5.5 ENVIRONMENTALLY SENSITIVE HABITAT AREAS AND SPECIAL-STATUS SPECIES

This section examines how the PWP/TREP program of improvements would address potential project impacts to environmentally sensitive habitat areas (ESHAs)—specifically sensitive upland and wetland habitats and special-status plant and wildlife species—and how the PWP/TREP provides a unique opportunity to enhance these ESHAs in the North Coast Corridor (NCC). Taken together, the PWP/TREP improvements would:

- Propose bridge/culvert replacement and lengthening projects over specific lagoons and other coastal waterbodies to better convey flood waters and allow for improved tidal flushing, to reduce or minimize fill, and to minimize sedimentation and erosion, thereby improving water quality and the ecological value of the lagoons, riparian systems, and adjacent upland areas (as discussed in detail in Section 5.4).
- Implement a comprehensive, corridor-wide Resource Enhancement and Mitigation Program (REMP) to create (establish), restore, preserve and enhance sensitive upland and wetland habitat along the 30-mile NCC coastline, focusing on acquisition and preservation of properties that:
  - Contribute to protecting and enhancing lagoon system and watershed function and services by preserving key parcels with upland ESHAs that were proposed for development.
  - Improve ecosystem continuity through habitat connectivity between coastal wetlands and native uplands.
  - Provide buffers from surrounding urban development.
  - Allow for habitat migration under future sea level rise and climate change conditions.
  - Achieve no net loss of sensitive upland habitat through forward-looking establishment and restoration.
  - Support special-status plant and animal species.

5.5.1 Environmentally Sensitive Habitat Areas in the Corridor

The NCC is located in a region known to contain several ESHAs. The ESHAs most commonly observed within the corridor include coastal lagoons, coastal and inland waterways, smaller drainages supporting wetland/riparian habitats, isolated riparian/wetland habitats, and upland habitats, some of which have the potential to support special-status or sensitive plant and animal species and to provide wildlife corridors. Figure 5.5-1A to Figure 5.5-6B provide an overview of existing and potential sensitive resources in the corridor based on the corridor setting evaluated and documented for purposes of preparing the PWP/TREP. These figures illustrate the location of potential ESHAs, sensitive habitat, and special-status species known to potentially occur or were observed in the corridor. Table 5.5-3 and Table 5.5-4 list the special-status species known to potentially occur or were observed within the LOSSAN rail and I-5 highway improvement study areas and their expected location. Because the corridor's natural resources are subject to change during implementation of the PWP/TREP, the ESHA mapping included in the figures and descriptions of this section provide a baseline from which to evaluate potential project impacts to known (observed) and potential habitat areas and special-status plant and wildlife species. Due to the use of the lagoons and associated upland habitats within the corridor by numerous bird species that are considered migratory, not all sightings were mapped; however, many species of herons, egrets, and raptors were commonly observed in the study area and are included in the special-status species list at the end of this section. In addition to the sensitive resources discussed in this section, Section 5.4 addresses ESHAs associated with the corridor's lagoons, rivers, streams, smaller drainages, as well as isolated wetlands and riparian habitat areas.

5.5.1.1 LOSSAN Rail Corridor Resources

The study area for biological resources for the Los Angeles-San Diego-San Luis Obispo (LOSSAN) rail improvements was defined in the *LOSSAN Final Program EIR/EIS* as 1,000 feet on each side of the centerline of the proposed alignment options (including station locations) in urban areas, and as 0.50 mile on each side of the centerline in sensitive areas, including the lagoons. The *LOSSAN Final Program EIR/EIS* is a program-level analysis of natural communities and species identified or potentially occurring within the study area and of impacts to these resources that could result from proposed rail improvements.

Native Upland Habitat

Six native upland habitat types are found within the LOSSAN rail corridor, which, based on site-specific evaluation, may be found to constitute ESHA as defined by Section 30107.5 of the Coastal Act. These habitats include coastal sage scrub, southern maritime chaparral, Torrey pine forest, oak woodland, southern dune scrub, and southern foredunes.

Special-Status Plants

According to the *LOSSAN Final Program EIR/EIS* and observation data provided by the San Diego Association of Governments (SANDAG), there are 25 special-status plant species potentially located within the LOSSAN rail corridor; 18 of the plant species are listed as Federal and/or State Endangered and/or California Native Plant Society (CNPS) List 1B. Per CNPS, the plants of List 1B are rare, threatened or endangered in California and elsewhere, and in addition, meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) and are eligible for state listing. There are four plant species listed as Federal and/or State Endangered: the Del Mar Manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), the Orcutt's sunflower (*Chorizanthe orcuttiana*), the short-leaved dudleya (*Dudleya brevifolia*), and the San Diego button-celery (*Eryngium aristulatum* var. *parishii*). The other seven special-status plant species are CNPS List 2 or 3 species.

