundary (Figure 31). While the San Elijo Uplands Property is dominated by nonnative species, it does support 2.49 acres in Unit 3 of gnatcatcher critical habitat, which could provide foraging and dispersal habitat for gnatcatchers. We have not yet received a mitigation site assessment or species survey information for the San Elijo Uplands. However, a mitigation site assessment will be provided per Conservation Measure 37 of this biological opinion, and surveys for pacific pocket mouse will be conducted as described in the introduction section (i.e., on page 2) of this document.

Deer Canyon II

The Deer Canyon II Property is approximately 14.6 acres in size and is located south of State Route 56 and McGonigle Canyon in the MHPA of the City of San Diego's Subarea Plan boundary (Figure 27). It is dominated by nonnative grassland habitat, with a few small patches of disturbed Diegan coastal sage scrub along the eastern and southern borders. The Deer Canyon II Property does not contain any critical habitat. No sensitive species currently occur on the parcel due to its disturbed nature (Dudek 2012).

Laser

The Laser Property consists of two parcels that total 4.98 acres in size and are located west of Interstate 5 (I-5) and north and east of Manchester Avenue in the proposed FPA of the City of Encinitas' draft Subarea Plan boundary (Figure 29). It is dominated by coastal sage scrub and coastal bluff scrub habitat. The Laser Property is located within Unit 3 of gnatcatcher critical habitat. Two gnatcatcher territories were identified on the Laser Property (Dudek 2012).

La Costa

The La Costa Property totals approximately 19.75 acres in size and is located east of I-5, south of La Costa Avenue and east of Piraeus Street in the proposed FPA of the City of Encinitas' draft Subarea Plan boundary (Figure 29). Diegan coastal sage scrub, southern maritime chaparral, chamise chaparral, and disturbed habitat communities were identified on the property. The La Costa Property is located within Unit 3 of gnatcatcher critical habitat. One pair of gnatcatchers was identified on the La Costa Property (Dudek 2012).

Batiquitos and Los Peñasquitos Lagoons

Batiquitos Lagoon is located in the City of Carlsbad, just north of the City of Encinitas, and comprises approximately 591 acres of coastal wetlands. Los Peñasquitos Lagoon includes approximately 463 acres of coastal wetlands and is located along the northwest border of the City of San Diego, just south of the City of Del Mar.

Major issues facing these lagoons are increased sedimentation from the alteration of the existing tidal prism (a result of existing transportation infrastructure) and the urbanization of the watershed, which has increased freshwater input into the lagoons from urban runoff. This can lead to sedimentation within the lagoons, seasonal closure of the lagoon mouths, and altered salinity levels. Maintaining the openings at the mouths of Batiquitos and Los Peñasquitos Lagoons has been identified as an important conservation need within the I-5 North Coast Corridor (Dudek 2012).

San Elijo Lagoon

San Elijo Lagoon is approximately 491 acres and is located in the City of Encinitas just north of Solana Beach. The lagoon is part of the larger San Elijo Lagoon Ecological Reserve that includes approximately 1,000 acres of wetland and upland habitats. San Elijo Lagoon is located in the proposed FPA of the City of Encinitas' draft Subarea Plan boundary.

San Elijo Lagoon Ecological Reserve is transitioning from open water and mudflat habitats to salt marsh and riparian habitat as a result of urban pressures. Transportation infrastructure contributes to restricted tidal flushing and degraded water quality in the reserve. The lagoon supports California least terns, gnatcatchers, and rails (Dudek 2012). Gnatcatcher and western snowy plover critical habitats are present in the lagoon.

Buena Vista Lagoon

Buena Vista Lagoon is approximately 203 acres and is located in the in the cities of Carlsbad and Oceanside. The lagoon is part of the Buena Vista Lagoon Ecological Reserve. Buena Vista Lagoon is located in the FPA of the City of Carlsbad's Habitat Management Plan boundary and the FPA of the City of Oceanside's draft Subarea Plan boundary.

Habitats present in or within the vicinity of Buena Vista Lagoon primarily include open water (estuarine and fresh), coastal brackish and freshwater marsh, southern riparian scrub, and Eucalyptus woodland (Dudek 2012). The lagoon supports gnatcatchers and rails (Dudek 2012). Proposed critical habitat for the flycatcher is present just east of the lagoon.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action, are later in time, and still reasonably certain to occur.

Construction and operation of the project will result in impacts to gnatcatcher, rail, goby, manzanita, designated gnatcatcher critical habitat, and proposed goby critical habitat (see Tables 3 and 4). Impacts to habitats located within the alignment footprint are considered to have permanent direct effects on species, and impacts to habitat located between the alignment and limits of disturbance (for construction access and grading) are considered to have temporary direct effects on species.

Operation of existing roadways can affect species and habitats through factors such as increased noise and lighting, changed hydrology, increased fire risk, invasion of exotic plants, habitat fragmentation, and creation of barriers to movement (e.g., Forman et al. 1997, Forman and Deblinger 2000). Given the potentially broad-reaching, long-term nature of such indirect impacts, they are difficult to quantitatively assess. Nonetheless, this analysis also considers project effects on habitat surrounding the direct impact area, within about 500 feet, which may be exposed to increased noise, light, and dust levels and human activity during project construction and operation of the facilities.

Direct and indirect impacts to the vegetation communities, species, and critical habitats summarized in Tables 2-4 will be offset through the conservation, restoration, and management of habitats for these species and their critical habitats as summarized in conservation measure 35 and Table 5. This document has discussed the importance of the six coastal lagoons traversed by the project, Los Peñasquitos Creek, Carmel Valley Creek, and the San Luis Rey River and associated native habitat communities, both as live-in habitat for listed species, and as regional wildlife corridors that provide connectivity for wildlife movement from inland San Diego County to the coastal region. The San Dieguito Lagoon W19, Hallmark, Dean, San Elijo Uplands, Deer Canyon, Laser, and La Costa conservation properties, the lagoon maintenance at Batiquitos and Los Peñasquitos Lagoons, and the regional lagoon restoration efforts at San Elijo and/or Buena Vista Lagoons are located in proximity to the project site in coastal San Diego County, California, and will complement regional conservation planning efforts (Figures 22-23). The project has also optimized the design of transportation facility infrastructure to enhance lagoon system functions and facilitate large-scale lagoon restoration. As summarized in conservation measure 4, lagoon bridges along the I-5 corridor will be lengthened to improve tidal and fluvial flows and enhance associated wetland habitat values. Further, as summarized in conservation measure 9, the project will implement numerous wildlife connectivity measures to maintain regional wildlife corridors. Implementation of the avoidance, minimization, and conservation measures that will compensate for project impacts is anticipated to improve the integrity of sensitive coastal habitats and maintain regional movement corridors, which will contribute to the conservation and recovery of listed species.

Because the project is expected to start in 2014 and be phased over approximately 21 years, Caltrans will conduct updated surveys for the gnatcatcher, rail, and manzanita within 1 year prior to the commencement of vegetation clearing and construction activities for each project phase to ensure that survey information remains up to date. FHWA and Caltrans acknowledge that section 7 consultation will be reinitiated if survey results indicate that additional impacts to these species may occur beyond those addressed in this biological opinion.

Coastal California Gnatcatcher

Direct Effects

Project Construction

Construction activities associated with the project are not anticipated to directly kill or injure adult gnatcatchers or destroy any active nests. A CFWO-approved gnatcatcher biologist will be present to ensure that gnatcatchers are not directly killed or injured during vegetation removal and other construction activities. The clearing and grubbing of native upland habitats will be conducted between September 16 and February 14 to avoid the gnatcatcher breeding season.

The project will permanently and temporarily impact 61.95 acres and 14.63 acres of gnatcatcher habitat, respectively, throughout the 27-mile-long project area. Permanent impacts consist of 12.14 acres of coastal sage scrub, 48.06 acres of disturbed coastal sage scrub, 0.28 acre of maritime succulent scrub, 0.45 acre of baccharis scrub, and 1.02 acres of disturbed baccharis scrub. Temporary impacts consist of 4.06 acres of coastal sage scrub, 9.20 acres of disturbed coastal sage scrub, 0.22 acre of maritime succulent scrub, 0.14 acre of baccharis scrub, and 1.01 acres of disturbed baccharis scrub.

A total of 15 gnatcatcher territories are located entirely or partially within the direct impact area for the proposed project (Caltrans 2012a) (Figures 7-15). In the first phase of construction (2014-2020), six gnatcatcher territories will be affected by the project, four territories at San Elijo Lagoon and two territories between Manchester Avenue and Birmingham Drive.

At San Elijo Lagoon, project construction will completely destroy the habitat supporting two gnatcatcher pairs and destroy approximately 75 percent of the habitat for two additional pairs (i.e. four gnatcatcher territories total). The new fill slope to the west of I-5, where two of the four territories now occur, will be bisected by the proposed north coast bikeway, which is a part of the project, and an existing trail will be maintained at the base of slope east of I-5. Between Manchester Avenue and Birmingham Drive, project construction will destroy approximately 75 percent of the habitat for one gnatcatcher pair and approximately 25 percent of the habitat for a second gnatcatcher pair.

In the second phase of construction (2020-2030), eight gnatcatcher territories will be affected by the project at San Dieguito and Batiquitos lagoons. Project construction will completely destroy the habitat supporting four gnatcatcher pairs at San Dieguito Lagoon. The new fill slope to the west of I-5, where the four territories now occur, will be bisected by the proposed north coast bikeway.

At Batiquitos Lagoon, project construction will destroy 100 percent of the habitat supporting two gnatcatcher pairs, approximately 75 percent of the habitat for a third pair, and approximately 25 percent of the habitat for a fourth pair. The new fill slope to the west of I-5, where two of the four territories now occur, will be bisected by the proposed north coast bikeway.

In the third and final phase of construction (2030-2035), habitat for a single gnatcatcher pair will be affected by the project on cut slopes between Genesee Avenue and Roselle Street. Project construction will destroy about 50 percent of the habitat supporting this pair. The north coast bikeway will follow the base of the new cut slope west of I-5, where the territory now occurs.

The territories of many of the 15 gnatcatcher pairs affected are on fill slopes adjacent to the affected lagoons, which will be replanted with native species following construction. Most of the impacts to these 15 pairs of gnatcatchers are considered permanent, however, because the habitat loss is significant to the individual gnatcatcher pairs and any potential recovery of the habitat will likely take at minimum 4-5 years as discussion below.

Although habitat removal will be conducted outside the gnatcatcher breeding season, gnatcatchers are non-migratory territorial birds, and removal of a substantial portion of a gnatcatcher pair's breeding territory will force the pair to expand their existing territory or establish a new territory, particularly during the breeding season, when territorial boundaries are better defined (Preston et al. 1998). Because gnatcatchers are distributed throughout much of the suitable habitat in the project area, it is likely that the gnatcatchers affected by habitat loss within their primary use areas will be forced to compete with resident gnatcatchers when attempting to expand an existing territory or establish a new territory. The 15 pairs will lose between 25 and 100 percent of their use areas. Because these displaced birds likely will be less able to find suitable habitat to forage and shelter in, we anticipate they will be more vulnerable to predation and otherwise may die or be injured. Overall, the phased loss of habitat supporting 15 gnatcatcher pairs will reduce the number of gnatcatchers supported in the general project area during each of the individual project phases. While not insignificant, impacts to 15 gnatcatcher pairs represent less than 1 percent of the rangewide estimate of gnatcatcher pairs.

Following construction of each phase, all temporarily impacted habitats, including coastal sage scrub (14.63 acres), will be restored. In addition, natural areas and, as indicated above, cut and fill slopes (more than 86 acres) located adjacent to lagoons, will be planted with native species. In total, over 100 acres of slopes near lagoons and other open space will be revegetated with coastal sage scrub.

Since restored coastal sage scrub usually takes a minimum of 4 to 5 years of growth before it is suitable for occupation by gnatcatchers (O'Connell and Erickson 1998, Miner et al. 1998), the anticipated temporary loss of 14.63 acres of coastal sage scrub available to gnatcatchers will likely further reduce the number and reproductive fitness of gnatcatchers supported in the project area during each project phase. However, because numerous breeding gnatcatcher pairs will remain in the intact habitat in the surrounding environment, we expect the temporarily impacted habitat and the revegetated slopes will be re-occupied as soon as it is mature enough to support gnatcatcher breeding. Overall, we do not expect the permanent and temporary loss of gnatcatcher habitat resulting from project construction to increase the local risk of gnatcatcher extirpation, and we expect gnatcatchers will continue to occupy the general project area. Thus, the project is not expected to result in an appreciable reduction in the numbers, reproduction, or distribution of the species rangewide.

Caltrans will offset the permanent loss of habitat for 15 pairs of gnatcatchers (61.95 acres), and impacts to other native habitats on the site, through the creation, restoration and preservation/enhancement of a total of 89.23 acres of upland, comprised primarily of coastal sage scrub, with the exception of 16.23 acres of mixed coastal sage scrub / southern montane chaparral on the Dean property and 3.38 acres of chaparral on the La Costa property, as summarized in conservation measure 35 and Table 5. Although conservation of gnatcatcher and upland habitat off the project site will not avoid or minimize impacts to the individual gnatcatchers impacted by the project, the offsite conservation will permanently protect a total of 89.23 acres of upland, comprised primarily of coastal sage scrub. This coastal sage scrub is occupied and/or is likely to become occupied by gnatcatchers and thus will contribute to the conservation and recovery of the species.

Habitat Restoration

Temporarily impacted coastal sage scrub will be restored in association with the project. In addition, sage scrub habitat will be created and restored on the Hallmark, Dean, San Elijo Uplands, and Deer Canyon sites, and some enhancement may occur on the La Costa and Laser properties. These activities are expected to result in an overall benefit to the gnatcatcher, but they may result in minor disturbance of gnatcatchers that are adjacent to or within the sites. However, the project includes measures to ensure that gnatcatchers are not significantly disrupted during breeding activities and that no nests are destroyed as a result of creation, restoration, or enhancement activities.

Specifically, vegetation clearing will be conducted out of the gnatcatcher breeding season, with the exception of maintenance activities that may occur in association with habitat restoration and enhancement actions during the breeding season (e.g., weeding, treating weed re-sprouts with herbicide). If maintenance of a coastal sage scrub creation, restoration, or enhancement area is necessary between February 15 and August 31, a biologist with knowledge of the biology and ecology of gnatcatchers and approved by the CFWO will survey for gnatcatchers within the creation / restoration / enhancement area, access paths to it, and other areas susceptible to disturbances by site maintenance. Work will be allowed to continue on the site during the survey period. However, if gnatcatchers are found during any of the visits, Caltrans will notify and coordinate with the CFWO to identify measures to avoid and/or minimize effects to the gnatcatcher (e.g., nests and an appropriate buffer will be flagged by the biologist and avoided by the maintenance work). Therefore, effects to gnatcatcher associated with habitat creation, restoration or enhancement are anticipated to be insignificant.

Indirect Effects

Indirect effects include construction and operational lighting associated with the project that will impact the adjacent gnatcatcher habitat. Light that alters natural light patterns in ecosystems can lead to increased predation, disorientation, and disruption of inter-specific interactions (Longcore and Rich 2004). Night lighting for construction will be of the lowest illumination necessary for human safety, selectively placed, shielded and directed away from natural habitats. Permanent

safety lighting installed for the project will be lowest illumination necessary for safety and will be directed toward the facility and away from sensitive habitats. This is anticipated to minimize the impact of lighting on gnatcatcher behavior in adjacent habitat to the point where such effects are insignificant. For the purposes of section 7 consultation, an insignificant effect is one that is sufficiently small that a person would not be able to meaningfully measure, detect, or evaluate it.

Noise and vibrations associated with the use of heavy equipment during construction and operations of the proposed facilities have the potential to disrupt gnatcatcher behaviors in adjacent habitat by masking intraspecific communication and startling birds (e.g., see Dooling and Popper 2007 for a discussion of observed effects of highway noise on birds). However, gnatcatchers that occupy habitats adjacent to the existing I-5 freeway are subjected to existing noise and vibration and continue to occupy the habitat. Ambient noise measurements taken along the project area in and adjacent to lagoons range from a high of 84 dB(A) L_{eq} (on slopes adjacent to main lanes at San Elijo Lagoon) down to measurements in the mid-60's dB(A) L_{eq} in lagoons. Overall, the area within 500 feet of the I-5 is subject to noise levels greater or equal to 60 dB(A) L_{eq} (Caltrans 2010). Once construction is complete, project operations are anticipated to result in a minimal increase in existing noise levels of 1 to 3 dB(A) in most areas (Caltrans 2012a). This small increase should not result in an appreciable impact to gnatcatchers in the adjacent habitat. In addition, the project has incorporated measures to avoid and minimize noise impacts to listed species during construction, such as conducting pile driving adjacent to gnatcatcher habitat outside the gnatcatcher breeding season, use of noise walls, and ensuring construction equipment is equipped with properly maintained mufflers. These measures are anticipated to minimize the impact of construction noise on gnatcatcher behavior in adjacent habitat to the point where such effects are insignificant.

The project could increase the cover and number of invasive nonnative plant species in habitats adjacent to the project area. Nonnative species are now recognized as a threat to biodiversity in native plant communities, second only to direct habitat loss and fragmentation (Pimm and Gilpin 1989, Scott and Wilcove 1998). Nonnative species often out-compete and exclude native species, potentially altering the structure of the vegetation, degrading or eliminating upland habitat used by the gnatcatcher, and providing food and cover for undesirable nonnative animals (Bossard et al. 2000). The project has incorporated measures to prevent the spread of nonnative species. A CFWO-approved biologist will monitor the project site immediately prior to and during construction to identify the presence of invasive weeds and recommend measures to avoid their inadvertent spread in association with the project. Invasive plants will not be used in project landscaping. Measures, such as the use of fabric weed barriers and mulch, will be used along the median to prevent the establishment and spread of weeds. Implementation of these measures is anticipated to minimize the impact of invasive species introduction resulting from project implementation on gnatcatcher habitat to the point where such effects are insignificant.

