

2.21 Cumulative Impacts

2.21.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

CEQA Guidelines, Section 15130, describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts, under NEPA, can be found in 40 CFR, Section 1508.7 of the CEQ Regulations.

2.21.2 Methodology

Cumulative impacts were identified by comparing the impacts of the proposed project and other past, current, or proposed actions in the area to establish whether, in the aggregate, they could result in cumulative environmental impacts. Both direct and indirect impacts are assessed. The cumulative effects analysis focuses on those issues and resources that would be affected by the aggregation of stress factors on the environment and does not address in detail those topics that would not have additional environmental effects from the cumulative condition. The analysis provided in this section considered the effects of the other projects and the Build Alternative in assessing whether a particular environmental parameter would experience cumulative adverse impacts. Specific geographic boundaries for

cumulative effects are determined for each environmental topic analyzed and may vary accordingly.

Future actions anticipated to occur include further growth within the Cities of San Clemente, Dana Point, and San Juan Capistrano, as well as the County of Orange. The growth would require continued expansion of supporting infrastructure such as roadways, commercial uses, public services, and utilities. The anticipated growth is reflected in the regionally adopted growth projections and is planned for in the three City General Plans and the County General Plan.

The following eight steps serve as guidelines for identifying and assessing cumulative impacts and are based on the *Caltrans Standard Environmental Reference – Cumulative Impacts* (Department, April 2008).¹

- Identify the resources to consider in the cumulative impact analysis by gathering input from knowledgeable individuals and reliable information sources. This process is initiated during project scoping and continues throughout the CEQA analysis.
- Define the geographic boundary or Resource Study Area (RSA) for each resource to be addressed in the cumulative impact analysis.
- Describe the current health and historical context of each resource.
- Identify the direct and indirect impacts of the proposed project that might contribute to a cumulative impact on the identified resources.
- Identify a set of other current and reasonably foreseeable future actions or projects and their associated environmental impacts to include in the cumulative impact analysis.
- Assess cumulative impacts.
- Report the results of the cumulative impact analysis.
- Assess the need for mitigation and/or recommendations for actions by other agencies to address a cumulative impact.

2.21.3 Affected Environment

For the consideration of impacts, the City of San Clemente General Plan (May 1993 – updated through May 2003), City of Dana Point General Plan (July 1991), and the City of San Juan Capistrano General Plan (November 2001) were used for land development analysis, and the Orange County Transit Authority (OCTA) Long Range

¹ <http://www.dot.ca.gov/ser/forms.htm>; accessed in June, 2008.

Regional Transportation Plan (LRTP), the RTP, and TCA's Final Subsequent Environmental Impact Report for the South Orange County Transportation Infrastructure Improvement Project were used for transportation analysis.

Construction and operation of Build Alternative 4 would result in direct and indirect impacts that could contribute to cumulative effects to the built and natural environment when combined with other related past, present, and reasonably foreseeable future actions.

Not all projects would contribute to cumulative impacts for each topical area. For example, not all projects would have impacts on biological resources. Not all impacts associated with each cumulative project would contribute to a cumulative impact. Some of the impacts are very site-specific and would not compound the impacts associated with the proposed project. In other cases, short-term impacts would not contribute to cumulative impacts because construction of the cumulative project and the road widening would not occur in the same time period or be proximate to each other.

It is important to note that a quantification of cumulative impacts is not feasible for some impact topics and would be speculative. In some cases, no environmental document has been prepared, and impacts are unknown. In other instances, the impacts have not been quantified. Therefore, much of the cumulative evaluation is a qualitative judgment regarding the combined effects of the relationship among the projects included in the RSA for each resource. In some cases, application of the identified project mitigation program may reduce the cumulative impacts as well as the project impact.

The cumulative analysis is limited to the resources that require avoidance, minimization, and/or mitigation measures to analyze whether the impact contribution to the resources, when considered with the proposed project and other cumulative projects, could be cumulatively considerable. In addition, temporary construction impacts of the proposed project are not considered contributory to cumulative impacts, given the limited duration, localization, and small scale of these impacts as well as the avoidance and minimization measures applied to them. Therefore, the cumulative analysis only considers potential cumulative long-term impacts of the proposed project and the other cumulative projects.

2.21.3.1 City of San Clemente General Plan

The City of San Clemente General Plan Land Use Element designates the general land uses in the City of San Clemente limits. The City's total planning area encompasses approximately 18 square miles. General Plan land uses in the study area within the City of San Clemente include mixed use, open space, commercial, low-density residential, and medium-density residential.

2.21.3.2 City of Dana Point General Plan

The Dana Point General Plan encompasses a comprehensive strategy for managing the community's future. The total planning area of the City is approximately 6.5 square miles. The land uses in the study area within the City of Dana Point, as designated by the City of Dana Point General Plan, include low-density residential, medium-family residential, public facilities, and open space. However, the majority of the City of Dana Point is made up of residential land uses.