Special-Status Wildlife

According to the *LOSSAN Final Program EIR/EIS* and observation data provided by SANDAG, there are 39 special-status wildlife species potentially located within the LOSSAN rail corridor, 10 of which are listed as Federal and/or State Endangered including San Diego fairy shrimp (*Branchinecta sandiegonensis),* southwestern willow flycatcher (*Empidonax traillii extrimus*), tidewater goby (*Eucyclogobius newberryi*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), Pacific pocket mouse (*Perognathus longimembris pacificus*), light-footed clapper rail (*Rallus longirostris levipes*), California least tern (*Sterna antillarum browni*), Riverside fairy shrimp (*Streptocephalus woottoni*), least Bell's vireo (*Vireo bellii pusillus*), and Southern steelhead trout Southern Evolutionary Significant Unit (ESU) (*Oncorhynchus mykiss)*. Table 5.5-4 lists special-status wildlife species known to potentially occur or were observed within the rail improvement study area and their expected location.

Wildlife Corridors. Large open areas, lagoons and surrounding park or reserve areas, and riparian areas in undeveloped areas are considered potential wildlife movement corridors in the LOSSAN rail corridor region. Additionally, smaller creeks and areas of disconnected habitat may provide connectivity (by acting as stepping stones for the regional movement of some avian species) or may provide resting areas for migratory species. Potential wildlife movement/migration corridors may include San Luis Rey River, Buena Vista Lagoon, Aqua Hedionda Lagoon, Batiquitos Lagoon, San Elijo Lagoon, San Dieguito River and Lagoon, Los Peñasquitos Lagoon, and Peñasquitos Creek and Canyon. Lagoon slopes may be important wildlife corridors for large and small mammals. Smaller creeks and linear

areas of narrow natural or semi-natural habitat may also function as a wildlife corridor and would be evaluated at the project level.

Critical Habitat. Designated critical habitat, as defined by the U.S. Fish and Wildlife Service (USFWS), may occur within the LOSSAN rail corridor study area for coastal California gnatcatcher, southwestern willow flycatcher, tidewater goby, Riverside fairy shrimp, San Diego fairy shrimp, and Spreading Navarretia. The USFWS data indicate that designated critical habitat occurs in the corridor as follows: tidewater goby and southwestern willow flycatcher critical habitat in the city of Oceanside; Riverside fairy shrimp, San Diego fairy shrimp and Spreading Navarretia critical habitat associated with vernal pools in the city of Carlsbad; and coastal California gnatcatcher critical habitat in the cities of Encinitas, Carlsbad, and Oceanside. Designated critical habitat for the western snowy plover also occurs within the Peñasquitos and Batiquitos Lagoons.

5.5.1.2 I-5 Highway Corridor Resources

Numerous studies have been conducted and reviewed in preparing the *I-5 NCC Project Draft EIR/EIS, Supplemental Draft EIR/EIS* and *Final Draft EIR/EIS*, including the I-5 NCC Project Natural Environment Study (NES) (June 2008); the Manchester Avenue/Interstate 5 Interchange Project NES Report (January 2004); I-5 Widening Project Pacific Pocket Mouse Habitat Analysis and Trapping Program, San Diego County, California (June 2003); and the I-5 Lagoons Marine Resource Investigation (June 2006).

Native Upland Habitat Areas

The following seven natural upland habitat types are found within the I-5 NCC and, based on site-specific evaluation, may be found to constitute ESHA as defined by Section 30107.5 of the Coastal Act:

- **Coastal sage scrub** occurs on cut-and-fill slopes primarily in the southern half of the study area around most of the lagoons and rivers. Coastal sage scrub within the study area is generally dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*), and California sunflower (*Encelia californica*) with scattered evergreen shrubs including lemonadeberry (*Rhus integrifolia*), and laurel sumac (*Malosma laurina*). The understory is diverse and includes a rich variety of annual forbs and annual and perennial grasses. In some areas, coastal sage scrub habitat could support a variety of rare plant and animal species (e.g., coastal California gnatcatcher) and is the current focus of conservation efforts by the State of California through Natural Community Conservation Planning, which includes, in San Diego County, the Multiple Species Conservation Program and Multiple Habitat Conservation Plan. The disturbed form of this habitat has less overall cover and, within the study area, has the same dominant species listed above with non-native annual grasses, and non-native broadleaf species such as Russian thistle (*Salsola tragus*), acacia (*Acacia* sp.), mustard (*Brassica* sp.), and horseweed (*Conyza canadensis*).
- **Maritime succulent scrub** occurs on dry, south-facing slopes and coastal bluffs from Torrey Pines to El Rosario, Baja California. Maritime succulent scrub is dominated by a combination of coastal sage scrub dominants mixed with succulents and cacti and some endemic species (e.g., Del Mar manzanita). Typical species found in this community include California sagebrush, Shaw's agave (*Agave shawii*), California sunflower, coast barrel cactus (*Ferocactus viridescens*), coastal prickly pear (*Opuntia littoralis*), and coastal cholla (*Cylindropuntia prolifera*). Maritime succulent scrub occurs primarily on the west side of I-5 near Batiquitos Lagoon in the city of Carlsbad. The slopes are dominated by California sagebrush, coastal cholla, coast barrel cactus, fishhook cactus (*Mammillaria dioica*), and California sunflower.

- **Coastal bluff scrub** is a plant community made up primarily of low, prostrate plants that are wind pruned by sea breezes. Dominant plants in this community are primarily woody or succulent. Species commonly found in this community include sea dahlia (*Coreopsis maritima*), live forevers (*Dudley*a spp.), lemonadeberry, and prickly pear. Coastal bluff scrub occurs in a few locations on the slopes adjacent to I-5 north of San Elijo Lagoon.
- **Southern maritime chaparral** is dominated by wart-stemmed ceanothus (*Ceanothus verrucosus*) and thick-leave Eastwood's manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*). Other species found in this community include chamise (*Adenostoma fasciculata*), spicebush (*Cneordium dumosum*), summer holly (*Comarostaphylos diversifolia*), sea dahlia (*Coreopsis maritima*), Del Mar sand aster (*Lessingia filaginifoli* var. *filaginifolia*), toyon, Torrey pine (*Pinus torreyana*), Nuttall's scrub oak (*Quercus dumosa*), and laurel sumac. Elements of Diegan coastal sage scrub may be interspersed within this community. Southern maritime chaparral occurs in small patches within the study area. It mostly occurs outside of California Department of Transportation's (Caltrans) right-of-way. Its distribution within the project limits is patchy. It is found on the northbound and southbound freeway slopes at Del Mar Heights Road, on some areas outside the right-of-way on the southbound slopes south of San Elijo Lagoon, and on some smaller patches on the northbound slopes north of Manchester Avenue along northbound I-5. Some areas of southern maritime chaparral are disturbed and have large openings that are bare or vegetated with non-native species. Many of the disturbed areas occur along trails or near development. Non-native species found in disturbed southern maritime chaparral include African fountain grass (*Pennisetum setaceum*), Australian saltbush (*Atriplex semibaccata*), crystalline iceplant (*Mesembryanthemum* spp.), and ice plant (*Carpobrotus edulis*).
- **Coastal sage – chaparral scrub** is a mixture of the dominant species in coastal sage scrub and chaparral communities. Dominant plant species observed include chamise, coastal sagebrush, lilac (*Ceanothus* spp.), black sage, and poison oak (*Toxicodendron diversilobum*). Coastal sage–chaparral occurs on a slope east of Marine View Avenue and south of Loma Santa Fe exit and east of I-5.
- **Coast live oak woodland** consists primarily of coast live oak (*Quercus agrifolia*) and Engelmann oak (*Quercus englemannii*) with several associated understory species including poison oak, skunk brush (*Rhus trilobata*), scrub oak, and toyon. The herbaceous layer consists of western ragweed (*Ambrosia psilostachya*), Douglas mugwort (*Artemisia douglasiana*), foxtail chess (*Bromus madritensis* ssp. *rubens*), soft chess (*Bromus hordeaceus*), ripgut grass (*Bromus diandrus*) and slender wild oat (*Avena barbata*). Coast live oak woodland only occurs on the slopes above Jefferson Street south of Buena Vista Lagoon. The habitat comprises coast live oaks with non-native grasses in the understory.
- **Native grassland** in southern California is characterized by a moderate cover of native bunchgrasses with native forbs and is usually a smaller component of non-native grasses and broadleaf species. Native grassland in the study area is dominated by purple needlegrass (*Nassella pulchra*) with giant wild rye (*Leymus condensatus*) and blue wild rye *(Elymus glaucus*), with non-native grasses and forbs within the community. Native grassland occurs on both the northbound and southbound slopes of I-5 north of Genesee Avenue.