Additional indirect effects include an increase in wildfire and human encroachment from construction personnel and community enhancements such as improved trails and trailheads. Measures have been incorporated, such as construction fencing, trail fencing, and signage to avoid and minimize these impacts to gnatcatchers. The I-5 is an existing facility in a highly

populated area, so with the proposed conservation measures, any increase in habitat degradation associated with these factors is expected to be insignificant.

Critical Habitat

The project will result in permanent and temporary impacts to 43 acres [34 acres (27.7 acres with PCEs) and 9 acres (all with PCEs), respectively] within Unit 3 of designated critical habitat for the gnatcatcher. This acreage represents only approximately 0.2 percent of the designation within Unit 3 and just 0.02 percent of the total designation. This unit contains the last significant gnatcatcher populations remaining south of Marine Corps Base Camp Pendleton abutting the coast and provides connectivity between significant populations at Marine Corps Base Camp Pendleton (adjacent to Unit 5), MSCP reserve areas in Unit 1, and populations in northern San Diego County (Unit 4).

The project impacts to critical habitat and associated PCEs (sage scrub and non-sage scrub vegetation that provide space and resources for nesting, foraging, and dispersal) are not expected to substantially impact the functions of Unit 3 to support core gnatcatcher populations and provide connectivity between Marine Corps Base Camp Pendleton and Units 4 and 1.

Proposed conservation to offset impacts of the project, as summarized in Table 5, will include preservation/enhancement of 22.9 acres of gnatcatcher critical habitat on the Laser and La Costa properties, which are located entirely within Unit 3 of designated gnatcatcher critical habitat. In addition, though it is currently highly disturbed and was not included within the critical habitat designation, the restoration proposed on the 30-acre San Elijo Uplands properties (Table 5) will occur directly adjacent to gnatcatcher critical habitat near San Elijo Lagoon (Figure 31), helping to maintain gnatcatcher populations within and dispersal through Unit 3. Further, Caltrans has agreed to restore all of the project's temporary impact areas with native species, as well as more than 86 acres of cut and fill slopes within the project's permanent impact area. This will include extensive areas that are currently vegetated with nonnative species. The proposed restoration and preservation/enhancement will help maintain the functions of Unit 3 to support core gnatcatcher populations and provide connectivity between gnatcatchers at Marine Corps Base Camp Pendleton and in Units 4 and 1.

According to the final critical habitat rule (Service 2007b), the physical and biological features essential to the conservation of the species in Unit 3 may require special management considerations or protection to minimize impacts associated with habitat type conversion and degradation occurring in conjunction with urban and agricultural development. The measures to address indirect impacts and habitat degradation adjacent to the project area discussed in the indirect effects section above are expected to help minimize these potential impacts to Unit 3.

Effect on Recovery

There is no recovery plan for the gnatcatcher, but the project is consistent with the general recovery goals of maintaining core populations of gnatcatchers and maintaining connectivity

between these populations. As described above, the permanent loss of 61.95 acres of gnatcatcher habitat and loss of 15 gnatcatcher pairs, though not insignificant, is a relatively small impact in consideration of the thousands of acres of coastal sage and gnatcatcher territories (roughly 2,562 pairs) rangewide. Furthermore, the presence of substantial areas of occupied habitat adjacent to the impact area and restoration of temporary impact areas and cut/fill slopes initiated immediately following construction in each phase will help maintain and support local gnatcatcher populations in the project area throughout the 21-year project duration.

Caltrans will offset the impacts to gnatcatcher habitat, as well as impacts to other native upland habitats on the site, through creation, restoration and preservation/enhancement as summarized in conservation measure 35 and Table 5. This will include the preservation / creation / restoration of a total of 89.23 acres of upland, comprised primarily of coastal sage scrub. The conservation properties are in the vicinity of the corridor, and are either currently occupied by gnatcatchers, or are in areas where gnatcatchers are anticipated to move into the habitat following creation / restoration work. Thus, over the long-term, the project is expected to contribute to the conservation and recovery of the species by maintaining gnatcatcher breeding habitat and connectivity between core gnatcatcher populations in north coastal San Diego County.

Light-footed Clapper Rail

Direct Effects

Project Construction

Construction activities associated with the project are not anticipated to result in the death or injury of any rails or nests. A CFWO-approved rail biologist will be present to ensure that rails are not directly killed or injured during vegetation removal and other construction activities. The clearing and grubbing of native wetland and riparian habitats will be conducted between September 16 and March 14 to avoid the rail breeding season.

The project will permanently and temporarily impact 13.2 acres and 7.64 acres of coastal marsh rail habitats, respectively, throughout the 27-mile-long project area. Permanent impacts consist of 1.31 acres of coastal brackish marsh, 3.53 acres of disturbed coastal brackish marsh, 0.62 acre of freshwater marsh, 0.54 acre of disturbed freshwater marsh, 2.36 acres of mudflat, 4.43 acres of coastal salt marsh, 0.06 acre of salt marsh transition, and 0.35 acre of southern willow scrub/freshwater marsh. Temporary impacts consist of 0.58 acres of coastal brackish marsh, 1.54 acres of disturbed coastal brackish marsh, 1.36 acre of freshwater marsh, 0.38 acre of disturbed freshwater marsh, 0.44 acres of mudflat, 2.33 acres of coastal salt marsh, 0.21 acre of salt marsh transition, and 0.8 acre of southern willow scrub/freshwater marsh.

A total of four rail territories are located entirely or partially within the direct impact area for the proposed project (Caltrans 2012a). In the first phase of construction (2014-2020), approximately 20 percent of one rail territory will be temporarily impacted at San Elijo Lagoon.

In the second phase of construction (2020-2030), two rail territories will be affected by the project at Batiquitos Lagoon (unless the Batiquitos Lagoon bridge is advanced in the project schedule to minimize permanent project impacts, in which case these impacts would also occur in the first phase). A total of approximately 50 percent of one rail territory will be impacted (approximately 25 percent permanent and 25 percent temporary); and approximately 20 percent of another rail territory will be temporarily impacted.

In the third and final phase of construction (2030-2035), approximately 10 percent of one rail territory will be temporarily impacted at Buena Vista Lagoon (unless the Buena Vista Lagoon bridge is advanced in the project schedule to minimize permanent project impacts, in which case these impacts would also occur in the first project phase).

Although habitat removal will be conducted outside the rail nesting season, the rail is resident in its home marsh except under unusual circumstances (Zembal 1994). Within-marsh movements are also generally confined and usually no greater than 1,312 feet (Zembal et al. 1989). Several rail pairs occur adjacent to the territory at San Elijo Lagoon, which will be affected in phase 1 of construction. In addition, rail numbers have been increasing in recent years. By the time construction begins on phases 2 and 3 of the project, additional rail pairs may occur in the vicinity of the territories that will be affected by the project. Therefore, the rails affected by habitat loss within their primary use areas may not be able to find sufficient nearby habitat or may be forced to compete with other resident rails when attempting to expand an existing territory or establish a new territory.

One rail pair, at Batiquitos Lagoon, will lose 50 percent of its territory over the short term. This pair may be displaced from its territory, forced to compete with other resident rails, or be more vulnerable to predation resulting in death or injury. Three rail pairs, one each at San Elijo, Batiquitos, and Buena Vista Lagoons, will experience the loss of only 10 to 20 percent of their territories over the short term, and these pairs may be able to survive project construction impacts within the remaining and/or adjacent habitat. However, even if these birds survive the initial impact of habitat loss within their established territories, they could also experience increased territorial interactions and be harmed by the overall reduced availability of foraging and breeding habitat in the project area.

Following construction, all temporarily impacted habitats, including coastal marsh habitats, will be restored, though it may be many years (e.g., possibly 8 to 10 years according to some observations) until restored coastal marsh habitats are again suitable for rail nesting. Thus, the overall project impact anticipated is the permanent loss of habitat for one rail pair and the temporary loss of habitat for three rail pairs until the restored areas are again suitable for rail occupation. These permanent and temporary impacts will likely reduce the number of rails that can be supported in the general project area for a period of time but are not expected to increase the local risk of rail extirpation. Impacts to four rail pairs represent less than 1 percent of the rangewide estimate of rail pairs (approximately 520 pairs), and rails will continue to occupy the general project area; thus, the project is not expected to result in an appreciable reduction in the numbers, reproduction, or distribution of the species rangewide.

Caltrans will offset the impacts to rail habitat through creation and restoration of a total of 17.6 acres of coastal marsh, including 5.34 acres at Hallmark Property and 12.26 acres at San Dieguito W19 Property, with creation and restoration phased in advance of project impacts. Creation of habitat off the project site will not avoid or minimize impacts to the individual rails impacted by the project, but the offsite conservation will permanently protect a total of 17.6 acres of coastal marsh in areas where rails are anticipated to move into the habitat following creation / restoration work and contribute to the conservation and recovery of the species.

Lengthening the I-5 bridges over the lagoons and constructing wildlife movement benches under the bridges are expected to greatly benefit the rail and its habitat in the project area by improving the tidal exchange in the lagoons and the ability of rails to move between habitats to the west and east of the I-5 fills across the lagoons. Implementation of the regional lagoon maintenance program and large-scale lagoon restoration work will also benefit the rail and its habitat in the project area.

Habitat Restoration

Temporarily impacted coastal marsh communities will be restored in association with the project. In addition, coastal marsh communities will be created and restored on the San Dieguito Lagoon W19 and Hallmark sites. The Regional Lagoon Maintenance Program at Batiquitos and Los Peñasquitos lagoons will also benefit coastal marsh communities and rails. Restoration activities are expected to result in an overall benefit to the rail, but they may result in minor disturbance of rails that are adjacent to restoration sites, or that move into these sites as restoration progresses. However, the project includes conservation measures to ensure that rails are not significantly disrupted during breeding activities and that no nests are destroyed as a result of creation and restoration activities. Vegetation clearing will be conducted out of the rail breeding season, with the exception of maintenance activities that may occur in association with habitat restoration and enhancement actions during the breeding season (e.g., weeding, treating weed re-sprouts with herbicide). If maintenance of a coastal marsh creation or restoration area is necessary between February 15 and August 31, a biologist with knowledge of the biology and ecology of rails and approved by the CFWO will survey for rails within the creation or restoration area, access paths to it, and other areas susceptible to disturbances by site maintenance. Work will be allowed to continue on the site during the survey period. However, if rails are found during any of the visits, Caltrans will notify and coordinate with the CFWO to identify measures to avoid and/or minimize effects to the rail (e.g., nests and an appropriate buffer will be flagged by the biologist and avoided by the maintenance work. Therefore, effects to rail associated with habitat creation or restoration at the San Dieguito Lagoon W19 and Hallmark and maintenance activities at Batiquitos and Los Peñasquitos lagoons are anticipated to be insignificant. Large-scale lagoon restoration is proposed in association with the project, which is also expected to benefit the rail⁹.

⁹ The large scale restoration work will be carried out in the future and will be subject to separate section 7 consultation to address any impacts to listed species, including rails. While rails may be disturbed or otherwise temporarily impacted, the overall effect of the restoration work is anticipated to be beneficial to rails because it will restore salt water lagoon habitat for this species.

Indirect Effects

Indirect effects include construction and operational lighting associated with the project that will impact the adjacent rail habitat. Light that alters natural light patterns in ecosystems can lead to increased predation, disorientation, and disruption of inter-specific interactions (Longcore and Rich 2004). Night lighting for construction will be of the lowest illumination necessary for human safety, selectively placed, shielded and directed away from natural habitats. Permanent safety lighting installed for the project will be lowest illumination necessary for safety and will be directed toward the facility and away from sensitive habitats. This is anticipated to minimize the impact of lighting on rail behavior in adjacent habitat to the point where such effects are insignificant.

Noise and vibrations associated with the use of heavy equipment during construction and operations of the proposed facilities have the potential to disrupt rail behaviors in adjacent habitat by masking intraspecific communication and startling birds (e.g., see Dooling and Popper 2007 for a discussion of observed effects of highway noise on birds). However, rails that occupy habitats adjacent to the existing I-5 freeway are subjected to existing noise and vibration and continue to occupy the habitat. Ambient noise measurements taken along the project area in and adjacent to lagoons range from a high of 84 dB(A) L_{eq} (on slopes adjacent to main lanes at San Elijo Lagoon) down to measurements in the mid-60's dB(A) L_{eq} in lagoons. Overall, the area within 500 feet of the I-5 is subject to noise levels greater or equal to 60 dB(A) L_{eq} (Caltrans 2010). Once construction is complete, project operations are anticipated to result in a minimal increase in existing noise levels of 1 to 3 dB(A) in most areas (Caltrans 2012a). This small increase should not result in an appreciable impact to rails in the adjacent habitat. In addition, the project has incorporated measures to avoid and minimize noise impacts to listed species during construction, such as conducting pile driving adjacent to rail habitat outside the rail breeding season, use of temporary noise walls during construction, and ensuring construction equipment is equipped with properly maintained mufflers. These measures are anticipated to minimize the impact of construction noise on rail behavior in adjacent habitat to the point where such effects are insignificant.

The project could also increase the cover and number of invasive nonnative plant species into habitats adjacent to the project area. Nonnative species are now recognized as a threat to biodiversity in native plant communities, second only to direct habitat loss and fragmentation (Pimm and Gilpin 1989, Scott and Wilcove 1998). Nonnative species often out-compete and exclude native species, potentially altering the structure of the vegetation, degrading or eliminating wetland habitat used by the rail, and providing food and cover for undesirable non-native animals (Bossard et al. 2000). The project has incorporated measures to prevent the spread of nonnative species. A CFWO-approved biologist will monitor the project site immediately prior to and during construction to identify the presence of invasive weeds and recommend measures to avoid their inadvertent spread in association with the project. Invasive plants will not be used in project landscaping. Measures, such as the use of fabric weed barriers and mulch, will be used along the median to prevent the establishment and spread of weeds. Implementation of these measures is anticipated to minimize the impact of invasive species

introduction resulting from project implementation on rail habitat to the point where such effects are insignificant.

Bridge demolition and construction may affect channel water quality by erosion from the impact area and by disturbing channel bottom sediments, which could potentially contain contaminants. Staging of construction equipment could result in spills that could also adversely affect water quality. Measures will be implemented by Caltrans to prevent erosion, contain disturbed sediments, capture bridge debris, prevent and capture any spills, and limit staging to designated areas that are setback from drainages and lagoons. Implementation of these measures is anticipated to minimize these potential impacts to the level of insignificance.

Project construction and bridge work in lagoons has the potential to affect rail movement between habitats to the west and east of the I-5. However, berms will not be used for construction at the lagoons and San Luis Rey River, and an open channel will be maintained through the project area during bridge construction at the lagoons and San Luis Rey River. Rails are anticipated to be able to move through the project area during construction either by swimming through the open channel under bridges or by flight under the bridge or over I-5. Implementation of these measures is anticipated to minimize these potential impacts to the level of insignificance.

Additional indirect effects include an increase in human encroachment from construction personnel and community enhancements such as improved trails and trailheads. Measures have been incorporated, such as construction fencing, trail fencing, and signage to avoid and minimize these impacts to rails. The I-5 is an existing facility in a highly populated area, so with the proposed conservation measures, any increase in habitat degradation associated with these factors is expected to be insignificant.

Effect on Recovery

The proposed project is consistent with the recovery objectives identified in the recovery plan for the rail (Service 1985). The project will result in permanent and temporary losses of coastal marsh habitat and impact four rail pairs, but these impacts have been minimized. Moreover, the project will create and restore a total of 17.6 acres of coastal marsh communities in advance of project impacts, which will result in a net increase in the amount of habitat for rail.

Proposed habitat conservation, creation, restoration, and management will help accomplish the primary objective of the rail recovery plan, which is to increase the rail breeding population in California to at least 800 pairs by preserving, restoring, and/or creating approximately 10,000 acres of adequately protected and suitably managed wetland habitat. Specifically, the proposed habitat conservation, creation, restoration, and management will help accomplish recovery action 123, to preserve and manage habitat at Agua Hedionda Lagoon, through restoration on the Hallmark property. In addition, the project will help accomplish recovery action 256, to undertake appropriate actions to reestablish rails in San Dieguito Lagoon, such as identify land ownership and pursue appropriate protective measures, improve/restore tidal action, and create

low marsh including planting of cordgrass (*Spartina foliosa*) through restoration on the San Dieguito Lagoon W19 property.

The regional lagoon maintenance program for Batiquitos and Los Peñasquitos Lagoons will help accomplish recovery actions 254, undertake appropriate actions to reestablish rails at Batiquitos Lagoon, and 258, undertake appropriate actions to reestablish rails at Los Peñasquitos Lagoon, such as improve/restore tidal action. Bridge lengthening at San Elijo and Buena Vista lagoons will improve tidal and fluvial flows and enhance associated wetland habitat values, which will help accomplish recovery actions 124 and 254, at San Elijo Lagoon and Batiquitos lagoon, respectively, which call for improving and restoring tidal action. The proposed large-scale salt water lagoon restoration is also expected to benefit recovery of the rail.

The project will not substantially fragment existing populations or interfere with dispersal between populations, and rails are expected to move into the creation and restoration sites from adjacent occupied habitat. Thus, over the long-term, the project is expected to contribute to the conservation and recovery of the species by maintaining rail breeding habitat in north coastal San Diego County.

Tidewater Goby

Direct Effects

Project Construction

The goby is a short-lived species that is subject to variability in local abundance and seasonal changes in distribution and abundance, which makes it difficult to derive population size estimates (Service 2007a). Therefore, it is anticipated that the goby population subject to impacts from the project will experience population fluctuations making it difficult to determine the precise number of gobies that could be adversely affected at any given time. As discussed in the Environmental Baseline section, the San Luis Rey River population of gobies is recently rediscovered. Surveys in the San Luis Rey River were conducted on a single day as a part of a larger survey effort in the Camp Pendleton area and the number of individuals observed in the San Luis Rey River was not reported (Lafferty 2010). Because we do not have site specific data, and because goby populations fluctuate dramatically over time, it is difficult to accurately quantify the number of individuals that may be present within the project's impact area.