2.21.3.3 City of San Juan Capistrano General Plan

The Land Use Element of the San Juan Capistrano General Plan identifies the proposed general distribution, location, and extent of land uses within the City of San Juan Capistrano's planning area. The Land Use Element represents the City of San Juan Capistrano's desire for long-range changes and enhancements of land use and creates a future in which the traditional character of the City is preserved and enhanced by new development. General Plan land uses in the study area within the City of San Juan Capistrano include industrial, high-density residential, open space, and commercial.

2.21.3.4 Orange County Transportation Authority Long-Range Regional Transportation Plan

The 2006 OCTA LRTP provides the planning foundation for transportation improvements over the next 25 years within the County of Orange. The purpose of the LRTP is to maintain and improve service levels along the existing transportation network as the population continues to increase within the County. The OCTA LRTP includes the proposed elements to provide additional capacity on I-5 between PCH and Avenida Pico. OCTA also has completed SOCMIS, which addresses future transportation challenges in the next 25 years within the region. The SOCMIS project limits begin at the I-5/State Route 55 (SR-55) interchange in the City of Tustin at the northern limit and extend to the Orange/San Diego County line at the southern limit. The Locally Preferred Strategy for SOCMIS includes the addition of an HOV lane in each direction from the San Diego County Line to the current terminus of the HOV

lanes north of the PCH interchange. Additional transportation improvements were considered as part of the SOCMIS; these were adopted by the OCTA Board of Directors in October 2008.

2.21.3.5 Southern California Association of Governments Regional Transportation Plan

The proposed I-5 HOV Lane Extension Project is included in the SCAG 2008 RTP and List of Constrained Projects. The RTP is a long-range vision of the regional transportation system for the six counties in the Southern California region. The Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura are included in the RTP. The RTP currently includes a planned HOV lane in each direction between Avenida Pico and Pacific Coast Highway. The RTP does not currently include HOV lanes between Avenida Pico and the Orange/San Diego County line.

2.21.4 Cumulative Land Development Projects

The proposed project traverses through the Cities of San Clemente, Dana Point, and San Juan Capistrano. The identification of cumulative impacts was based upon a search of projects within and/or immediately adjacent to the proposed project along the I-5 corridor, which includes portions of the cities and unincorporated areas that adjoin this area. This geographic area is considered appropriate because it would capture the key land development projects that have the potential for causing related impacts on resources affected by the proposed project. The purpose of the proposed project is to improve existing and future traffic operations on I-5 from San Juan Creek Road to Avenida Pico while minimizing environmental and economic impacts. A listing of past, present, and reasonably foreseeable future development and transportation projects are provided in Table 2.21-1 and are depicted in Figure 2.21-1.

Those resources for which cumulative impacts are not anticipated or for which the impacts were already analyzed in a cumulative context are briefly discussed below.

- **Land Use:** It is anticipated that future development would be implemented in a manner consistent with adopted land use, transportation, and resource plans. The evaluation of plan consistency is considered a project-related evaluation and is discussed in Section 2.1 of this IS/EA, Land Use. The state, regional, and local plans reviewed for this evaluation provide a broader planning context for the proposed project. The proposed project would not result in cumulative land use impacts.

Table 2.21-1 Cumulative Local Transportation and Development Projects

Map ID No. (Figure 2.21-1)	Project Title	Project Description	Lead Agency	Project Status
Transportation Projects				
1	Camino Estrella Southbound Off-Ramp Project	This project proposes to widen the I-5/Camino Estrella southbound off-ramp from one to two lanes and widen the overcrossing from five to seven lanes with one westbound left-turn lane and one eastbound lane in the City of San Clemente.	Department	Construction of the project is expected to begin in 2011.
2	I-5/Ortega Highway (SR-74) Interchange Project	This project proposes to reconstruct the I-5/SR-74 (Ortega Highway) interchange. Alternative improvements include reconfiguring Del Obispo Street intersection into a diamond, a single cloverleaf, or a double cloverleaf interchange in the City of San Juan Capistrano.	Department/ San Juan Capistrano	The project is under environmental review.
3	I-5/Camino Capistrano Improvement Project	This project proposes to install an auxiliary lane and to widen the I-5/Camino Capistrano southbound off-ramp to three lanes in the City of San Juan Capistrano. Camino Capistrano will also be widened near the ramp intersection.	Department	The final design is to be determined; the PA/ED phase has been approved for the project.
4	Soundwall construction along northbound I-5 between Avenida Vaquero and the San Clemente Hospital	This project includes the construction of two soundwalls (1,805 linear feet [LF]) along northbound I-5 from Avenida Vaquero to the San Clemente Hospital in the City of San Clemente.	Department	Construction of the project is to begin in 2010.
5	Soundwall construction along southbound I-5 between El Camino Real and Avenida Ramona	This project includes the construction of two soundwalls (approximately 660 ft [201 m] long) proposed along southbound I-5 from El Camino Real to Avenida Ramona in the City of San Clemente.	Department	The final design is completed; construction is anticipated to begin in 2010.
6	SR-73 Toll Road Lane Addition	This project proposes to construct an additional fourth mixed-flow lane to the Toll Road and add climbing and auxiliary lanes as required by 2015.	TCA/ Department	This is a future project.
7	Lower SR-74 Widening Project	This project proposes to widen SR-74 from two to four lanes from Calle Entradero to the City/Orange County line.	Department	EIR was certified November 2009.
8	SR-74/Antonio Parkway/La Pata Avenue Intersection	This is a SCRIP Phase I project. This project proposes to construct intersection improvements to the SR-74/ Antonio Parkway/La Pata Avenue intersection.	County of Orange	The project was completed in 2007.