Native and Non-native Upland Habitat Areas

The following four upland native and non-native habitat types are found within the I-5 NCC and are not typically considered ESHA as defined by Section 30107.5 of the Coastal Act, unless site-specific evaluation finds that these areas 1) support special-status plants or animals or because of the presence of a particular habitat that supports such special-status species and 2) the area is easily disturbed or degraded by human activities:

- **Baccharis scrub** is a form of sage scrub dominated by coyote brush (*Baccharis pilularis*). This habitat is found in low-lying areas often adjacent to drainages. This community is found adjacent to the drainage north of Genesee Avenue in the city of San Diego. Disturbed Baccharis scrub is also found along this drainage and is dominated by coyote brush and invasive, non-native pampas grass (*Cortaderia* sp.) above the channel at the southern end of this drainage in San Diego.
- **Non-native grassland** consists of dense-to-sparse cover of non-native annual grasses, often associated with species of showy-flowered, native annual forbs, especially in years of high rainfall. This vegetation community is a disturbance-related community most often found in old fields or openings in native scrub habitats that occur on fine-textured, usually clay soils. These soils are moist or even waterlogged during the winter rainy season and very dry during the summer and fall. Typical grasses found within the study area include wild oat (*Avena* sp.), soft chess, African fountain grass, veldt grass (*Ehrharta calycina*), red brome, and ripgut grass. Invasive species such as fennel (*Foeniculum vulgare*) and mustard are often associated with this vegetative community as a lesser component. Non-native grassland occurs in various locations along the cut slopes throughout the corridor. Non-native grassland is often found where ornamental vegetation has been degraded or grasses such as African fountain grass were planted as ornamental vegetation.
- **Non-native woodland** is a community comprising non-native trees including eucalyptus (*Eucalyptus* spp.), pine trees (*Pinus* spp.), pepper trees (*Schinus* spp.), and others. This community is dominated by trees and does not include areas with a few trees interspersed with other herbaceous and shrubby plants. This habitat is generally dominated with eucalyptus groves along I-5. Non-native woodland is found on the fringes around the lagoons and in various areas throughout the corridor.
- **Disturbed Habitat** are any lands where agricultural practices, construction, or other land-clearing activities have altered the native vegetation; species composition and site conditions are not characteristic of the disturbed phase of one of the plant associations. Such habitat, which is dominated by non-native annuals and perennial broadleaf species, is typically found in vacant lots, roadsides, construction staging areas, and abandoned fields. Typical species found in this community include mustards, filaree (*Erodium* spp.), Russian thistle, tumbleweed (*Amaranthus albus*), sweet fennel, horseweed, crown daisy (*Chysanthemum coronarium*), and often degraded broadleaf ornamental plants such as ice plant, acacia, and myoporum (*Myoporum laetum*).

Sensitive Plant Species

Twenty-four sensitive plant species potentially occur within the I-5 NCC, including 12 species that are listed as Federal and/or State Endangered or Threatened and CNPS List 1B, and 9 species that are listed as only CNPS List 1B. Of the 12 species, the San Diego thornmint (*Acanothomintha ilicifolia*), the coastal dunes milk-vetch (*Astragalus tener* var. *titi*), the Orcutt's spineflower (*Chorizanthe orcuttiana*), the San Diego button-celery (*Eryngium aristulatum* var. *parishii*), the willowy monardella (*Monardella linoides* ssp. *viminea*), the California orcutt grass (*Orcuttia californica*), and the San Diego Mesa mint (*Pogogyne abramsii*) are Federally Endangered and State Endangered. The San Diego button-celery (which is associated with clay bottom vernal pools) and the San Diego Mesa mint (which is restricted to vernal pools on mesa tops) are not expected to occur within the project area as there are no vernal pools within the study area. Two species are Federally Endangered: the Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*) and the San Diego ambrosia (*Ambrosia pumilla*). In the study area, approximately 70 Del Mar manzanita plants were observed at the top of the slopes on both sides of I-5, just north of Del Mar Heights Road to Birmingham Drive. San Diego ambrosia was not observed during any surveys conducted for the I-5 project, and there are no locations recorded in the California Natural Diversity Database (CNDDB) within the study area. Two species, the Encinitas baccharis (*Baccharis vanessae*) and the thread-leaved brodiaea (*Brodiaea filifolia*) are Federally