Because goby populations fluctuate dramatically over time, project-associated impacts to the species are evaluated primarily in terms of how much habitat will be affected. The project will permanently and temporarily impact 0.01 acre and 0.2 acre of open water goby habitat, respectively, from construction of bridge pilings in the San Luis Rey River. An additional 0.3 acre of open water habitat at the San Luis Rey River will also experience permanent effects from bridge shading.

Due to the difficulty of estimating the number of gobies in the project footprint and in the population as a whole, it is useful to consider the project impacts to goby habitat relative to available habitat along the San Luis Rey River when assessing the effects of the project on the population. The recovery plan for the tidewater goby estimates that the amount of suitable habitat in the San Luis Rey River encompasses about 15 to 25 acres. The permanent loss and shading of 0.01 acre and 0.3 acre of open water habitat, respectively, together represent approximately 1 to 2 percent of suitable goby habitat in the San Luis Rey River.

The project has incorporated measures to exclude gobies from the project footprint. These measures include installation of cofferdams, silt curtains, turbidity curtains and/or other barriers, and translocation of individuals out of the project work area to proximal and safe suitable habitat. Some gobies may be killed or injured during translocation activities, and gobies that are missed during translocation may be killed or injured during project construction. Translocation efforts will be conducted by individuals familiar with goby biology and ecology, whose qualifications will be subject to review by the CFWO. Therefore, we anticipate that very few gobies will be killed or injured during capture and relocation efforts. Due to the proposed avoidance and minimization measures, the small size of the work area within goby habitat, and the difficulty of detecting gobies that may be missed during translocation, we anticipate that no more than five gobies will be observed dead or injured during project monitoring.

Given the fact that a large amount of suitable goby breeding habitat will remain adjacent to the action area after project construction, and goby populations are naturally subject to large fluctuations in local abundance, we do not anticipate that the translocation of gobies from the impact footprint to suitable adjacent habitat will result in adverse impacts associated with overcrowding. In addition, we expect gobies to reoccupy the temporary impact area upon project completion.

Bridge shading may alter habitat by reducing light for vegetative growth and reducing water temperatures within the habitat below, and decrease the density of benthic invertebrates living within the shaded area (Struck et al. 2004). Reduction in temperature, vegetative cover, and density of benthic invertebrate prey could reduce the relative value of the habitat within shaded areas to the goby. However, the additional shaded areas are expected continue to support some vegetative cover and benthic invertebrate prey. Furthermore, gobies tolerate wide seasonal temperature variations, so it is likely that they will adjust to any temperature changes caused by the additional bridge shading. The area affected by the additional shading is also expected to continue to provide for goby movement underneath the bridge.

When estuary berms are breached, tidewater gobies can be stranded in shallow pools, breeding burrows can be left above the water level, water elevation and salinity levels can be affected, and strong tidal conditions can result, all of which can cause tidewater goby populations plummet (Service 2005). The project will not conduct actions that will breach the seasonal San Luis Rey River estuary berms. In addition, the project will not result in diversion of the active channel in the San Luis Rey River during construction, and construction berms will not be used within the San Luis Rey River, which will minimize impacts on the active channel and impacts from

sedimentation. A channel large enough for fish movement will be kept open throughout project construction within the project work area in the San Luis Rey River.

Due to the small size of the project work area within the occupied habitat and the incorporation of measures into project design that will avoid and minimize impacts to the goby, the project is expected to impact only a small fraction of the goby population on the San Luis Rey River and will have a limited effect on the availability of habitat in which the goby can breed, forage, and disperse.

Habitat Restoration

Following project construction, temporarily impacted habitats will be restored. Temporary impact areas within open water goby habitat will be returned to pre-existing conditions. Temporary impact areas adjacent to open water goby habitat will be revegetated with native species, including 0.8 acre of riparian and 0.85 acre of coastal sage scrub in areas that currently support ornamental vegetation and an abandoned freeway ramp. We do not anticipate any impacts to gobies resulting from the restoration of temporary impact areas beyond those that will result from the exclusion of gobies from the project work area, which were analyzed above.

Indirect Effects

Indirect effects include construction and operational lighting associated with the project that will impact the adjacent goby habitat. Light that alters natural light patterns in ecosystems can lead to increased predation, disorientation, and disruption of inter-specific interactions (Longcore and Rich 2004). Night lighting for construction will be of the lowest illumination necessary for human safety, selectively placed, shielded and directed away from natural habitats. Permanent safety lighting installed for the project will be the lowest illumination necessary for safety and will be directed toward the facility and away from sensitive habitats. This is anticipated to minimize the impact of lighting on goby behavior in adjacent habitat to the point where such effects are insignificant.

Noise and vibrations associated with the use of heavy equipment during construction and traffic noise during operations of the proposed facility have the potential to disrupt goby behaviors in adjacent habitat. The project has incorporated measures to minimize the effects of construction noise on gobies, such as the use of bubble curtains or other methods to minimize acoustical impacts to aquatic species. These measures are anticipated to minimize the impact of construction noise on goby behavior in adjacent habitat to the point where such effects are insignificant.

The project could also increase in the cover and number of invasive nonnative plant species in habitats adjacent to the project area. Nonnative species are now recognized as a threat to biodiversity in native plant communities, second only to direct habitat loss and fragmentation (Pimm and Gilpin 1989, Scott and Wilcove 1998). Nonnative species often out-compete and exclude native species, potentially altering the structure of the vegetation, degrading wetland

habitat, and providing food and cover for undesirable nonnative animals (Bossard et al. 2000). The project has incorporated measures to prevent the spread of nonnative species. A CFWO approved biologist will monitor the project site immediately prior to and during construction to identify the presence of invasive weeds and recommend measures to avoid their inadvertent spread in association with the project. Invasive plants will not be used in project landscaping. Measures, such as the use of fabric weed barriers and mulch, will be used along the median to prevent the establishment and spread of weeds. Implementation of these measures is anticipated to minimize the impact of invasive species introduction resulting from project implementation on goby habitat to the point where such effects are insignificant.

Bridge demolition and construction may affect water quality in the river channel by disturbing channel bottom sediments, which could potentially contain contaminants. Staging of construction equipment could result in spills that could adversely affect water quality. Erosion and runoff from construction can increase siltation in the creeks, smothering goby eggs, reducing visibility for predator avoidance, and decreasing available oxygen in the water for goby respiration. Measures will be implemented by Caltrans to prevent erosion, contain disturbed sediments, capture bridge debris, and limit staging to designated areas that are removed from the river. Implementation of these measures is anticipated to minimize these potential impacts to the level of insignificance.

Project construction and bridge work in the river has the potential to affect goby movement between habitats to the west and east of the freeway. However, the project work area within open water habitat is minimal, and construction berms will not be used for bridge construction in the San Luis Rey River. In addition, an open channel will be maintained through the project area during bridge construction at the San Luis Rey River. With the proposed measures, any increase in disturbance associated with project construction is not anticipated to create a barrier to goby movement during construction.

Additional indirect effects include an increase in human encroachment from construction personnel and community enhancements such as improved trails and trailheads. Measures have been incorporated, such as construction fencing, trail fencing, and signage to avoid and minimize these impacts to gobies and their habitats. The I-5 is an existing facility in a highly populated area, so with the proposed conservation measures, any increase in habitat degradation associated with these factors is expected to be insignificant.

Critical Habitat

A total of approximately 2.06 acres of the project site is within Unit SAN-1 of proposed goby critical habitat. Of this area, 0.51 acre includes PCEs of critical habitat and the remaining 1.55 acres do not. The project will permanently impact 0.01 acre within Unit SAN-1 of proposed critical habitat for the goby from the placement of new bridge pilings, and 0.3 acre will be subject to permanent impacts from bridge shading. Temporary impacts will also occur to 1.75 acres (0.2 acre with PCEs) of Unit SAN-1. The acreage of permanent impacts represents only approximately 0.6 percent of the designation within Unit SAN-1 and just 0.003 percent of the

total designation. This unit contains the southernmost habitat known to be occupied by the species, allows for connectivity between tidewater goby source populations, and supports gene flow and metapopulation dynamics of the genetically unique South Coast Recovery Unit. Unit SAN-1 supports a goby population and may help facilitate colonization of currently unoccupied locations to the south.

The project impacts to critical habitat and associated PCEs (persistent shallow still-to-slow moving estuary ranging in salinity from 0.5 to 12 parts per thousand with substrate suitable for burrow construction, submerged and emergent aquatic vegetation) are minor and are not expected to substantially impact the function of Unit SAN-1 to support a goby population, provide connectivity between tidewater goby source populations, and support gene flow and metapopulation dynamics of the genetically unique South Coast Recovery Unit. The impacts consist primarily of shading impacts in areas that are expected to maintain some habitat value for the goby. The temporary impact areas for the project will be restored once project construction is complete.

Effect on Recovery

The project is consistent with the recovery goal identified in the recovery plan for the goby to conserve and recover the tidewater goby throughout its range by managing threats and perpetuating viable metapopulations within each recovery unit while maintaining morphological and genetic adaptations to regional and local environmental conditions (Service 2005).

The project has been designed such that permanent impacts within goby habitat will be minimal, and temporary impact areas will be restored. Revegetation of 1.65 acres of temporary impact areas adjacent to open water goby habitat with native vegetation is also expected to benefit gobies in the San Luis Rey River. Measures incorporated into the project for the goby will avoid and minimize project impacts to the goby and manage project-related threats to the goby to ensure that the San Luis Rey River population is maintained.

Del Mar Manzanita

Direct Effects

Project Construction

The project will permanently and temporarily impact 2.87 acres and 1.84 acres of manzanita habitat, respectively, throughout the 27-mile-long project area. Permanent impacts consist of 1.82 acres of southern maritime chaparral and 1.05 acres of disturbed southern maritime chaparral. Temporary impacts consist of 0.47 acre of southern maritime chaparral and 1.37 acres of disturbed southern maritime chaparral.

Approximately six manzanita plants will be directly impacted by the project based on the most current survey data. An additional 35 manzanita plants were mapped within the BSA for the

project but will be avoided (Figures 16-17). The six plants within the project impact footprint are growing along the brow ditch at the northwestern corner of the Del Mar Heights Road interchange. It is likely that the brow ditch will have to be replaced as a part of the project. These impacts are anticipated to occur in phase 2B (2020-2025). As there is a 7-year delay before these impacts will occur, the number of manzanita individuals within the direct impact footprint could change. All manzanita within the project impact footprint will be salvaged and translocated to the Dean property. The Dean property is close to the salvage location and supports habitat appropriate for this species. A manzanita translocation plan will be prepared and provided to the CFWO for review and approval. The translocation will be implemented by a biologist with a history of translocating sensitive plant species. The locations where the manzanita plants will be transplanted will be approved by the CFWO.

There has been limited success with the salvage and translocation of this species. Therefore, seed will be collected prior to project impacts and used to propagate additional plants in a facility that has experience working with manzanita and specializes in the propagation of native plants, for introduction onto the Dean property. The Dean property will be restored, and permanently conserved and managed, which will benefit the translocated manzanita. The translocated manzanita population will be monitored for a minimum of 5 years to document success or failure of the translocation efforts. Since additional plants will be grown from seed and planted on the Dean Property, and because this property is in proximity to the impact area and supports habitat appropriate for the species, we believe the translocation / planting of manzanita on the Dean Property proposed as a part of this project has a high likelihood of success. In addition, seed collection and propagation for the Dean property will occur years in advance of project impacts, in approximately 2015, such that individuals grown from seed can be planted on the Dean property prior to the proposed salvage of individuals in the project impact area.

As stated in the status section above, at the time of listing, 9,400 to 10,300 manzanita individuals were known from 25 populations (Service 1996). Due to the discovery of a number of new occurrences, a total of 50 populations are now known, though we have no current estimates on population sizes (Service 2010b). The project will avoid most plants mapped within the BSA. The six individuals that will be impacted by the project represent only 0.06 percent of the total number of individuals known at listing and should represent an even smaller percentage of the number of individuals within the 50 occurrences now known rangewide. The habitat that will be impacted is degraded habitat within the brow ditch of the existing I-5. The translocated plants will be moved to the Dean property, which will be restored, conserved, and managed in perpetuity. Thus, we do not expect the habitat loss and destruction of plants associated with the project to appreciably reduce the number of individuals, reproduction, or distribution of manzanita in the action area or across its range.

Habitat Restoration

Temporarily impacted southern maritime chaparral will be restored in association with the project. Following the restoration of temporarily impacted areas, manzanita may recruit into the restored habitat areas from adjacent occupied habitat. In addition, 1.5 acres of chaparral habitat

will be preserved and enhanced, and 14.73 acres of mixed chaparral / coastal sage scrub habitat will be created on the Dean property, and manzanita plants will be salvaged and translocated onto the Dean property. Individuals started from seed will also be planted on the Dean Property. Although the Dean property does not currently support manzanita, the translocation and plantings from seed are anticipated to successfully establish manzanita plants on the Dean Property because the property is located in proximity to the occupied habitat, suitable habitat is currently present on 1.5 acres of the property, and planting will be conducted by experienced biologists who are familiar with the species. While some of the translocated and planted individuals may not survive the transplanting process, we do not anticipate any negative impacts to manzanita individuals from restoration activities. Restoration work will be overseen by an experienced biologist who will ensure that maintenance activities (e.g., treating weed re-sprouts with herbicide) do not negatively affect manzanita. Therefore, effects to manzanita associated with habitat restoration are anticipated to be insignificant.

Indirect Effects

Operational lighting installed for the project could increase light spill into the adjacent habitat, including habitats which could support manzanita. Light can affect a broad range of plant physiological responses, including seed germination, seedling development, induction of flowering, and rapid, membrane-based activities (Hopkins 1995). Therefore, there is potential for light pollution resulting from the project to have a negative impact on manzanita plants. Measures have been incorporated into the project to reduce light spill into the adjacent habitat. Permanent safety lighting installed for the project will be the lowest illumination necessary for safety and will be directed toward the facility and away from sensitive habitats. This is anticipated to minimize the impact of lighting on manzanita in the adjacent habitat to the point where such effects are insignificant.

The project could also increase the cover and number of invasive nonnative plant species in habitats adjacent to the project area. Nonnative species can change plant community structure and can alter ecosystem processes, such as hydrology, fire intensity and frequency, soil process (deposition and erosion), nutrient cycling, and light availability (Cal-IPC 2006). Nonnatives constitute one of the primary threats to the manzanita (Service 1996). The project has incorporated measures to prevent the spread of nonnative species. A CFWO approved biologist will monitor the project site immediately prior to and during construction to identify the presence of invasive weeds and recommend measures to avoid their inadvertent spread in association with the project. Invasive plants will not be used in project landscaping. These measures are anticipated to minimize the impact of invasive species introduction resulting from project implementation on manzanita habitat to the point where such effects are insignificant.

Additional indirect effects include an increase in wildfire and human encroachment from construction personnel and community enhancements such as improved trails and trailheads. Measures have been incorporated, such as construction fencing, trail fencing, and signage to avoid and minimize these impacts to manzanita. The I-5 is an existing facility in a highly

populated area, so with the proposed conservation measures, any increase in habitat degradation associated with these factors is expected to be insignificant.

Effect on Recovery

There is no recovery plan for manzanita, but the project is consistent with the general recovery goals of maintaining remaining populations and conserving/restoring the habitat that supports them. As described above, the project will result in impacts to manzanita and its habitat. However, the impacts are small relative to the amount of individuals in the project area and rangewide. In addition, all of the manzanita plants within the area of direct impact for the project are anticipated to be translocated to adjacent suitable habitat. Substantial areas of occupied habitat will remain adjacent to the impact area, and restoration of temporary impact areas will be initiated immediately following construction.

Caltrans will offset the permanent direct loss of approximately six manzanita plants and 2.87 acres of southern maritime chaparral through the restoration, preservation, and management of 16.23 acres of mixed coastal sage scrub / southern maritime chaparral habitat at the Dean property into which manzanita will be introduced. Thus, over the long-term, the project is expected to contribute to the conservation and recovery of the species by maintaining the existing manzanita population adjacent to the project site and establishing a new manzanita population on the Dean property.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. We are unaware of any future non-Federal actions that are reasonably certain to occur within the action area and may affect gnatcatchers, rails, gobies, manzanita, and critical habitat for the gnatcatcher and goby.

CONCLUSION

After reviewing the current status of the gnatcatcher, rail, goby, manzanita; designated critical habitat for the gnatcatcher; proposed critical habitat for the goby; the environmental baseline for the action area; effects of the proposed action; and the cumulative effects, it is our biological and conference opinion that the proposed action is not likely to jeopardize the continued existence of these species and is not likely to result in the destruction or adverse modification of designated critical habitat for the gnatcatcher or proposed critical habitat for the goby. We reached this conclusion by considering the following:

All Species

- Adverse effects to all federally listed species and associated designated and proposed critical habitat will be reduced by implementation of the avoidance and minimization measures identified in the “Project Description” of this biological opinion.
- The restoration of all temporary impact areas and more than 86 acres of cut and fill slopes within permanent impact areas with native species will help minimize and offset project impacts by restoring habitat for listed species to breed, forage, shelter, and disperse.
- Wildlife connectivity measures proposed in association with the project will ensure that ecosystem functions are maintained for the benefit of listed species and associated designated and proposed critical habitat.
- With the proposed conservation measures, project-related impacts to federally listed species will be fully offset, and we consider the project and associated conservation and restoration to be consistent with the recovery goals of the species.