Table 2.21-1 Cumulative Local Transportation and Development Projects

Map ID No. (Figure 2.21-1)	Project Title	Project Description	Lead Agency	Project Status
9	SR-74 SCRIP Phase III	This is a SCRIP Phase III project. This project proposes to widen SR-74 from the City of San Juan Capistrano/Orange County limit to approximately 2,000 ft east of Antonio Parkway. SR-74 would be widened to four lanes. Antonio Parkway would be widened to six lanes, and La Pata Avenue would be widened to four lanes. The Antonio Parkway Bridge over San Juan Creek would be widened with one lane in each direction. A truck-climbing lane would be constructed on the southbound side of La Pata Avenue. Drainage and underground utility facilities would be installed, and water quality improvements would be added.	County of Orange	Construction has begun on the project and is expected to be completed in December 2010.
10	La Pata Avenue Gap Closure and Camino Del Rio Extension Project	This project proposes to construct a gap closure on La Pata Avenue between Ortega Highway (SR-74) and Avenida Vista Hermosa. The project also includes the extension of Camino Del Rio to La Pata Avenue (Avenida La Pata).	County of Orange	The project is in the environmental analyses phase. Construction is expected to begin in June 2012 and be completed in January 2015.
11	Foothill Transportation Corridor – South	FTC-S is a proposed limited access highway that would extend the existing SR-241, south from its existing southern terminus at Oso Parkway to I-5 in the vicinity of the Orange/San Diego County line. This extension would be operated as a toll road, as are the existing portions of SR-241.	TCA	The EIR for the project was certified in February 2006. The TCA was unable to obtain a determination that the project is consistent with the Coastal Zone Management Act, and is currently pursuing a stakeholder outreach program.

Table 2.21-1 Cumulative Local Transportation and Development Projects

Map ID No. (Figure 2.21-1)	Project Title	Project Description	Lead Agency	Project Status
City of San Clemente- Local Development Projects				
12	Target Retail Store	This project proposes to construct a Target retail store of approximately 142,206 sf commercial space. The project is located at the northwest corner of Avenida Vista Hermosa and Avenida La Pata.	San Clemente	The project is under review.
13	San Clemente Senior Apartment Development	This project proposes to construct a 76-unit senior apartment housing building. The project is located at 2350 South El Camino Real.	Meta Housing	The project has been approved. The project is in the funding phase.
14	Marblehead Coastal Development	This project proposes to develop a 250 ac site. The site has been recently purchased by SunCal. The development would include 313 residential units, retail, restaurants, conference, hotel, and theater buildings. The site is located west to I-5 between Marblehead Inland Shorecliffs and Colony Cove developments.	SunCal Company	The project has been approved but is on hold.
City of Dana Point-Local Development Projects				
15	PCH and Del Prado Improvement, Phase I (CIP No. 1223)	This project proposes to construct a Town Center along PCH and Del Prado. The 1 mi long plan area is designed to be a pedestrian friendly, mixed-use development of commercial retail, restaurants, office, and residential uses.	Dana Point	Development of the project is on hold.
16	The Strand at Headlands Project	This project proposes to develop 118 single-family residential units and 68 ac of park area. The project includes a 90-room hotel and spa and a 35,000 sf commercial center. The project is located at 33971 Selva Road.	Headlands Reserve, LLC	The project is under construction.
17	Dana Point Harbor Revitalization Project	This project proposes to reconstruct the current facilities for complying with new building codes and ADA requirements and improve the standards and materials at the harbor. The project has been planned in two phases, landside and waterside phases. The project received approval from the California Coastal Commission in October 2009. Construction of Phase I, a commercial core with retail shops, restaurants, boating launch ramps, increased public parking areas, and the Festival Plaza will be initiated.	Dana Point	The project is under construction.