Threatened and State Endangered. Encinitas baccharis is endemic to San Diego County, occurring locally in chaparral along the coast from Encinitas to Mira Mesa, but was not observed within the project area. The thread-leaved brodiaea, which is found in coastal sage scrub, cismontane woodland, valley and foothill grasslands, and in clay soils in vernal pools, was not observed during surveys conducted for the project. Based on analysis completed for the *I-5 NCC Project Final EIR/EIS*, Table 5.5-1 identifies the sensitive plant species observed in the project area of effect.

TABLE 5.5-1: SENSITIVE PLANT SPECIES WITHIN HIGHWAY AREA OF EFFECT

Sensitive Plant Species	Numbers Observed
San Diego barrel cactus	7
Nuttall's scrub oak	5
Del Mar sand aster	694
Orcutt's pincushion	869
Sea dahlia	20
Southern tarplant	10
Torrey pine	10
Wart-stemmed ceanothus	4

Invasive Species

Several aggressive invasive species are found along the I-5 slopes and the areas within the wetland habitats, including varying amounts of pampas grass, ice plant, African fountain grass, Algerian sea lavender (*Limonium ramosissimum*), and annual species. Recently, African veldt grass and onion weed *(Asphodelus fistulosus)* have become problems as they spread along the right-of-way. African veldt grass has become a dominant species on the cut slope of I-5 (between Del Mar Heights Road and Birmingham Drive) and is also spreading into habitats around the lagoons.

Tamarisk, arundo, castor bean, and fennel are common invasive species within the wetland habitats within the corridor. There are groups working to control these species, particularly in the lagoons; however, they are persistent invasive species. Another non-native invasive species that has invaded aquatic systems is a toxic algae called *Caulerpa taxifolia*, which had a large infestation in Agua Hedionda Lagoon in 2000, which has since been eradicated. Although toxic algae is not present in Batiquitos Lagoon, the lagoon is considered "at-risk" due to its proximity to residential areas and previously identified infestations within Agua Hedionda Lagoon, the input of storm drains, and the presence of eelgrass, which indicates the presence of habitat that is also attractive to Caulerpa.

Wildlife Species

The I-5 NCC study area has a diverse assemblage of wildlife species that use a wide variety of habitats. Many migratory birds use the lagoons as they travel along the Pacific flyway, as well as resident species such as the light-footed clapper rail and the Belding Savannah sparrow. Many species of waterfowl, shorebirds, and marsh species can be found within lagoon habitats. Some of the more common species observed include great blue heron (*Ardea herodias*), great egret (*Casmerodius albus*), snowy egret (*Egretta thula*), willet (*Catoptrophorus semipalmatus*), red-winged blackbird (*Agelaius phoeniceus*), American coot (*Fulica americana*), northern pintail (*Anas acuta*), American widgeon (*Anas americana*), black-necked stilt (*Himantopus mexicanus*), and many others. Cliff swallows (*Hirundo pyrrhonota*), northern rough-winged swallows (*Stelgidopteryx serripennis*), and white-throated swifts (*Aeronautes saxatalis*) have also been observed nesting within or on several of the bridges, primarily over the lagoons. No sign of bats were observed at any of the lagoon bridges.

Several other bird species were observed around the margins of the lagoons in southern willow scrub, including the yellow warbler (*Dendroica petechia*), Nuttall's woodpecker (*Picoides nuttallii*), song sparrow (*Melospiza melodia*), common yellowthroat (*Geothlypis trichas*), black-headed grosbeak (*Pheucticus melanocephalus*), and lesser goldfinch (*Carduelis psaltria*). There is limited riparian habitat in and around the lagoons; however, several creeks and the San Luis Rey River support many of these species within the project study area.

Coastal sage scrub and other upland habitats support a diverse group of reptiles, birds, and mammals especially around the lagoons. Mammals that were commonly detected within the study area include striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), desert cottontail (*Sylvilagus audubonii*), and many small rodents. Reptiles observed during field surveys include the western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*), southern Pacific rattlesnake (*Crotalus viridis*), and one San Diego horned lizard (*Phrynosoma coronatum blainvillei*). Commonly observed upland bird species include coastal California gnatcatcher, bushtit (*Psaltriparus minimus*), wrentit (*Chamaea fasciata*), house finch (*Carpodacus mexicanus*), mourning dove (*Zenaida macroura*), red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus leucurus majusculus*), northern harrier (*Circus cyaneus*), osprey (*Pandion haliaetus*), California towhee (*Pipilo crissalis*), and Anna's hummingbird (*Calypte anna*).