Coastal California Gnatcatcher and Critical Habitat

- The project will permanently impact only 61.95 acres of sage scrub communities, out of many thousands of acres of coastal sage scrub gnatcatcher habitat rangewide.
- The project will temporarily impact only 14.63 acres of sage scrub communities, and these scrub communities will be restored, and within 4 to 5 years will again be suitable habitat for gnatcatcher breeding and foraging.
- Permanent and temporary project-related habitat loss and degradation will impact up to 15 gnatcatcher pairs, which represent less than 1 percent of the roughly 2,562 pairs rangewide.
- Impacts to occupied gnatcatcher habitat will be offset by creating, / restoring, and conserving 89.23 acres of sage scrub communities at the Deer Canyon, Dean, Laser, San Elijo Uplands, La Costa, and Hallmark properties.
- Impacts to gnatcatcher critical habitat within Unit 3 represent only a tiny fraction of the overall designation, and conservation of 22.9 acres of gnatcatcher critical habitat on the Laser and La Costa properties will benefit Unit 3. Further, restoration and conservation on the 30-acre San Elijo Uplands property will occur directly adjacent to, and is expected to improve the integrity and functioning of, Unit 3.

Light-footed Clapper Rail

- The project will permanently impact only 13.2 acres of coastal marsh habitats out of thousands of acres of coastal marsh rail habitat rangewide.

- The project will temporarily impact only 7.64 acres of coastal marsh habitats, these coastal marsh habitats will be restored, and within 8 to 10 years will again be suitable habitat for rail breeding and foraging.
- Permanent and temporary project-related habitat loss and degradation will impact up to four rail pairs, which represent less than 1 percent of the roughly 520 pairs rangewide.
- Impacts to occupied rail habitat will be offset by creating / restoring, and conserving 17.6 acres of coastal marsh habitats at the San Dieguito W19 and Hallmark properties.
- Lengthening of I-5 bridges at San Elijo, Batiquitos, and Buena Vista lagoons will improve tidal and fluvial flows, enhance associated wetland values, and facilitate large-scale lagoon restoration which will benefit the rail.
- Establishment of an endowment for long-term maintenance of Batiquitos and Los Peñasquitos lagoons, including lagoon inlet maintenance and dredging, will help to address sedimentation within these lagoons which will benefit the rail.
- Large-scale salt water lagoon restoration will promote the ecological health and hydrological connectivity of the restored lagoon and restore tidally-influenced habitats which will benefit the rail.

Tidewater Goby and Critical Habitat

- The project will permanently impact only 0.01 acre of open water goby habitat from construction of bridge pilings and 0.3 acre of open water goby habitat from bridge shading within the San Luis Rey River, out of the thousands of acres of goby habitat rangewide.
- The project will temporarily impact only 0.2 acre of open water habitat within the San Luis Rey River, and this area will be restored following construction and again be suitable habitat for goby breeding and foraging.
- Gobies in the direct impact area for the project will be translocated away from the construction footprint. Thus, gobies are expected to remain in the San Luis Rey River during and following project construction, and no appreciable reduction in the number of animals or distribution of the species is expected.
- Impacts to water quality will be addressed through implementation of BMPs to control erosion and sedimentation and to capture debris and contaminants from bridge construction.
- Impacts to goby critical habitat within Unit SAN-1 represent only a tiny fraction of the overall proposed critical habitat, and the project will not affect the function of critical habitat Unit SAN-1 to support a goby population or to provide connectivity between tidewater goby

source populations, and support gene flow and metapopulation dynamics of the genetically unique South Coast Recovery Unit.

Del Mar Manzanita

- The project will permanently impact only 2.87 acres of southern maritime chaparral manzanita habitat, and will temporarily impact 1.84 acres of southern maritime chaparral, out of thousands of acres of southern maritime chaparral habitat rangewide.
- Permanent and temporary project-related habitat loss will impact approximately 6 manzanita plants, which represents only 0.06 percent of the roughly 9,400 to 10,300 plants known at listing from within 25 populations, and should represent an even smaller percentage of the number of individuals within the 50 populations now known rangewide.
- Manzanita within the direct impact area for the project will be salvaged and translocated to the Dean property, which will be preserved and managed in perpetuity. In addition, seed will be collected prior to project impacts and used to propagate additional plants that will be planted on the Dean property.
- Impacts to southern maritime chaparral manzanita habitat will be offset by restoration, preservation, and management of 16.23 acres of mixed coastal sage scrub / southern maritime chaparral habitat at the Dean property into which manzanita will be introduced.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Harass is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the proposed action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be undertaken by FHWA and/or Caltrans for the exemption in section 7(o)(2) to apply. FHWA has the continuing duty to regulate the activity that is covered by this incidental take statement. If the FHWA fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure

compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

To monitor the impact of the incidental take, the FHWA or Caltrans must report the progress of the action and its impact on the species to the CFWO as specified in the incidental take statement [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

Coastal California Gnatcatcher

We anticipate that up to 15 gnatcatcher pairs, 6 pairs in phase 1, 8 pairs in phase 2, and 1 pair in phase 3, will be taken as a result of construction of the proposed project. However, if bridge construction is moved forward in project phasing to avoid impacts to coastal wetlands, the take of four pairs at Batiquitos Lagoon will occur in phase 1 for a total of 10 pairs in phase 1.

Incidental take is expected to be in the form of harm as defined in 50 CFR § 17.3, due to the direct loss of a portion of the sage scrub habitats occupied by these gnatcatchers. The take exemption will be exceeded if more than:

- six pairs of gnatcatchers are documented within the phase 1 project footprint prior to construction in phase 1 (unless bridge construction is moved forward in project phasing to avoid impacts to coastal wetlands in which case take of 4 pairs of gnatcatchers would be advanced from phase 2 to phase 1); or
- eight pairs of gnatcatchers are documented within the phase 2 project footprint prior to construction in phase 2; or
- one pair of gnatcatchers is documented within the phase 3 project footprint prior to construction in phase 3; or
- 61.95 acres of gnatcatcher-occupied scrub vegetation are permanently removed and 14.63 acres of gnatcatcher-occupied scrub vegetation are temporarily removed as a result of project implementation or if such removal is not consistent with Table 1 and Table 2.

Light-footed Clapper-Rail

We anticipate that up to four rail pairs, one pair in phase 1, two pairs in phase 2, and one pair in phase 3 will be taken as a result of construction of the proposed project. However, if bridge construction is moved forward in project phasing to avoid impacts to coastal wetlands, the take of all four pairs will occur in phase 1.

Incidental take is expected to be in the form of harm as defined in 50 CFR § 17.3, due to the direct loss of a portion of the coastal marsh habitats occupied by these rails.

The take exemption will be exceeded if more than:

- one pair of rails is documented within the phase 1 project footprint prior to construction in phase 1 (unless bridge construction is moved forward in project phasing to avoid impacts to coastal wetlands in which case take of all four pairs of rails will occur in phase 1); or
- two pairs are documented within the phase 2 project footprint prior to construction in phase 2; or
- one pair of rails is documented within the phase 3 project footprint prior to construction in phase 3; or
- 13.2 acres of rail-occupied coastal marsh vegetation are permanently removed and 7.64 acres of rail-occupied coastal marsh vegetation are temporarily removed as a result of project implementation or if such removal is not consistent with Table 1 and Table 2.

Tidewater Goby

The exact distribution and population size of gobies within the project impact area is difficult to determine due to the dynamic conditions associated with their biology. Because the goby is a short-lived species that is subject to variability in local abundance and seasonal changes in distribution and abundance, it is difficult to precisely quantify the amount of take that will occur during project work in the San Luis Rey River in phase 3 of the project. Nevertheless, based on the best available scientific information, we have established the following take exemptions for the goby:

- Capture and relocation of all gobies within the project impact area in the San Luis Rey River during construction of the I-5 North Coast Corridor project;
- Accidental death of no more than 1 percent of the gobies captured, not to exceed 5 goby deaths for the entire I-5 North Coast Corridor project.

Take in the form of harm is authorized as follows:

- The permanent removal of 500 square feet of open water goby habitat from construction of bridge pilings and permanent shading of 0.3 acre of open water goby habitat; and
- Temporary impacts to 0.2 acre of open water goby habitat.

EFFECT OF TAKE

In the accompanying biological opinion, we determined that this level of anticipated take is not likely to result in jeopardy to the gnatcatcher, rail, or goby.

REASONABLE AND PRUDENT MEASURES

Caltrans will implement significant conservation measures as part of the proposed action to minimize the incidental take of gnatcatchers, rails, and gobies. In addition to these conservation

measures, the following reasonable and prudent measures are necessary to monitor and report the effects of the incidental take on gnatcatchers, rails, and gobies:

1. FHWA and/or Caltrans will monitor and report on compliance with the established take exemptions for gnatcatchers associated with the proposed action.
2. FHWA and/or Caltrans will monitor and report on compliance with the established take exemptions for rails associated with the proposed action.
3. FHWA and/or Caltrans will monitor and report on compliance with the established take exemptions for gobies associated with the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act FHWA and/or Caltrans must comply with the following terms and conditions which implement the reasonable and prudent measures described above.

Coastal California Gnatcatcher

- 1.1 Prior to initiating each phase of the proposed project, three preconstruction surveys will be conducted within all suitable gnatcatcher habitat within the footprint for that phase of the project, within 30 days prior to initiation of vegetation removal activities, to verify that no more than 6 gnatcatcher pairs in phase 1, 8 gnatcatcher pairs in phase 2, and 1 gnatcatcher pair in phase 3 (unless bridge construction is moved forward in project phasing to avoid impacts to coastal wetlands in which case take of 4 pairs of gnatcatchers would be advanced from phase 2 to phase 1), with 15 pairs in total, will be taken as a result of the project. Prior to initiating each phase of the project, FHWA and/or Caltrans will provide to the CFWO a map showing the distribution of gnatcatchers relative to the project footprint for that phase, an estimate of the number of gnatcatcher territories that will be impacted by the project in that phase, and the cumulative total of gnatcatcher territories impacted by the project to date, or confirm in writing that maps, distribution information, and the number of territories that will be impacted by the project as shown in the BA remain correct.
- 1.2 FHWA and/or Caltrans will notify the CFWO within 30 days of completing removal of gnatcatcher occupied habitat in each project phase. The purpose of this notification is to ensure that impacts to gnatcatcher-occupied habitat from the proposed project do not exceed the take exemptions.

Light-footed Clapper Rail

- 2.1 Prior to initiating each phase of the proposed project, three preconstruction surveys will be conducted within all suitable rail habitat within the footprint for that phase of the project, within 30 days prior to initiation of vegetation removal activities, to verify that no more

than one pair in phase 1, two pairs in phase 2, and one pair in phase 3 (unless bridge construction is moved forward in project phasing to avoid impacts to coastal wetlands in which case take of all four pairs of rails would occur in phase 1), with four pairs in total, will be taken as a result of the project. Prior to initiating each phase of the project, FHWA and/or Caltrans will provide to the CFWO a map showing the distribution of rails relative to the project footprint for that phase, an estimate of the number of rail territories that will be impacted by the project in that phase, and the cumulative total of rail territories impacted by the project to date, or confirm in writing that maps, distribution information, and the number of territories that will be impacted by the project as shown in the BA remain correct.

- 2.2 FHWA and/or Caltrans will notify the CFWO within 30 days of completing removal of rail occupied habitat in each project phase. The purpose of this notification is to ensure that impacts to rail-occupied habitat from the proposed project do not exceed the take thresholds.

Tidewater Goby

- 3.1 Within 30 calendar days of the completion of project activities within goby habitat, FHWA and/or Caltrans will provide the CFWO with a report documenting the area of goby habitat impacted, the number of dead or injured gobies observed in the action area, and the number of gobies captured and released. The report will include information on the general condition of all gobies that were killed, injured, and captured/released. It will also include an assessment of how or why gobies may have been injured or killed and information on where gobies were captured and released. Caltrans will report incidences of take (observed death or injury or capture and relocation of gobies) to the CFWO within 3 days. All field notes and other documentation generated by the biological monitor will be made available to the CFWO upon request. The purpose of this notification is to ensure that impacts to goby-occupied habitat from the proposed project do not exceed the take thresholds.

DISPOSITION OF SICK, INJURED, OR DEAD SPECIMENS

Upon locating dead, injured, or sick individuals of threatened or endangered species, initial notification must be made to our Division of Law Enforcement in either San Diego, California, at 619-557-5063 or in Torrance, California, at 310-328-6307 within 3 working days. Notification should also be sent by telephone and writing to this office in Carlsbad, California, at 6010 Hidden Valley Road, Suite 101, Carlsbad, California 92011, 760-431-9440. Written notification must be made within 5 calendar days and include the collection date and time, the location of the animal, and any other pertinent information. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. The remains of intact specimens shall be placed with educational or research institutions holding the appropriate State and Federal permits. Remains shall be placed with the San Diego Natural History Museum, San Diego.

Arrangements regarding proper disposition of potential museum specimens shall be made with the institution by the authorized biologist prior to implementation of the action.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. There is an option under consideration to reduce the wetland impacts of the project by advancing the replacement of the Batiquitos Lagoon and Buena Vista Lagoon bridges in the phasing plan so that bridge replacement would occur prior to construction of an HOV lane in the median instead of in later project phases. This would reduce the area of permanent impact for each bridge, as well as associated wetland impacts within these lagoons, as the bridge width necessary to accommodate construction-period traffic would be reduced. We request that the project funding necessary to avoid and minimize impacts to sensitive coastal wetlands be obtained and approved to advance the replacement of these lagoon bridges.
2. Most of the lagoon bridges and the San Luis Rey River bridge currently include a gap between north- and southbound lanes which will be closed by the proposed project. This will result in a darker and more confined space within the wildlife movement pathways under these bridges. We recommend that the costs (e.g., noise, run-off, artificial light spill) and benefits (e.g., infiltration of natural light, increase in perceived openness) of adding skylights to freeway medians at the lagoon bridges and San Luis Rey River bridge be examined, and that skylights be incorporated where benefits are determined to outweigh costs.

REINITIATION NOTICE

This concludes formal consultation regarding the I-5 North Coast Corridor Project as outlined in materials submitted to us. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; and (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

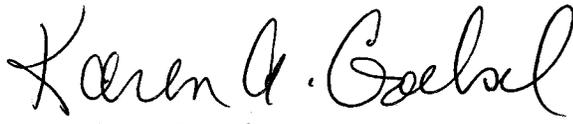
With regard to (3) above, if the large-scale salt water lagoon restoration project at San Elijo Lagoon and/or Buena Vista Lagoon described in Conservation Measure 40 is not carried forth as analyzed in this biological opinion (i.e., it is not feasible to carry out the salt water lagoon

restoration alternative to restore tidally-influenced habitats for the benefit of listed species), reinitiation of formal consultation will be warranted.

This document does not authorize take under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. §§ 703-712). In order to comply with the MBTA, Caltrans will avoid take of active nests by removing vegetation outside of the bird breeding season and by installing exclusion devices on bridge drain holes and ledges between September 16 and February 14 to prevent swallows, swifts, and any other birds from nesting on or within bridges that will be demolished.

If you have any questions regarding this biological opinion, please contact Sally Brown of this office at 760-431-9440, extension 278.

Sincerely,


For Jim A. Bartel
Field Supervisor

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ENCLOSURE

Section 7 Consultation
Interstate 5 North Coast Corridor Project
San Diego County, California
FWS-SDG-08B0100-12F0547

The following information supports the U.S. Fish and Wildlife Service's (Service) concurrence with the Federal Highway Administration's (FHWA) not likely to adversely affect determination for the federally endangered least Bell's vireo (*Vireo bellii pusillus*, vireo), southwestern willow flycatcher (*Empidonax traillii extimus*; flycatcher), California least tern [*Sternula* (= *Sterna*) *antillarum browni*, tern], federally threatened western snowy plover [*Charadrius nivosus* (= *alexandrinus*) *nivosus*, plover], designated critical habitat for the vireo and flycatcher, and proposed critical habitat for the flycatcher, in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), for the I-5 North Coast Corridor Project, San Diego County, California.

Vireo and its Designated Critical Habitat

Protocol surveys were conducted for vireo in 2003 and 2004 for the project with negative results [California Department of Transportation (Caltrans) 2003a, Caltrans 2004]. Vireos were incidentally observed in 2003 during gnatcatcher surveys in Lawrence Canyon and near Brooks Street, in Oceanside (Caltrans 2003b). In Lawrence Canyon, a juvenile vireo was detected approximately 738 feet from the project impact footprint. At this location, the occupied habitat is separated from the project area by a sizeable slope which creates a topographical barrier. Near Brooks Street, a male vireo was observed at a distance of approximately 426 feet from the project impact footprint. Three vireos were also incidentally observed during gnatcatcher surveys in 2001 and 2009 in habitat immediately north of the Dean offset parcel and approximately 675 feet east of the project impact footprint (Caltrans 2002, Caltrans 2009).

Although no breeding vireo were observed in the project impact footprint during surveys, the project will directly and indirectly impact potential breeding habitat along Moonlight Creek, in Encinitas, and at the San Luis Rey River, in Oceanside. Caltrans will conduct protocol surveys for the vireo within 1 year prior to the commencement of vegetation clearing and construction activities for the project in or within 500 feet of suitable habitat for the species. FHWA/Caltrans will reinitiate consultation with the Carlsbad Fish and Wildlife Office (CFWO) if vireos are observed in the project impact footprint. Project construction may also indirectly impact vireo in the adjacent habitat at Lawrence Canyon and near Brooks Street (e.g., effects associated with invasive species, noise, light, human encroachment, material disposal, and contaminant run-off). If vireos are observed within 500 feet of the project impact footprint, conservation measure 46 will be implemented to avoid and minimize impacts to this species.

In 1994, the Service designated areas at 10 locations, encompassing approximately 38,000 acres, in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego counties, California, as critical habitat for the vireo (Service 1994). In the action area, critical habitat is designated along the San Luis Rey River. The San Luis Rey area of designated critical habitat for the vireo includes approximately 6,000 acres of critical habitat along the San Luis Rey River between I-5 and Pala Road. This unit encompasses high quality habitat within the San Luis Rey River, which supports the third-largest population of vireos (233 territories, Service 2006) rangewide.