Table 2.21-1 Cumulative Local Transportation and Development Projects

Map ID No. (Figure 2.21-1)	Project Title	Project Description	Lead Agency	Project Status
City of San Juan Capistrano- Local Development Projects				
18	Pacifica San Juan (SunCal Development)	This project proposes to construct 416 single-family homes and a 600-student school. The project is located in the McCracken Hill area and extends south to Camino Las Ramblas.	San Juan Capistrano	The project is under construction.
19	San Juan Meadows (amended project)	This project proposes to construct 105 single-family detached residential units and incorporate a 950-horse stall equestrian center. The planned open space land uses have increased from 30 to 90 ac. The project is located on La Novia Avenue south of San Juan Creek Road.	Advanced Real Estate Services	The project has been approved and is under review.
20	Whispering Hills Estates Planned Community	This project proposes to construct 160 single-family residential homes and 15 estate homes in West Canyon area. The project is located west of La Pata Avenue and south of Vista Montana.	San Juan Capistrano	The project has been approved, but construction is on hold.
21	Honeyman Ranch (Rancho Madrina)	This project proposes to construct 119 single-family detached homes in a residential estate home community.	San Juan Capistrano	The project is under construction.
22	Shell M & M Petroleum	This project proposes to construct a gas service station with nine pumps, with approximately 5,940 gross sf for a convenience store and an auto car wash. The project is located at the north side of Ortega Highway between I-5 and Avenida Los Cerritos.	San Juan Capistrano	The project has been completed.
23	Rancho Mission Viejo Plan	This project proposes to develop a 22,815 ac property located east of the Cities of Mission Viejo and San Juan Capistrano in unincorporated Orange County. The project (The Ranch Plan) would construct 14,000 dwelling units and 5.2 million sf of retail and business uses on 5,842 gross ac. The plan also includes a golf course on 25 gross ac and 16,942 ac of open space. The widening of SR-74 from two to four lanes is planned within Planning Area 1.	County of Orange	The project was approved in 2004. Per the development plan the project will be phased over 20 to 25 years.
24	Ventanas Business Center	This project proposes to construct 236,329 sf of commercial and light industrial office space. The project is located on the west side of Rancho Viejo Road and north of Ortega Highway.	San Juan Capistrano	The project has been approved.

Table 2.21-1 Cumulative Local Transportation and Development Projects

Map ID No. (Figure 2.21-1)	Project Title	Project Description	Lead Agency	Project Status
25	Distrito La Novia (an amended subdivision of the San Juan Meadows Project)	This project proposes to construct 90 residential condominiums and 50 rental apartment units. The project also includes 68,200 gross sf of commercial and retail uses and 27,500 gross sf of office uses on an 18.8 ac site. The project is located on La Novia Avenue, across the street from the San Juan Meadows Project, south of San Juan Creek Road.	Advanced Real Estate Services	The project is under review.
26	Lower Rosan Ranch	This project proposes to construct 108 affordable multifamily dwelling units, 128 recreational vehicle storage spaces, and 30,000 sf of commercial and retail uses. The project is located north of Stonehill Drive and west of Camino Capistrano.	San Juan Capistrano	The project is under review.

Sources: Information from the Cities of Dana Point, San Clemente and San Juan Capistrano websites, accessed March 2010. City of Dana Point website: www.danapoint.org/index.aspx?page=281