Primary Constituent Elements (PCEs) for the vireo are those habitat components that are essential for the primary biological needs of feeding, nesting, roosting and sheltering. These PCEs can be described as riparian woodland vegetation that generally contains both canopy and shrub layers and includes some associated upland habitats. Vireos meet their survival and reproductive needs (food, cover, nest sites, nestling and fledgling protection) within the riparian zone in most areas. In some areas they also forage in adjacent upland habitats, which may include sage scrub and grassland communities (Service 1994).

The project will permanently impact approximately 0.03 acre of designated critical habitat for the vireo with PCEs and an additional 3.5 acres of designated critical habitat lacking PCEs. The project will also temporarily impact approximately 0.2 acre of vireo critical habitat with PCEs and 3.9 acres lacking PCEs. Thus, though the area of critical habitat impacted is 7.63 acres, this represents only 0.02 percent of the total designation and most of the area impacted does not support PCEs. The areas lacking PCEs consists of developed / disturbed habitat, including a non-functional (blocked off) freeway loop ramp located south of the San Luis Rey River and east of I-5, and ornamental vegetation such as ice plant.

Only a very small amount of vireo critical habitat with PCEs will be permanently impacted by the project (0.03 acre). In addition, the minimal temporary impacts to 0.2 acre of vireo critical habitat with PCEs will be restored following project construction. These minimal and largely temporary impacts will not affect the function of the San Luis Rey area of vireo critical habitat to support a core population of vireo and do not rise to a level of significance warranting further analysis through the formal consultation process.

Flycatcher and its Designated and Proposed Critical Habitat

A flycatcher was heard vocalizing in riparian habitat in the San Luis Rey River in June 2004 during general biological surveys for the project. Subsequent surveys did not detect the flycatcher again, and the one observed flycatcher is assumed to have been a migrant (Caltrans 2012). No other suitable habitat is present within the project study area.

Although no breeding flycatchers were observed in habitat in the project impact footprint during surveys, suitable breeding habitat is present at the San Luis Rey River. Caltrans will conduct protocol surveys for the flycatcher within 1 year prior to the commencement of vegetation clearing and construction activities for the project in or within 500 feet of suitable habitat for the

species. FHWA/Caltrans will reinitiate consultation if flycatchers are observed in the project impact footprint. Project construction may also indirectly impact flycatcher in the adjacent habitat at the San Luis Rey River (e.g., effects associated with invasive species, noise, light, human encroachment, material disposal, and contaminant run-off). If flycatchers are observed within 500 feet of the project impact footprint, conservation measure 46 will be implemented to avoid and minimize impacts to this species.

Critical habitat for the flycatcher was designated on October 19, 2005 (Service 2005). The critical habitat includes approximately 120,824 acres in Apache, Cochise, Gila, Graham, Greenlee, Maricopa, Mohave, Pinal, Pima, and Yavapai counties in Arizona; Kern, Santa Barbara, San Bernardino, and San Diego counties in southern California; Clark County in southeastern Nevada; Grant, Hidalgo, Mora, Rio Arriba, Socorro, Taos, and Valencia counties in New Mexico; and Washington County in southwestern Utah. Fifteen management units found in five recovery units were designated as critical habitat for the flycatcher. The five recovery units are: 1) Coastal California; 2) Basin and Mojave in California; 3) Lower Colorado River in Nevada, California/Arizona Border, Arizona, and Utah; 4) Gila in Arizona and New Mexico; and 5) Rio Grande in New Mexico.

The project is located within the San Diego Management Unit of the Coastal California Recovery Unit of southwestern willow flycatcher critical habitat. A total of 4,805 acres of critical habitat are designated within this management unit along the Santa Margarita River, San Luis Rey River, Pilgrim Creek, Agua Hedionda Creek, San Ysabel River, Temescal Creek, and Temecula Creek (Service 2005). This management unit encompasses a combination of large populations and other nearby stream segments with high quality habitat and smaller numbers of territories to provide for population connectivity, metapopulation stability, population growth, and protection against catastrophic loss.

PCEs for the flycatcher are those habitat components that are essential for the primary biological needs of feeding, nesting, roosting, and sheltering. Specifically, PCEs include riparian vegetation consisting of a variety of riparian trees and shrubs with dense riparian thickets, foliage, and canopy (PCE 1) and a variety of insect prey populations in or adjacent to riparian floodplains or moist environments (PCE 2) (Service 2005).

On August 15, 2011, revised critical habitat for the flycatcher was proposed (Service 2011). Revised proposed critical habitat for the flycatcher includes the riparian areas and streams that occur within the 100-year floodplain or flood-prone areas along approximately 2,090 stream miles in Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, and Ventura Counties in California; Clark, Lincoln, and Nye Counties in southern Nevada; Kane, San Juan, and Washington Counties in southern Utah; Alamosa, Conejos, Costilla, La Plata, and Rio Grande Counties in southern Colorado; Apache, Cochise, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Pima, Pinal, Santa Cruz, Yavapai, and Yuma Counties in Arizona; and Catron, Cibola, Dona Ana, Grant, Hidalgo, McKinley, Mora, Rio Arriba, Santa Fe, San Juan, Sierra, Socorro, Taos, and Valencia Counties in New Mexico.

Twenty-nine management units found in six recovery units are proposed as critical habitat for the flycatcher. The six recovery units are: 1) Coastal California; 2) Basin and Mojave; 3) Lower Colorado; 4) Upper Colorado; 5) Gila; and 6) Rio Grande. The project is located within the San Diego Management Unit of the Coastal California Recovery Unit of proposed flycatcher critical habitat. A total of 50.4 stream miles along 12 river segments are proposed within this management unit. This management unit provides habitat for metapopulation stability, gene connectivity through this portion of the flycatcher's range, protection against catastrophic population loss, and population growth and colonization potential.

The project will permanently impact approximately 0.03 acre of both the 2005 designated and 2011 proposed critical habitat for the flycatcher with PCEs, and an additional 0.19 acre of designated and proposed critical habitat lacking PCEs. Approximately 0.25 acre of designated and proposed flycatcher critical habitat with PCEs and 1.33 acres lacking PCEs will be temporarily impacted by the project. Thus, though the area of designated and proposed critical habitat impacted is 1.8 acres, most of the area impacted does not support PCEs. The area lacking PCEs consists of developed / disturbed habitat consisting of a non-functional (blocked off) freeway loop ramp located south of the San Luis Rey River and east of I-5, and ornamental vegetation such as ice plant.

Only a very small amount of flycatcher critical habitat will be permanently impacted by the project (0.03 acre). In addition, the minimal temporary impacts to 0.25 acre of flycatcher critical habitat will be restored following project construction. These minimal and largely temporary impacts will not affect the function of the designated or proposed critical habitat in maintaining a large population of flycatchers and providing population connectivity within the San Diego Management Unit of flycatcher critical habitat and do not rise to a level of significance warranting further analysis through the formal consultation process.

Tern and Plover

The tern and plover have been observed in and near the project impact area using foraging habitat in San Dieguito, San Elijo, Batiquitos, and Agua Hedionda lagoons. Terns were observed foraging within the project study area in San Elijo and Batiquitos lagoons in 2003, and plover foraging habitat may be affected by the project at Batiquitos and Agua Hedionda lagoons (Caltrans 2012). There are nesting areas for terns and plovers at San Dieguito, San Elijo, and Batiquitos lagoons. These nesting areas are outside of the direct impact footprint for the project, and the project is not anticipated to result in any direct impacts to suitable breeding habitat for the tern and plover. The nesting area east of I-5 and north of La Costa Avenue at Batiquitos Lagoon is used annually by terns and is located at a distance of approximately 250 feet from the closest point of proposed construction. There are small areas of designated critical habitat for plovers at San Dieguito, San Elijo, and Batiquitos lagoons; however, they too are outside of the direct impact footprint for the project.

Project construction may impact tern and plover foraging habitat in San Dieguito, San Elijo, Batiquitos, and Agua Hedionda lagoons. Terns forage in near shore ocean waters and in shallow

estuaries and lagoons (Massey 1987). The project will permanently impact 0.14 and 1.36 acres of open water foraging habitat at Batiquitos and Agua Hedionda lagoons, respectively, and will temporarily impact 0.21, 0.11, 1.04, 1.18, 0.06, and 0.09 acres of open water at San Dieguito, San Elijo, Batiquitos, Agua Hedionda, and Buena Vista lagoons and the San Luis Rey River, respectively.

Plovers forage in wet sand in the intertidal zone, dry sandy areas above high tide, salt pans, spoil sites, and the edges of salt marshes and salt ponds (Service 1993). The habitats that the project will affect that are most suitable for plover foraging are salt flat and mudflat habitats. The project will permanently impact 0.03 acre and temporarily impact 0.04 acre of salt flat foraging habitat at Batiquitos Lagoon. The project will also permanently impact 0.11 and 2.25 acres of mudflat foraging habitat at Batiquitos and Agua Hedionda lagoons, respectively, and temporarily impact 0.17 and 0.27 acre of mudflat, respectively, at these same lagoons. In addition, the project has the potential to result in indirect impacts to adjacent nesting habitat (e.g., effects associated with invasive species, landscaping, noise, light, human encroachment, material disposal, and contaminant run-off).

The following measures will be incorporated into the project to avoid and minimize impacts to the vireo, flycatcher, tern, plover, designated critical habitat for the vireo and flycatcher, and proposed critical habitat for the flycatcher. For ease of reference, the numbering below is a continuation of the numbering of the conservation measures in the associated biological opinion.

44. Protocol surveys for the vireo and flycatcher will be conducted within 1 year prior to the commencement of vegetation clearing and construction activities for the project in and adjacent to suitable habitat for the vireo and flycatcher.
45. If vireos and/or flycatchers are observed in the project impact footprint, FHWA/Caltrans will reinitiate consultation with the CFWO to address unanticipated impacts to these species.
46. If vireos and/or flycatchers are observed within 500 feet of the project impact footprint, the following measures will be implemented to avoid and minimize impacts to these species:

Construction within 500 feet of habitat occupied by vireo and/or flycatcher will occur from September 1 to March 31 to avoid these species' breeding seasons. If project construction is necessary during these species' breeding seasons within 500 feet of habitat occupied by vireo and/or flycatcher, nesting surveys will be conducted to determine and document the presence/absence of breeding vireo and/or flycatcher. If active nests are identified within 500 feet of the noise generating construction activities and noise is in excess of 60 dBA hourly Leq or if noise is in excess of ambient noise levels if ambient noise levels exceed 60 dBA hourly Leq, noise attenuation structures will be installed at the noise source to reduce noise levels to 60 dBA hourly Leq or to ambient noise levels if ambient noise levels exceed 60 dBA hourly Leq at the nest location. Noise monitoring will occur during the breeding

season and be reported daily to the CFWO. A CFWO-approved biological monitor¹⁰ will ensure that avoidance and minimization measures are implemented such that adverse effects to vireo and/or flycatcher do not occur as a result of the adjacent construction activities (e.g., noise and lighting). If the biological monitor suspects that avoidance and minimization measure are ineffective, and project activities may be adversely affecting these bird species, culpable activities will be suspended within 500 feet of active nesting territories until nesting activity is completed and fledglings are no longer in the area or until effective avoidance and minimization measures can be identified, implemented, and demonstrated to be effective. If measures cannot be identified, implemented and demonstrated to be effective to avoid adverse effects to the vireo and/or flycatcher, then project construction will stop until consultation has been completed with the CFWO to address unanticipated impacts to these species.

47. Permanent and temporary impacts to wetland and riparian habitats suitable for vireo, flycatcher, tern, and plover and impacts to critical habitat for the vireo and flycatcher (as summarized above) resulting from the I-5 North Coast Corridor Project will be offset through conservation and restoration as documented in the *Conservation Measures* section of the biological opinion, under the heading Conservation / Restoration / Management.
48. Measures included in the biological opinion to avoid and minimize project impacts to coastal California gnatcatcher (*Poliophtila californica californica*, gnatcatcher), light-footed clapper rail (*Rallus longirostris levipes*, rail), tidewater goby (*Eucyclogobius newberryi*, goby), Del Mar manzanita (*Arctostaphylos glandulosa* subsp. *crassifolia*, manzanita), designated critical habitat for the gnatcatcher and goby, and other sensitive resources such as wetlands, aquatic resources, and rare plants (e.g., seasonal restrictions on vegetation clearing, temporary construction fencing, monitoring, restoration of temporary impact areas, preventing the spread of invasive species, restrictions on landscaping, construction noise, construction and operational lighting, human encroachment, material disposal, and best management practices) will also help avoid and minimize project impacts to the vireo, flycatcher, tern, plover, designated critical habitat for the vireo and flycatcher, and proposed critical habitat for the flycatcher.

With incorporation of these proposed conservation measures, potential impacts to vireo, flycatcher, tern, plover, designated critical habitat for the vireo and flycatcher, and proposed critical habitat for the flycatcher will be minimized to the point where such effects are insignificant. For the purposes of section 7 consultation, an insignificant effect is one that is sufficiently small that a person would not be able to meaningfully measure, detect, or evaluate it. Based on the site and species information and Caltrans' commitment to implement avoidance and minimization measures during the project, we concur with FHWA's determination that the project is not likely to adversely affect these listed species and critical habitats.

¹⁰ The designated project biologist for conservation measure 46 will be a trained ornithologist with at least 40 hours in the field observing vireos and documented experience locating and monitoring vireo and flycatcher nests. In order to receive CFWO approval, the biologist's name, address, telephone number, and work schedule on the project must be submitted to the CFWO at least 5 working days prior to initiating project impacts.

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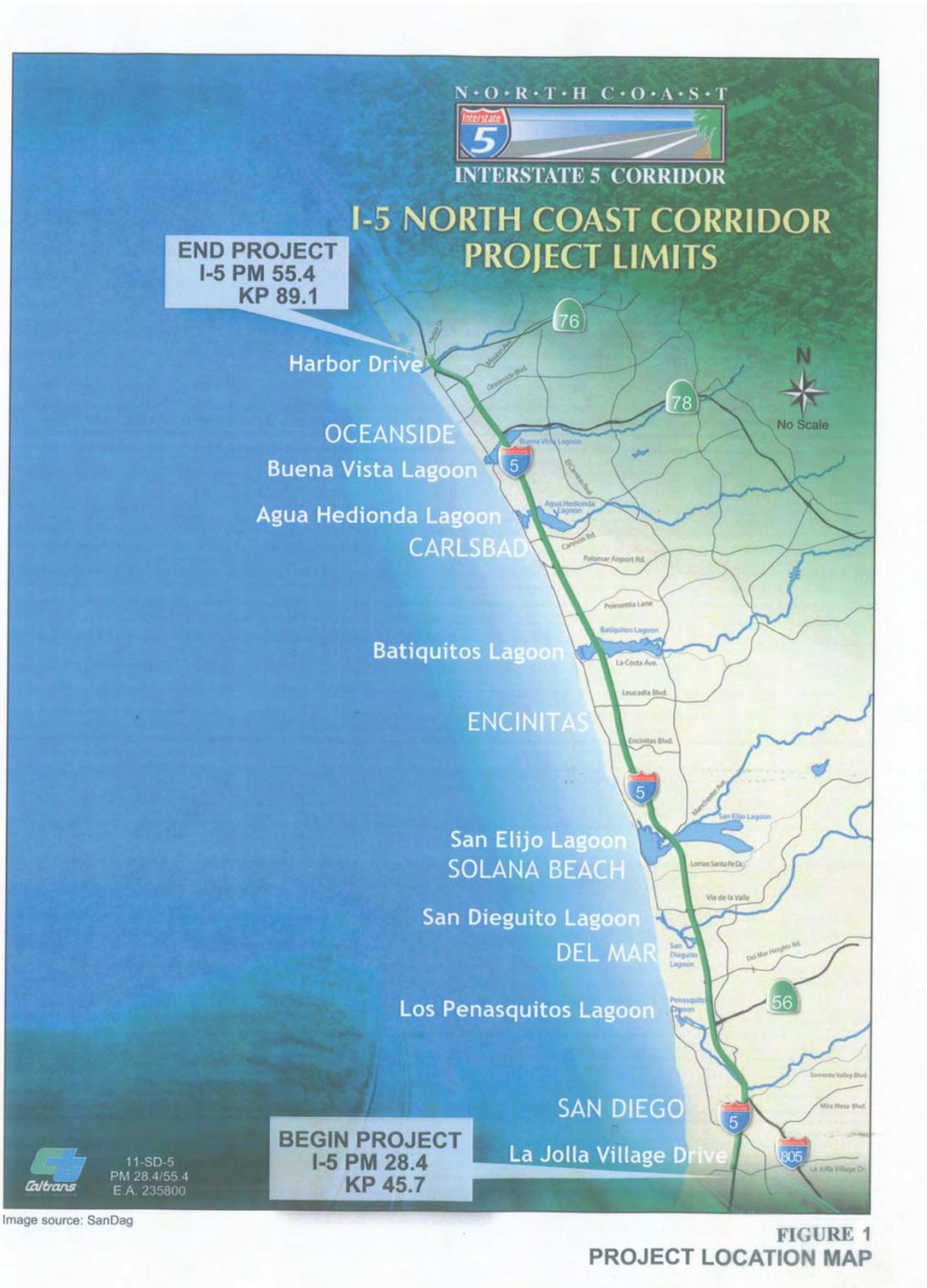
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(Source: Caltrans. 2012b. Interstate 5 North Coast Corridor Project Supplemental Draft Environmental Impact Report/ Environmental Impact Statement)

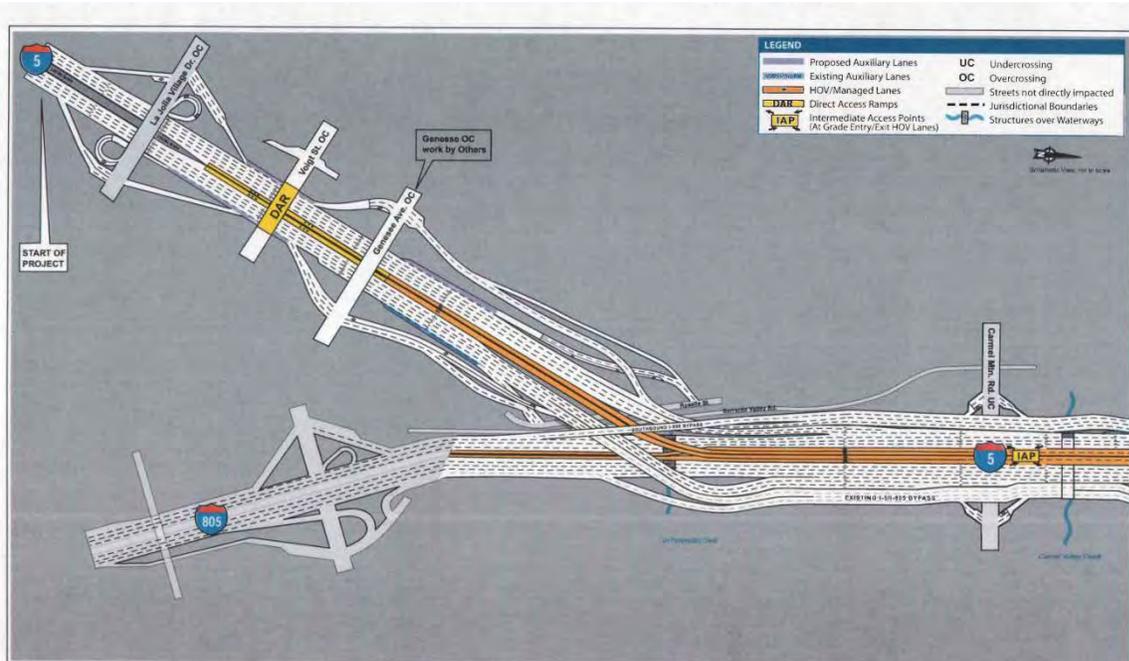


Figure 2. I-5 NCC Project Configuration (Source: Caltrans. 2012b. Interstate 5 North Coast Corridor Project Supplemental Draft Environmental Impact Report/ Environmental Impact Statement)

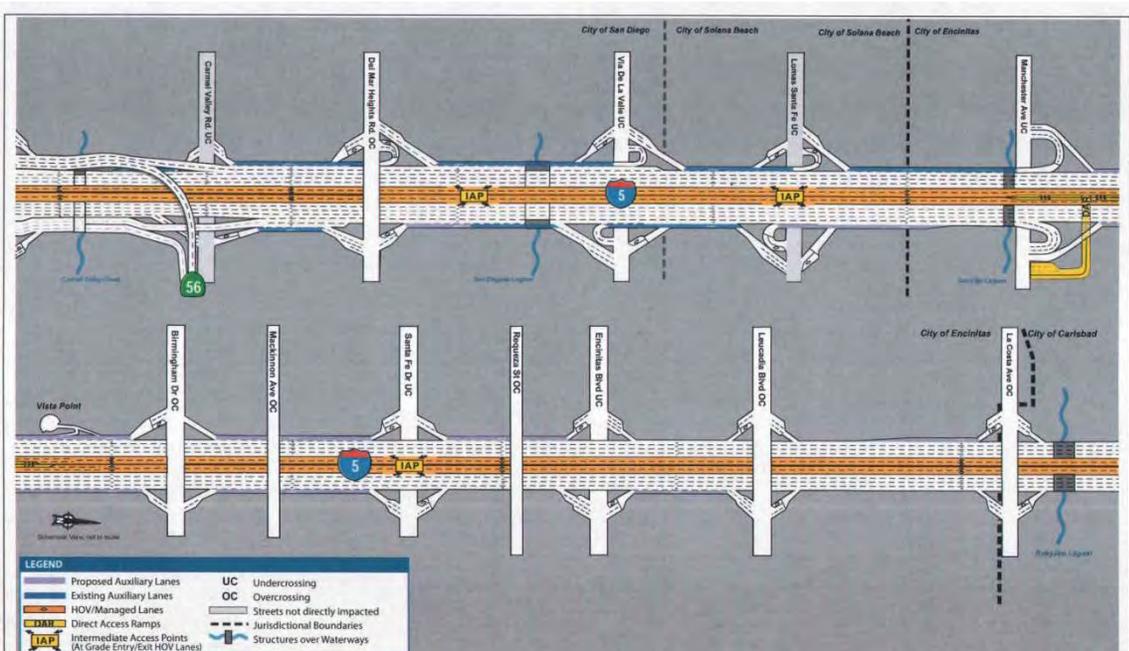


Figure 3. I-5 NCC Project Configuration (Source: Caltrans. 2012b. Interstate 5 North Coast Corridor Project Supplemental Draft Environmental Impact Report/ Environmental Impact Statement)

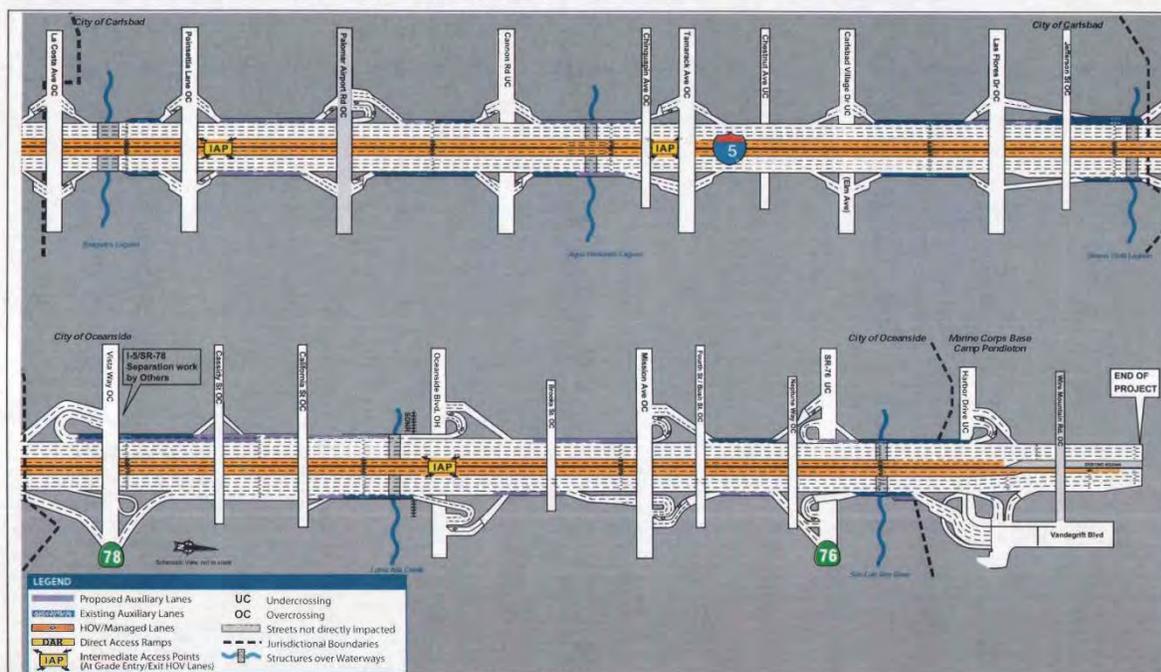


Figure 4. I-5 NCC Project Configuration (Source: Caltrans. 2012b. Interstate 5 North Coast Corridor Project Supplemental Draft Environmental Impact Report/ Environmental Impact Statement)

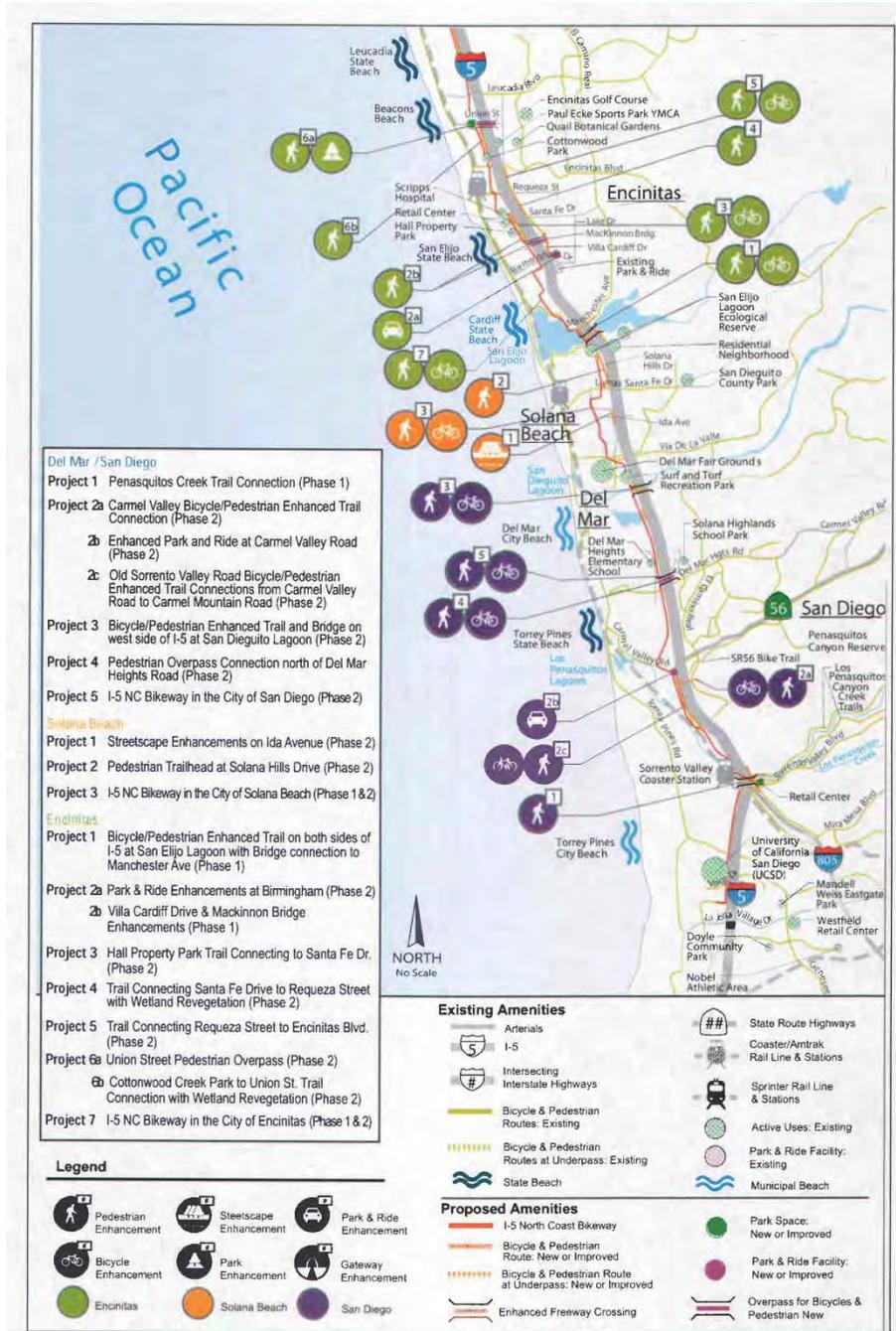


Figure 5. Community Enhancements Overview – South (Source: Caltrans. 2012b. Interstate 5 North Coast Corridor Project Supplemental Draft Environmental Impact Report/ Environmental Impact Statement)

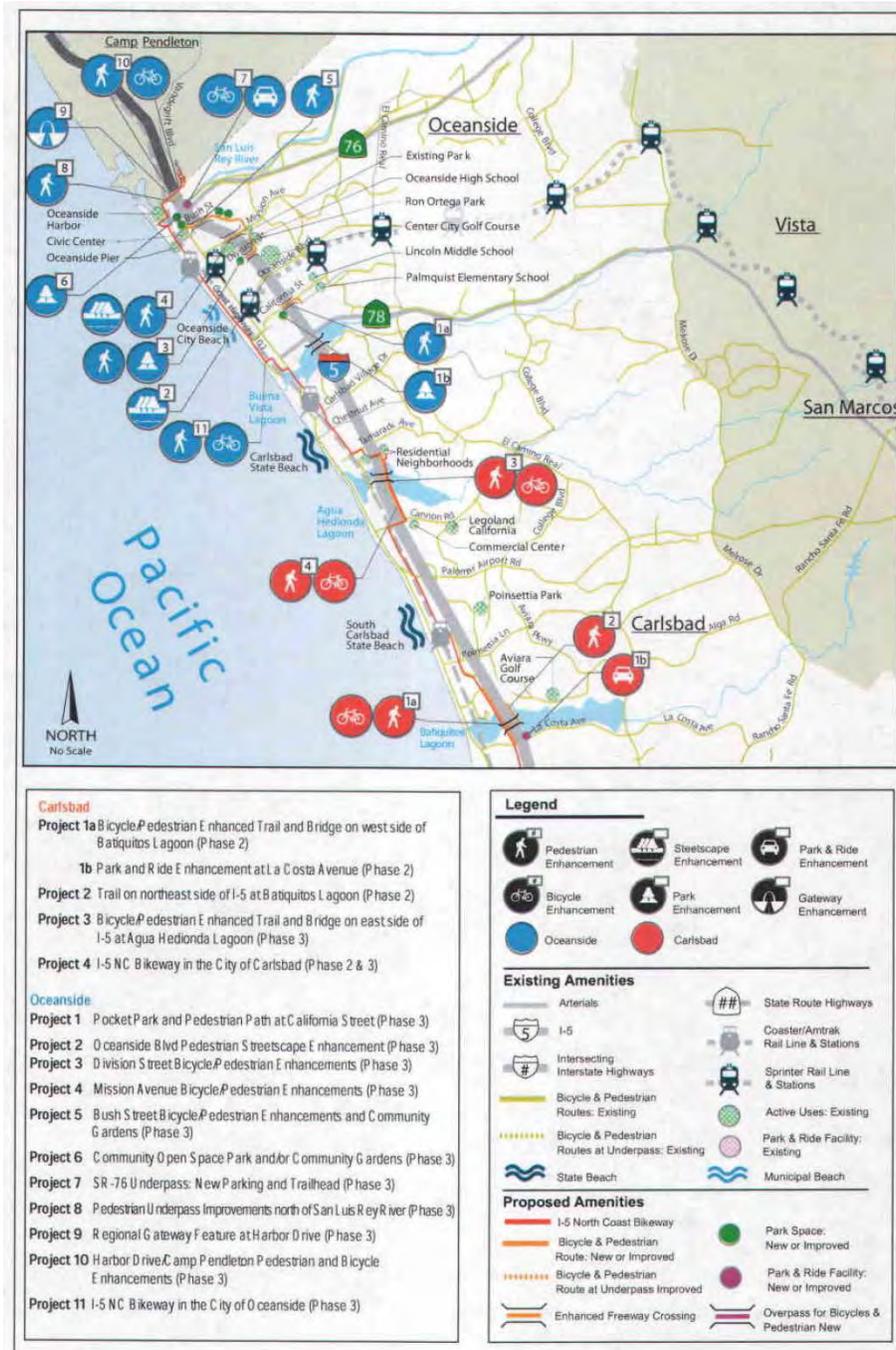


Figure 6. Community Enhancements Overview – North (Source: Caltrans. 2012b. Interstate 5 North Coast Corridor Project Supplemental Draft Environmental Impact Report/ Environmental Impact Statement)



Figure 7. **Threatened and Endangered Species and Project Impacts**
(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)



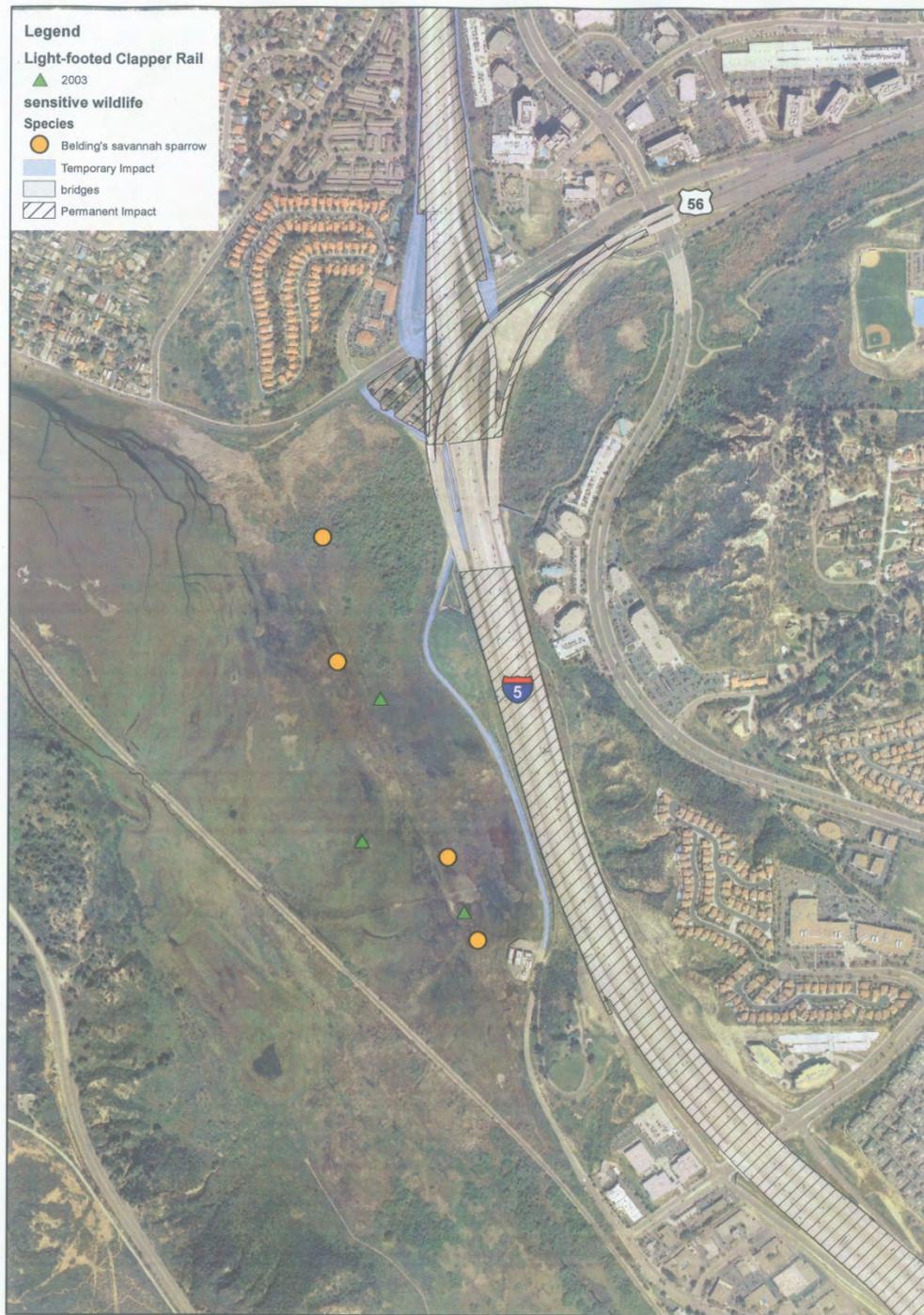


Figure 8. Threatened and Endangered Species and Project Impacts

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)