ac = acre/acres

ADA = Americans with Disabilities Act

CIP = Capital Improvement Plan

Department = California Department of Transportation

EIR = Environmental Impact Report

I-5 = Interstate 5

m = meter/meters

mi = mile/miles

OCTA = Orange County Transit Authority

PA/ED = Project Approval/Environmental Document

PCH = Pacific Coast Highway

SCRIP = South County Road Improvement Program

sf = square foot/square feet

TCA = Transportation Corridor Agencies

SR-73 = State Route 73

SR-74 = State Route 74

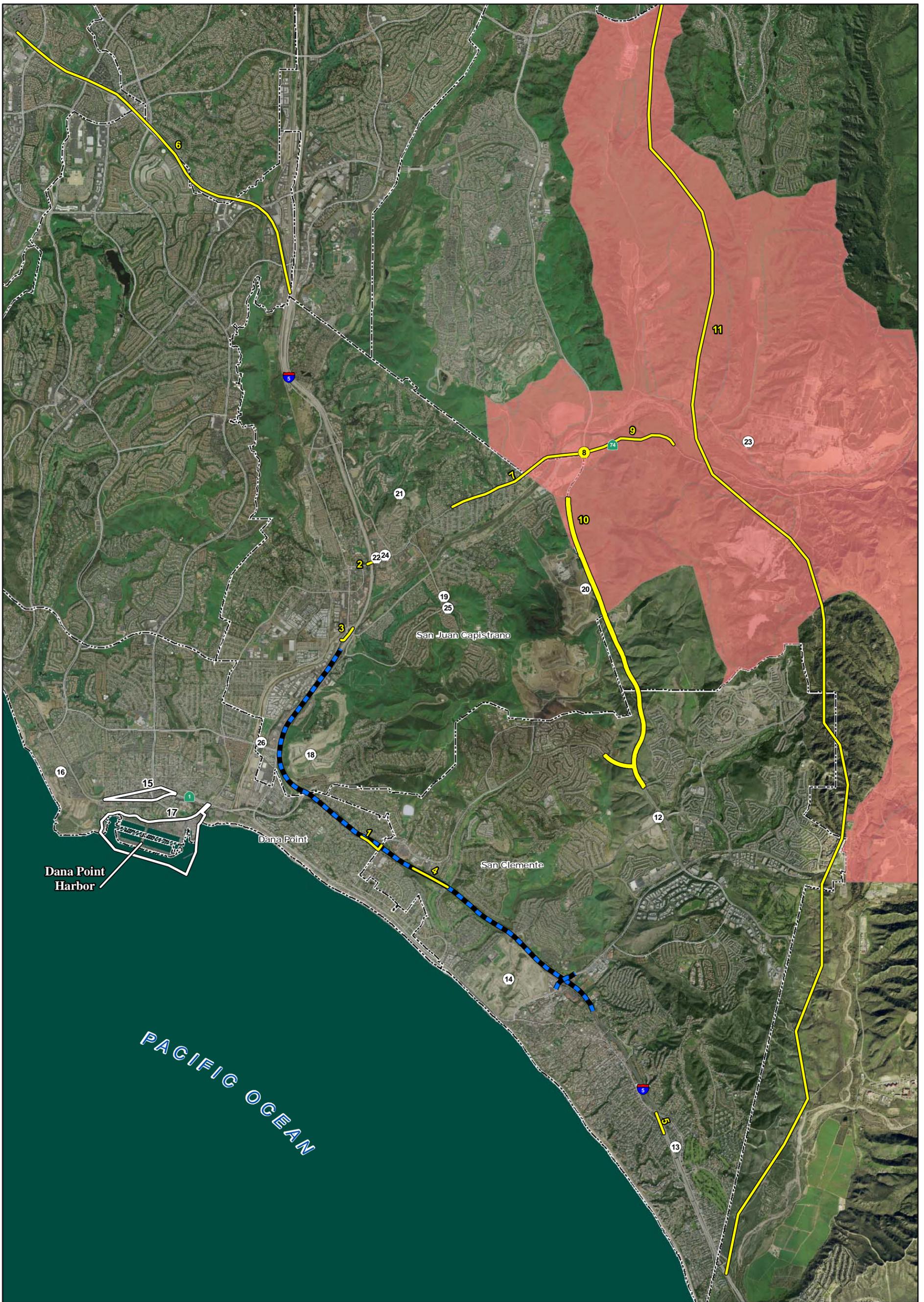
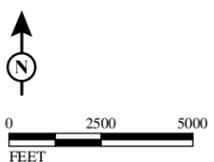


FIGURE 2.21-1

LEGEND

-  Project Segment of I-5
-  RMV Planning Areas - Development Project #22
-  Development Projects
-  Transportation Projects



SOURCE: RMC (2009); TBM (2007)

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I-5 HOV Lane Extension Project
Cumulative Projects

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- **Growth:** Growth in the three cities is forecasted based on land use plans, economic conditions, and other factors. As discussed under Section 2.2 of this IS/EA, Growth, existing congestion would remain within the study area and would continue in the future without implementation of the proposed project. The proposed project would reduce existing and forecast traffic congestion and maximize overall performance along I-5 within the project limits while accommodating planned traffic growth. The proposed project would not foster growth in excess of what is projected due to the lack of vacant land in the study area. Therefore, the proposed project is not considered growth-inducing and would not result in cumulative growth impacts.
- **Community:** The communities within and adjacent to the proposed project limits are well established and, with the exception of approved projects such as the senior apartment housing development in the City of San Juan Capistrano, the Marblehead Coastal Development in the City of San Clemente, The Strand at Headlands Project in the City of Dana Point, and the Rancho Mission Viejo Plan in the Cities of Mission Viejo and San Juan Capistrano and in unincorporated Orange County, there is no available vacant land for large-scale development. The proposed project would not adversely impact community cohesion because the roadway already exists and the nearby residential uses are mixed with businesses and other land use types. No residential acquisitions would occur under the proposed project's Build Alternative [4](#). Design Option A under Build Alternative [4 with Design Option B](#) would result in five partial acquisitions [and](#) four full acquisitions, resulting in the relocation of four businesses. As discussed previously in Section 2.3 of this [MND/FONSI](#), Community Impacts, based on the current availability of 31 retail spaces/properties for lease or sale within the City of San Clemente and the current industrial/commercial vacancy rate in the County, relocation opportunities are considered to be adequate, and it is anticipated that ample replacement properties will be available within the City of San Clemente to allow displaced businesses to remain in the community. Therefore, with the implementation of Minimization Measures CI-1 and CI-2, property acquisition and relocations required as part of the proposed project would not result in indirect fiscal impacts, as the businesses acquired would remain in the local tax base. The proposed project would also improve traffic operations in the area, which would indirectly support local businesses. Temporary impacts to community cohesion as a result of the proposed project include construction impacts involving detours, noise, and air quality. However, these temporary construction impacts would be minimized with the

implementation of a TMP. Therefore, project-related community impacts are not considered cumulatively considerable.

- **Utilities/Emergency Services:** As discussed in Section 2.4 of this IS/EA, Utilities/Emergency Services, the proposed project would not result in adverse effects to utilities and emergency services, except for short-term effects during construction. The effects of other transportation and public infrastructure projects on utilities and emergency services would be assessed as part of the environmental review of those projects. However, given that these projects generally improve the circulation in their respective project areas, emergency services would benefit from improved access and circulation. Therefore, the proposed project and the other development, transportation, and public infrastructure projects would not contribute to a cumulative impact on utilities or emergency services.
- **Traffic and Circulation:** As discussed in Section 2.5 of this IS/EA, Traffic and Transportation/Pedestrian and Bicycle Facilities, the proposed project would not result in adverse effects to traffic circulation in the study area, except for short-term effects during construction. The proposed project would have a beneficial effect by improving regional and local mobility. The analysis of future traffic conditions is a cumulative analysis because it considers traffic generated by future planned land uses and the effect of future planned transportation improvements. Therefore, the traffic congestion in the study area would improve, and the proposed project would not contribute to a cumulative impact on traffic and circulation.
- **Visual/Aesthetics:** As discussed under Section 2.6 of this IS/EA, Visual/Aesthetics, no impacts to the existing viewshed would occur in Key Views 4 through 6 under the proposed project. Although moderate impacts to the existing viewshed would occur as a result of the addition of new hardscape features in Key Views 1 through 3, with the implementation of Minimization Measures VIS-1 and VIS-2, no permanent adverse impacts to visual/aesthetic resources would occur as a result of the proposed project. Therefore, the proposed project's contribution to visual/aesthetic impacts is not cumulatively considerable.
- **Cultural Resources:** As discussed in Section 2.7 of this IS/EA, Cultural Resources, the proposed project is extensively disturbed by development, and the likelihood of encountering intact archaeological resources during the construction of the proposed project is low. The areas that are minimally disturbed are located on marine terrace landforms, where archaeological remains should be at or near the ground surface, which does not appear to be sensitive in terms of

archaeological resources. In the unlikely event that cultural resources are discovered during construction activities, implementation of Minimization Measures CR-1 and CR-2 would ensure that no permanent adverse impacts to cultural resources would occur. Therefore, with the implementation of Measures CR-1 and CR-2, the proposed project would not result in cumulative cultural resource impacts.

- **Hydrology and Floodplains:** As discussed in Section 2.8 of this IS/EA, Hydrology and Floodplain, Build Alternative 4 with Design Option A would not result in any significant adverse impacts to the natural and beneficial floodplain values, would not result in a significant change in flood risks or damage, and does not have significant potential for interruption or termination of emergency services or emergency routes and is not considered a significant encroachment. Therefore, Build Alternative 4 with Design Option A would not contribute to a cumulative impact to hydrology or floodplains.
- **Water Quality and Storm Water Runoff:** As discussed in Section 2.9 of this IS/EA, Water Quality, pollutants of concern typically generated during the operation of a transportation facility include sediment/turbidity, nutrients, organic compounds, trash and debris, oxygen-demanding substances, bacteria and viruses, oil and grease, pesticides, and metals. The proposed project consists of lane additions, which will result in a permanent increase in impervious surfaces and a permanent increase in runoff and pollutant loading. However, this increase in impervious area would be relatively small (much less than one percent) compared to the urbanized area within the entire San Juan Creek and San Clemente Coastal Streams watersheds. Therefore, channel erosion and hydromodification is not anticipated. Storm water runoff from I-5, within the project limits, is currently untreated and discharges into drainage inlets that flow to the Pacific Ocean via engineered channels. Treatment control BMPs (in accordance with Department guidelines) will be implemented where feasible to the MEP to target the constituents of concern in the storm water runoff from the proposed project. Through complying with the Department's Statewide NPDES Permit and the Statewide SWMP (Measure WQ-1) and implementing Measures WQ-4 and WQ-5 to the MEP, the design and operation of the proposed project will result in no adverse impacts to water quality. It is anticipated that each of the cumulative projects would be required to incorporate structural and maintenance BMPs that would reduce their cumulative operational impact to water quality. Therefore, the proposed project would not contribute to cumulative impacts to water quality and storm water runoff.

- **Geology/Soils/Seismicity/Topography:** As discussed in Section 2.10 of this IS/EA, Geology/Soils/Seismicity/Topography, the proposed project is expected to have minimal impact on geologic and topographic conditions with incorporation of the final design recommendations of the Final GDR. The primary geologic and geotechnical constraints affecting the design and construction of the Build Alternative include seismic hazards, landslides and slope instability, liquefaction, and corrosion; any adverse effects of the proposed project to these geologic and geotechnical constraints are minimized, localized, and limited to the grading limits of the project. While other projects would impact the geology within the project limits, the impacts would be minimized through Measure GEO-1. Therefore, the proposed project would not impact regional geology, and the proposed project does not contribute to cumulative impacts to geology, soil, seismicity, or topography.
- **Hazardous Waste and Materials:** As discussed in Section 2.12 of this IS/EA, Hazardous Waste/Materials, with the implementation of Minimization and/or Avoidance Measures HAZ-1 through HAZ-6, the proposed project would not result in a substantial permanent adverse impacts related to hazardous waste and materials. Future land use and transportation projects would comply with applicable City and County Hazardous Waste Management Plans, ordinances, and state regulations related to hazardous materials, which would ensure that there would be no adverse hazardous material impacts resulting from future development in the cities and the County. Therefore, the proposed project would not contribute to cumulative hazardous waste and materials impacts.
- **Air Quality and Climate Change:** The air quality analysis provided in Section 2.13 of this IS/EA, Air Quality, is a cumulative analysis because it considers the emissions of traffic generated by future planned land uses and the effects of other future planned transportation improvements. The proposed project is not considered a POAQC as confirmed by the TCWG on February 23, 2010. Additionally, this analysis determined that the proposed project would not contribute to an adverse cumulative impact to air quality or global climate change in the study area.
- **Noise:** As discussed in Section 2.14 of this IS/EA, Noise, the proposed project would not generate long-term noise impacts and therefore would not substantially contribute to cumulative noise. Prior to completion of final design, the sound barriers that are determined to be reasonable and feasible shall be coordinated with the affected property owners.