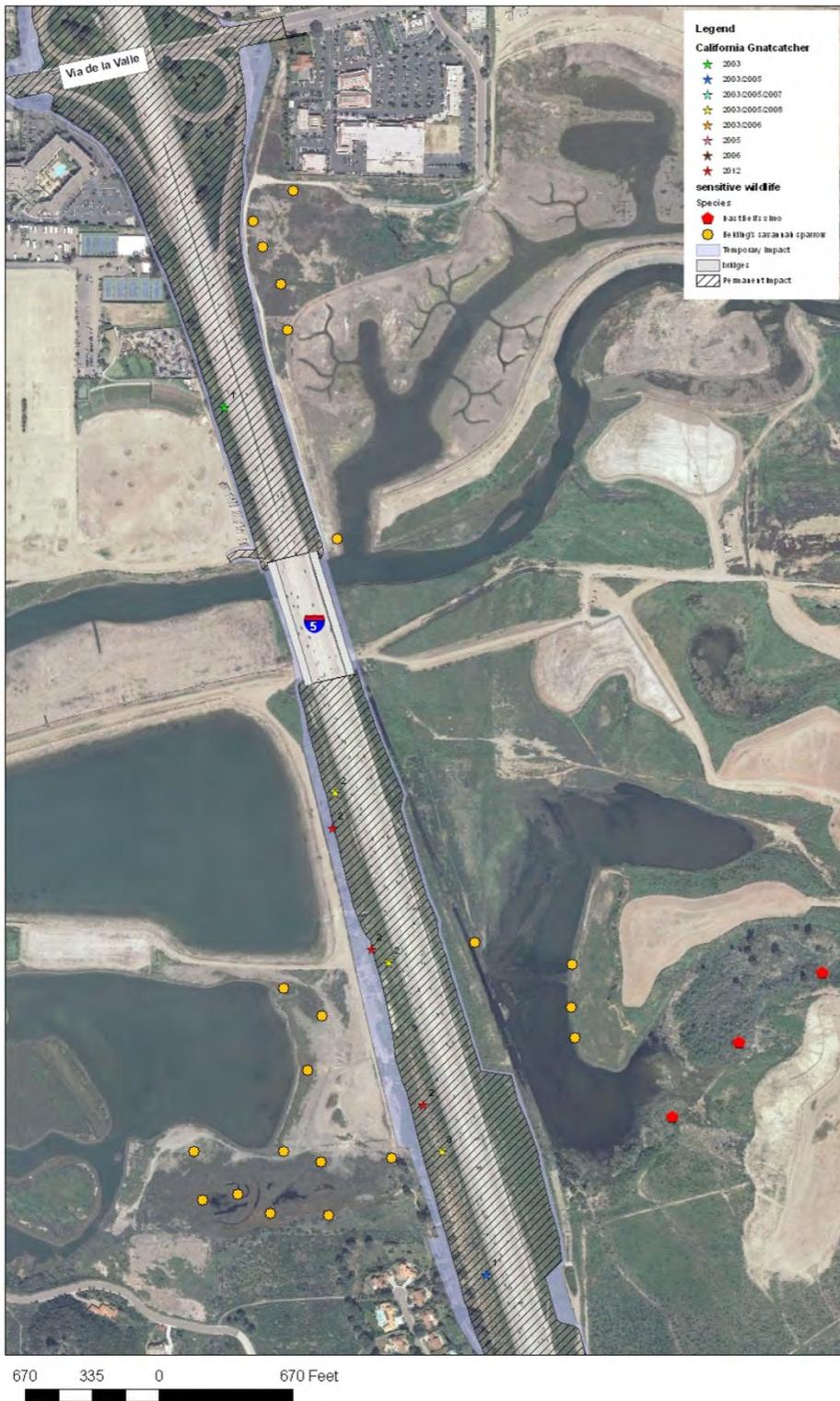


Figure 9. Threatened and Endangered Species and Project Impacts
(Source: Caltrans. 2012a. I-5 North Coast Corridor
Project Biological Assessment. 60+ pp.)



Figure 10. Threatened and Endangered Species and Project Impacts

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)



Figure 11. **Threatened and Endangered Species and Project Impacts**

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)



Figure 12. Threatened and Endangered Species and Project Impacts

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)



Figure 13. **Threatened and Endangered Species and Project Impacts**

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)



(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)



Figure 15. **Threatened and Endangered Species and Project Impacts**

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)

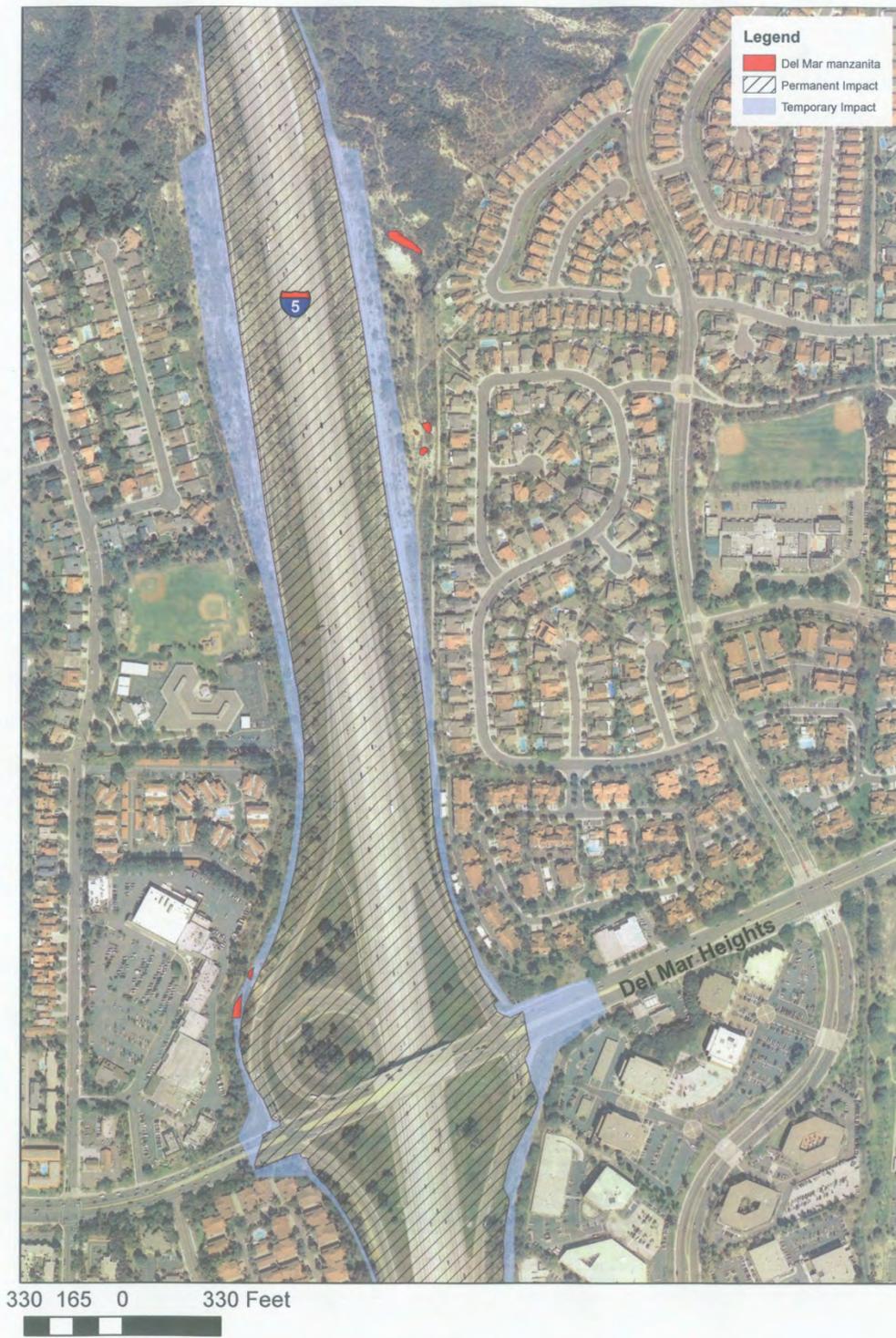


Figure 16. Del Mar Manzanita Locations and Project Impacts

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)

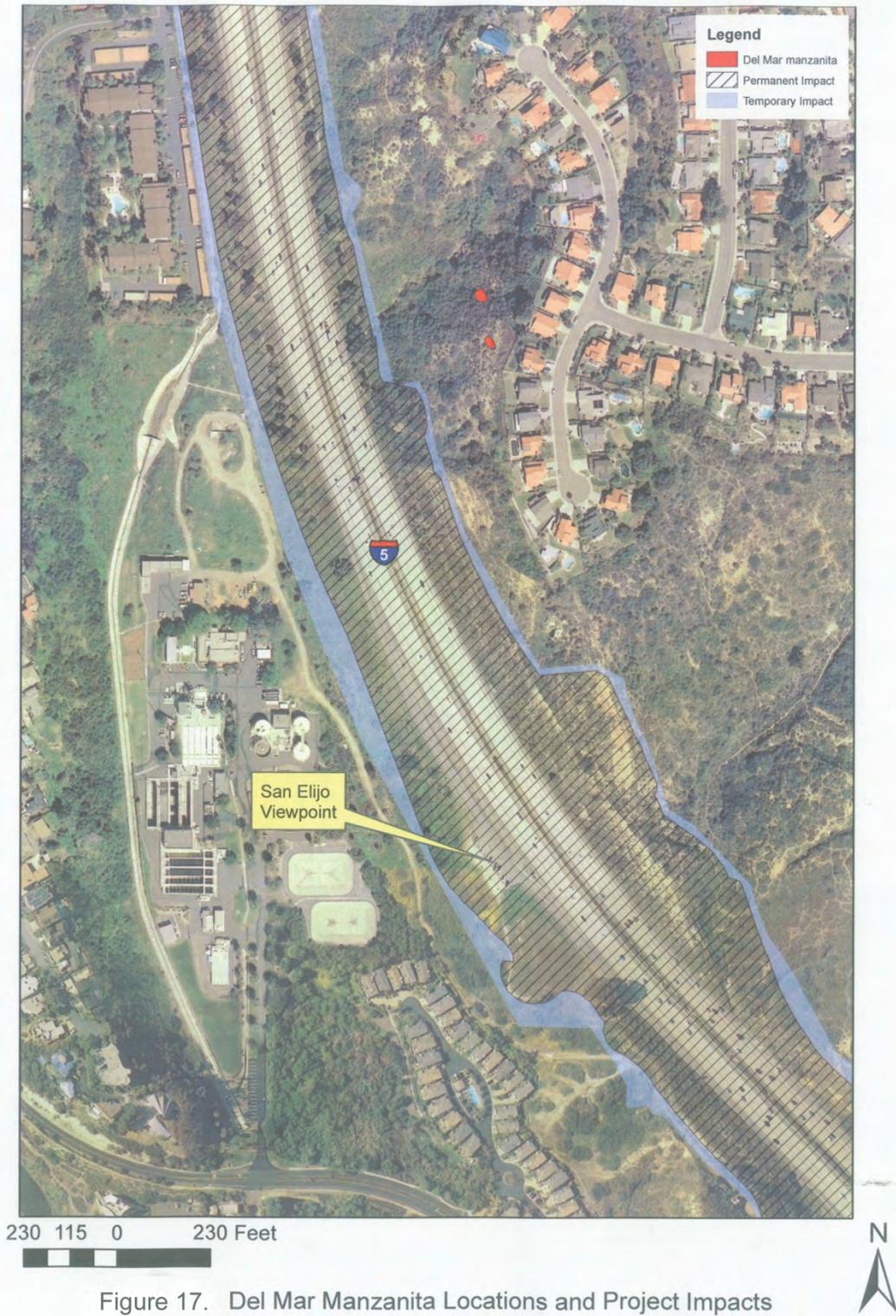


Figure 17. Del Mar Manzanita Locations and Project Impacts

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)



Figure 18. California Gnatcatcher Critical Habitat and Proposed Impacts at San Eljio Lagoon

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)



Figure 19. California Gnatcatcher Critical Habitat and Proposed Impacts near Batiquitos Lagoon

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)

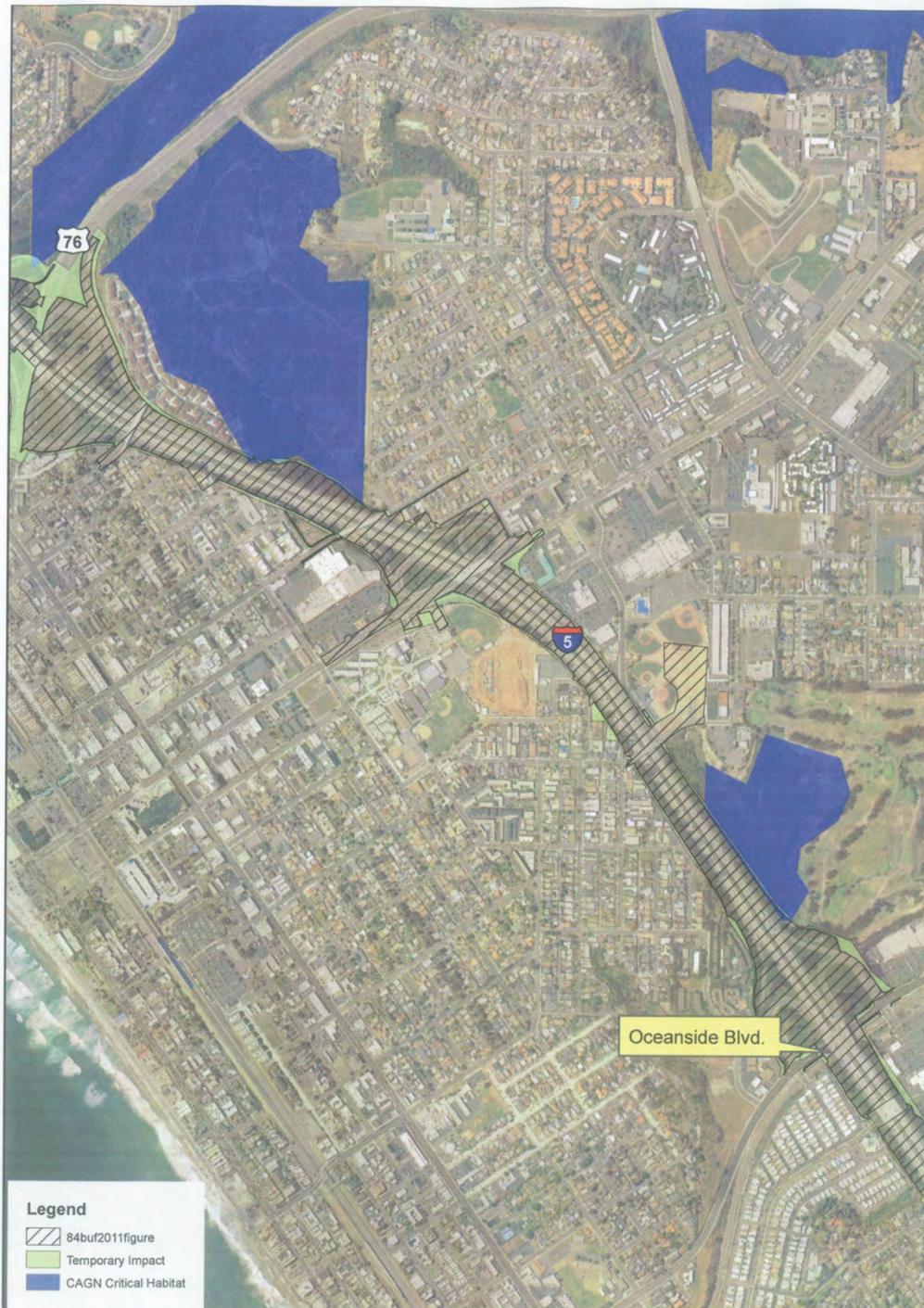


Figure 20. **California Gnatcatcher Critical Habitat and Proposed Impacts between Oceanside Blvd. and SR 76**

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)



Figure 21. California Gnatcatcher, Least Bell's Vireo, Southwestern Willow Flycatcher, and Tidewater Goby Critical Habitat and Proposed Impacts Near the San Luis Rey River

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)