- **Paleontological Resources:** As discussed previously under Section 2.11 of this IS/EA, Paleontology, the study area contains the following geologic units that have the potential to contain significant nonrenewable paleontological resources: the Siltstone Member of the Capistrano Formation, large-scale Quaternary Landslide deposits, Quaternary Marine and Nonmarine Terraces, Quaternary Younger Alluvium, and Quaternary Wash deposits. There is a high or very high potential for paleontologically significant fossil remains to be recovered from areas with Marine Terrace deposits and/or the Capistrano Formation. Implementation of the proposed project has the potential to encounter paleontological resources during excavation activities due to the high sensitivity of the subsurface formations in the study area. However, Mitigation Measure PAL-1 will outline monitoring and proper handling of paleontological resources in the event that paleontological resources are encountered during construction activities. With implementation of this Mitigation Measure PAL-1, potential impacts to paleontological resources are not cumulatively considerable.
- **Biological Resources:** Removal of habitat and wetlands and impacts to sensitive animal species.

2.21.4.1 Natural Communities

A total of 0.50 ac of direct permanent impacts to CSS would occur under Alternative 2 (Design Options A and B). A total of 0.40 ac of direct permanent impacts to CSS would occur under Alternative 4 [with Design Option A \(Preferred Alternative\)](#). CSS in the BSA is not protected by any federal, State, or local regulations, with the exception of CAGN designated critical habitat and/or occupied areas. For areas that are not protected, no compensatory mitigation is required. However, Measure BIO-[3](#) will mitigate the temporary and permanent impacts to CSS that would occur as a result of the proposed project.

Under Alternative 4 [with Design Option A \(Preferred Alternative\)](#), there would be 0.07 ac of permanent direct impacts to riparian/riverine habitat through disturbance and/or removal of existing vegetation. Site Design, Source Control, and Treatment BMPs, as identified in Minimization and Avoidance Measures BIO-1 [and](#) BIO-[2](#), will be incorporated into the proposed project to help avoid, minimize, and mitigate potential indirect adverse impacts to riparian/riverine communities.

Implementation of Alternative 4 [with Design Option A \(Preferred Alternative\)](#) will not result in any impact to wildlife corridors because there are no wildlife corridors within the BSA.

Given that the proposed project's impacts would be addressed through Minimization/Avoidance Measures BIO-1 and BIO-2 and Mitigation Measure BIO-3, the project's contribution to natural community impacts would not be cumulatively considerable.

2.21.4.2 Wetlands and Other Waters

The proposed project is not expected to impact any jurisdictional or jurisdictional wetland waters. However, based on the site plans for the proposed project, 0.1 ac of nonwetland nonjurisdictional area will be impacted by the proposed project.

Build Alternative 4 with Design Option A is expected to permanently impact a total of 0.14 ac of jurisdictional and nonjurisdictional nonwetland waters.

The proposed project is required by law to comply with all environmental permit conditions, such as those that will likely be issued by the CDFG, RWQCB, and the ACOE. The permit conditions will likely require measures that would offset project impacts. Additional minimization measures (BIO-1 and BIO-2) are intended to be complementary to the anticipated environmental permit conditions and to provide minimum requirements to ensure adequate compensation in accordance with the requirements of CEQA. In addition to these minimization measures, Mitigation Measures BIO-3 and BIO-4 will compensate for potential project impacts.

With implementation of the avoidance, minimization, and/or mitigation measures discussed above, there would be no net loss to existing wetlands, and the proposed project's contribution to cumulative impacts to wetlands, when considered in light of the other cumulative projects, would not be considerable.

2.21.4.3 Plant Species

Botanical surveys to establish the presence/absence of these species in the BSA were conducted during the appropriate blooming period in 2010. The project is not expected to affect any of these species because they are considered absent from the BSA. Therefore, the proposed project's contribution to cumulative impacts to plant species, when considered with the other cumulative projects, would not be cumulatively considerable.