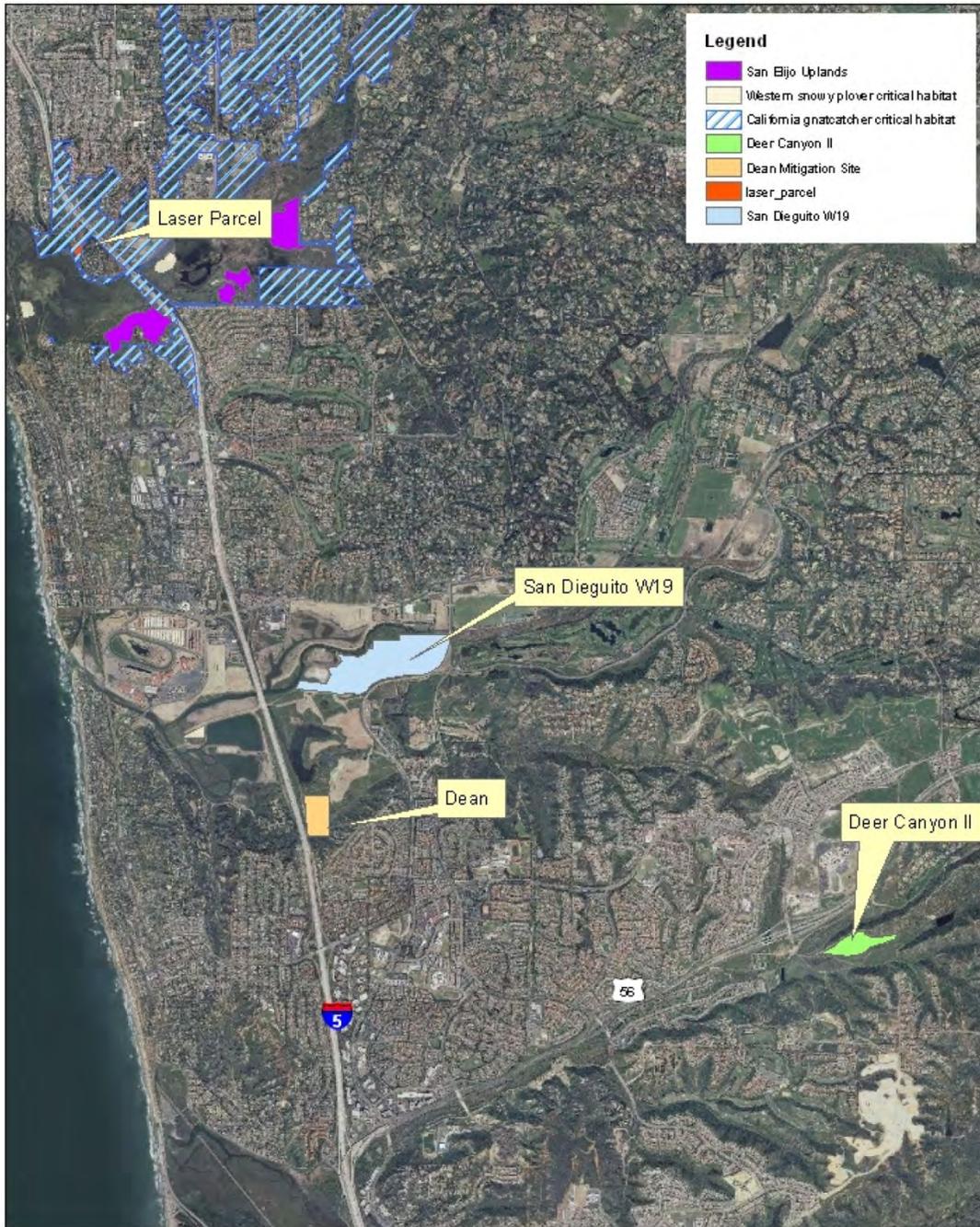


Figure 22. Mitigation Parcels within the Los Penasquitos, San Dieguito, and San Elijo Watersheds



(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)



Figure 23. Mitigation Parcels within the Batiquitos and Agua Hedionda Watersheds with Critical Habitat

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)

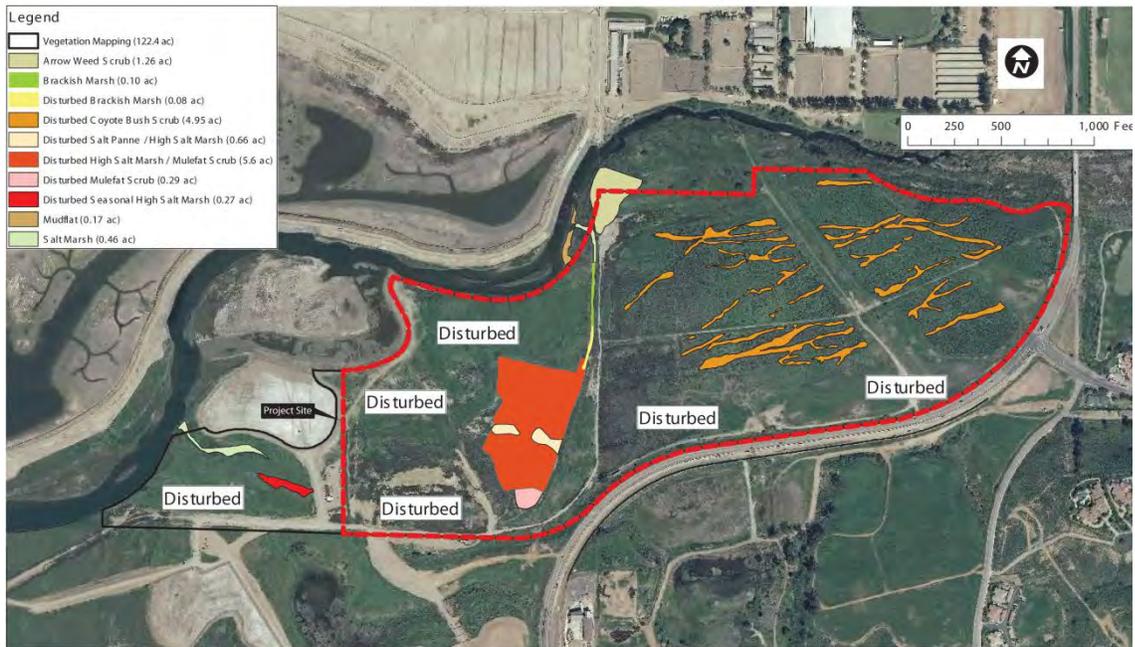


Figure 24. Existing Vegetation. (Source: Dudek. 2012. Final North Coast Corridor PWP/TREP Resource Enhancement Program Revised October 2012. 34+pp.)



★ California gnatcatcher

Figure 25. Biological Resources on Hallmark West



(Source: Dudek. 2012. Final North Coast Corridor PWP/TREP Resource Enhancement Program Revised October 2012. 34+pp.)

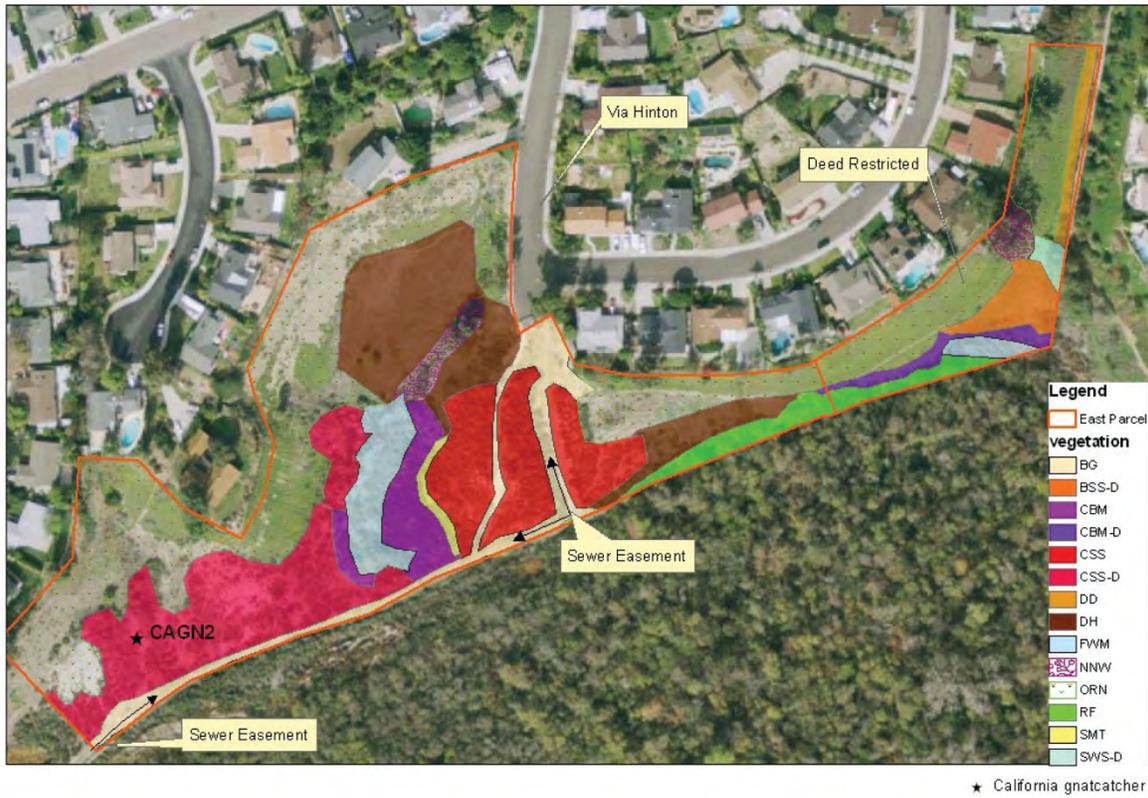


Figure 26. Biological Resources on Hallmark East

(Source: Dudek. 2012. Final North Coast Corridor PWP/TREP Resource Enhancement Program Revised October 2012. 34+pp.)



Legend

★ CAGN

Vegetation

□ Bare Ground

□ Disturbed Baccharis Scrub

▨ Coastal Sage/Southern Maritime Chaparral

□ Disturbed Habitat

FIGURE 28N
VEGETATION AND CALIFORNIA GNATCATCHERS ONSITE



(Source: Dudek. 2012. Final North Coast Corridor PWP/TREP Resource Enhancement Program Revised October 2012. 34+pp.)

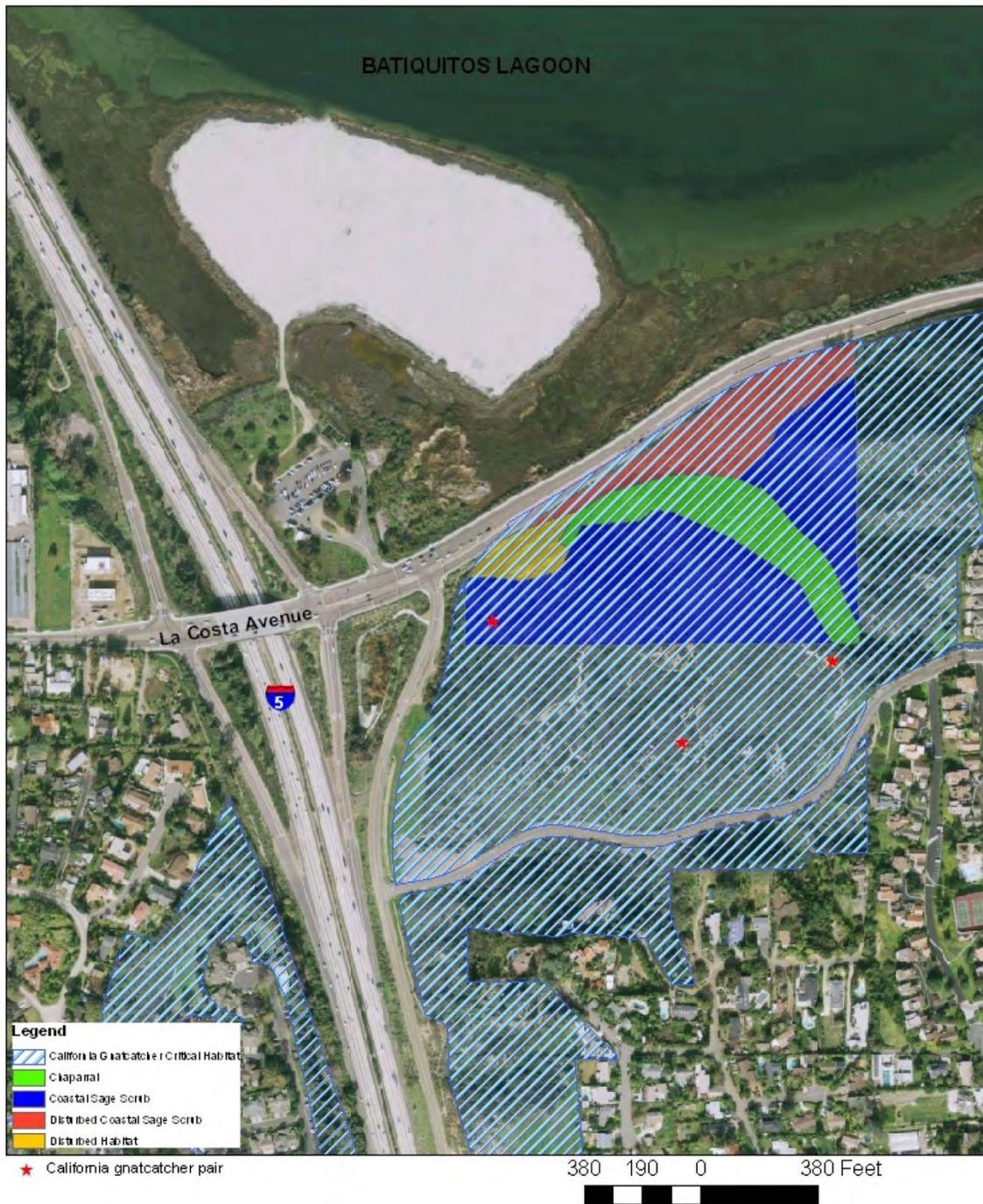


Figure 30. La Costa (Ayub) Mitigation Site with Existing Resources and California Gnatcatcher Critical Habitat

(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)



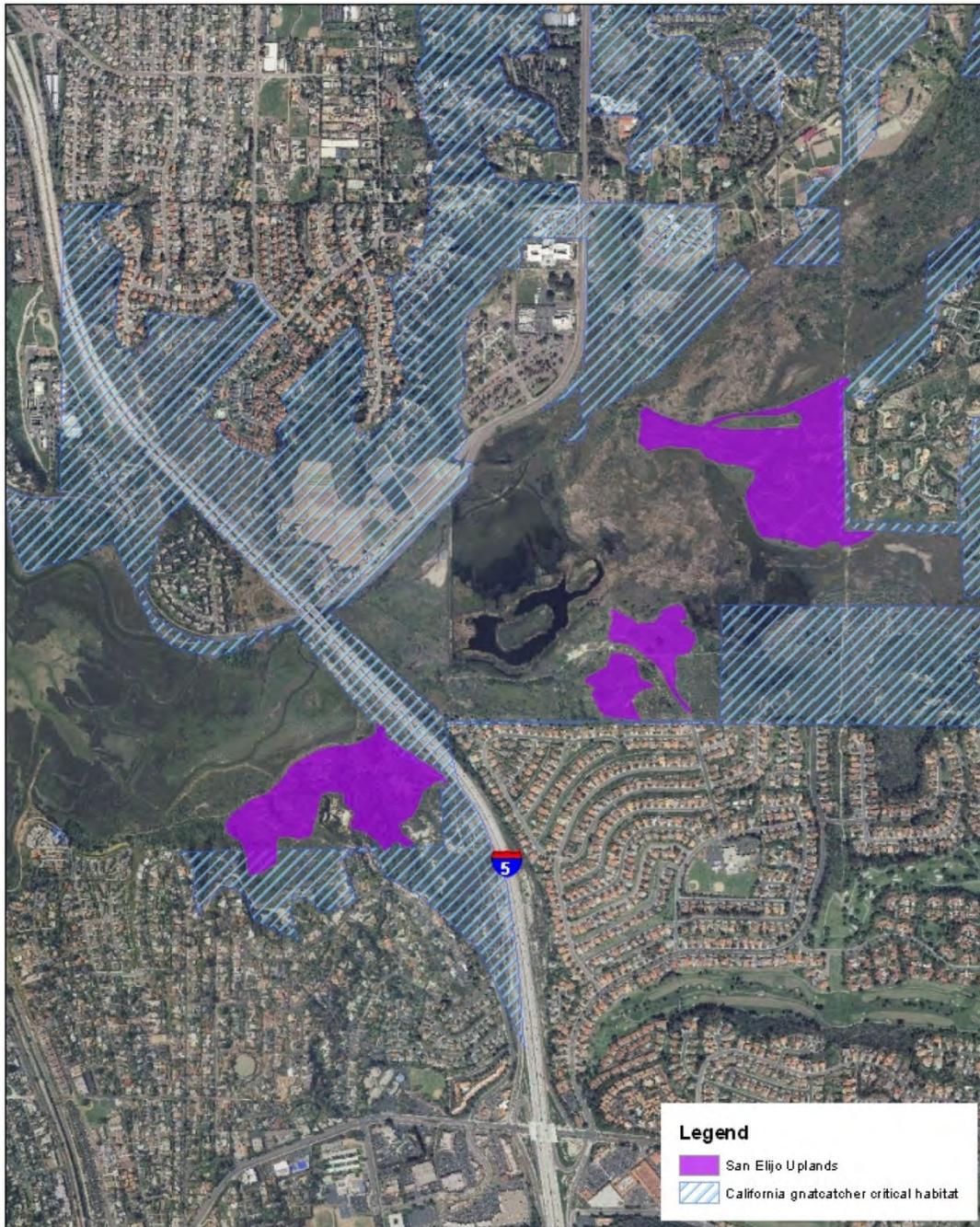


Figure 31. San Elijo Upland Parcels with Critical Habitat for California Gnatcatcher Critical Habitat



(Source: Caltrans. 2012a. I-5 North Coast Corridor Project Biological Assessment. 60+ pp.)