2.21.4.4 Animal Species

While much of the habitat on site for special-status CSS species and special status-species that occur in riparian and riverine habitats or in grassland and open habitats is disturbed, developed, or degraded by infestations of nonnative species, some suitable

habitat exists within the BSA. None of these species were observed in the BSA during the surveys conducted in 2009 and 2010. Although these special-status species were not observed during those surveys, the surveys were not focused on these species. In addition, it is possible for them to move onto the site prior to construction. While almost all of the habitat on site is disturbed, degraded by infestations of nonnative species, or developed, some good-quality CSS habitat exists in the BSA for these species.

Although no special-status bridge- and crevice-dwelling animal species (i.e., bats) were observed in the BSA during the survey conducted in 2009, the survey did not include sampling, exit counts, or acoustical monitoring to assist with identifying specific species of bats. In addition, there is a high probability that Yuma myotis will be present in the BSA during the summer months. Suitable roosting and foraging habitat exists in the BSA for all of the special-status bat species. Therefore, additional surveys will be conducted by a qualified bat biologist in the month of June prior to construction to assess the potential for the BSA's use for maternity roosting, since maternity roosts are generally formed in late spring. The surveys will include a combination of structure inspection, sampling, exit counts, and acoustic surveys.

There is one potential area north of Camino Capistrano that could potentially be occupied by San Diego fairy shrimp. While it is not vernal pool habitat, it retains water for a sufficient amount of time for fairy shrimp to utilize it. However, no construction from the proposed project is planned near this area. Therefore, no direct or indirect permanent impacts to San Diego fairy shrimp are expected to occur as a result of the I-5 HOV Lane Extension Project.

The proposed project is not expected to require any construction in or immediately adjacent to San Juan Creek. Therefore, the proposed project is not expected to have any direct permanent impacts to arroyo toad.

Raptors and other birds protected by the Migratory Bird Treaty Act may nest in existing trees and shrubs within and adjacent to the BSA. Direct permanent impacts such as the direct removal of nests may occur (e.g., during vegetation clearing). Indirect permanent impacts such as nest failure may also occur as a result of excessive disturbance of the nesting birds (e.g., from excessive noise and disruption from increased human activities).

The proposed project is expected to potentially result in indirect permanent impacts to special-status animal species through the removal of potential habitat. However,

because these species are expected to move out of the area during construction, no direct permanent impacts are expected. Therefore, project impacts for these special-status species are the same as those described under the cumulative Natural Communities discussion, above.

Given that the proposed project's impacts would be addressed through Minimization/Avoidance Measures BIO-1 and BIO-2 and BIO-6 through BIO-9 and Mitigation Measure BIO-3, the project's contribution to special-status animal impacts would not be cumulatively considerable.

2.21.4.5 Threatened and Endangered Species

There is one potential area north of Camino Capistrano that could potentially be occupied by San Diego fairy shrimp. However, no construction is planned near this area. Therefore, no direct or indirect permanent impacts to San Diego fairy shrimp are expected to occur as a result of the proposed project.

The proposed project is not expected to require any construction in or immediately adjacent to San Juan Creek. Therefore, the proposed project is not expected to have any direct permanent impacts to arroyo toad. With the incorporation of avoidance and minimization measures described for the riparian/riverine natural community, below, no direct permanent impacts to white-tailed kites would occur as a result of the proposed project.

No direct permanent impacts to CAGN, CAGN-designated critical habitat, or CAGN-occupied habitat are expected to occur as a result of project implementation, and no direct or indirect permanent impacts to LBV are expected to occur as a result of project implementation due to the low probability for LBV to occur in the BSA.

Because southern steelhead is considered absent from the BSA and there is no designated critical habitat for the species in or downstream of the BSA, the proposed project is not expected to impact southern steelhead.

Impacts to riparian/riverine habitat would occur under the proposed project. However, these impacts will be minimized and compensated with the implementation of Minimization Measures BIO-1 and BIO-2, and Mitigation Measures BIO-3 and BIO-4.

Given that the proposed project's impacts would be addressed through the minimization, avoidance, and mitigation measures listed above, the proposed

project's contribution to special-threatened or endangered species would not be cumulatively considerable.

2.21.4.6 Invasive Species

The proposed project provides the benefit of removal of existing invasive species within the study area to the extent practicable. However, implementation of the proposed project would have the potential to spread invasive species by the entering and exiting of construction equipment contaminated by invasives, the inclusion of invasive species in seed mixtures and mulch, and the improper removal and disposal of invasive species so that seed is spread along the highway. In addition, no invasive species would be planted in the BSA upon completion of project work, in accordance with EO 13112, "Invasive Species."

With implementation of Avoidance and/or Minimization Measures [BIO-15](#) and [BIO-16](#), as discussed in Section 2.20 of this IS/EA, Invasive Species, the proposed project's contribution to cumulative invasive species impacts would be a minimal contribution to the regional (or cumulative) risk of the introduction and spread of invasive plant material.

2.21.5 Avoidance, Minimization, and/or Mitigation Measures

No measures beyond those identified in Sections 2.1 through 2.20 are required to address the proposed project's contribution to cumulative impacts. Specific measures to minimize harm are identified in the other sections of Chapter 2 of this IS/EA for each environmental concern analyzed. These measures address both temporary as well as permanent impacts.

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