There are nine threatened and endangered bird species potentially occurring within the I-5 highway project area. Two species—the light-footed clapper rail (*Rallus longirostris levipes*) and the California least tern (*Sterna antillarum browni*)—are listed as Federally Endangered, State Endangered, and California Fully Protected. The light-footed clapper rail were detected within 500 feet of I-5 in Buena Vista, San Elijo, and Batiquitos Lagoons (known to nest in cattails within the lagoon). Near Batiquitos Lagoon, light-footed clapper rail have been identified in the vicinity of I-5 to the northwest, north, and southeast. No clapper rails were observed in Los Peñasquitos Lagoon in the I-5 study area. The San Dieguito Ecological Reserve has a colony of California least tern managed by the California Department of Fish and Wildlife (CDFW), and four additional nesting sites have been constructed as a part of the San Onofre Generating Station (SONGS) mitigation site within this lagoon; San Elijo and Batiquitos Lagoons have known nesting areas and California least terns were observed foraging in these two lagoons in 2003. The breeding areas for the California least tern are outside of the grading limits; however, some foraging habitat may be affected during construction.

Two of the nine bird species—the least Bell's vireo (*Vireo bellii pusillus*) and the southwestern willow flycatcher (*Empidonax trailli extimus*)—are listed as Federally Endangered and State Endangered. The least Bell's vireo is migratory and nests in willows as well as a variety of other shrub and tree species. Two vireo territories were detected in the willow woodland east of I-5 near the San Dieguito River and were more than 426 feet and 738 feet from I-5; however, they were outside the main study area. Protocol surveys for least Bell's vireo along Moonlight Creek in Encinitas were negative in both 2003 and 2004. Least Bell's vireo were detected during California gnatcatcher protocol surveys in small patches of riparian habitat in Oceanside.

The southwestern willow flycatcher nesting is restricted to willow thickets in riparian woodland. This subspecies is found among trees or large shrubs throughout San Diego County. The local breeding population in San Diego County is now extremely small. Surveys for the southwestern willow flycatcher were completed in the riparian habitat in the San Luis Rey River, which is the only suitable habitat within the study area. Although a willow flycatcher was heard vocalizing during a wetland survey in the San Luis Rey River, subsequent surveys did not detect the willow flycatcher again. It is likely that the

detected bird was migrating through the area at the time; it could not be confirmed if it was a southwestern willow flycatcher or a migrant willow flycatcher. The San Elijo Lagoon Conservancy has records of migrant southwestern willow flycatchers at San Elijo Lagoon outside the study area.

Two of the nine species—the western snowy plover (*Charadrius alexandrinus nivosus*) and the coastal California gnatcatcher (*Polioptila californica californica*)—are listed as Federally Threatened and CDFG Species of Special Concern. The western snowy plover forages on the dry sand of the upper beach and along the wet sand at the beach-surf interface. The snowy plover is known to occur in some of the coastal lagoons; however, according to focused surveys conducted throughout the corridor, there is no nesting area within the project footprint.[1] Some foraging habitat for this species may be affected by this project at Batiquitos and Agua Hedionda Lagoons. Critical habitat for the western snowy plover that will not be affected is located east of I-5 within the San Elijo Lagoon along the coast line at Batiquitos and Los Peñasquitos Lagoons, and potentially within the newly constructed nesting sites located in San Dieguito Lagoon. There is a large nesting area at Batiquitos Lagoon (east of I-5) that is used by both the endangered California least tern and the western snowy plover.[2] The coastal California gnatcatcher (in San Diego County) occurs in coastal lowlands generally below 1,968 feet and is a non-migratory obligate resident of coastal sage scrub. California gnatcatchers were generally found in the I-5 study area along the fill slopes and a few cut slopes adjacent to the San Dieguito, San Elijo, and Batiquitos Lagoons, and in a few adjacent canyons with coastal sage scrub habitat. There is a potential for gnatcatchers to occur near Los Peñasquitos and Agua Hedionda Lagoons; however, no point locations in close proximity to I-5 have been recorded for these species at Agua Hedionda Lagoon because of the lack of appropriate habitat near I-5.

The Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) is listed as State Endangered and is a resident to coastal salt marshes. Belding's savannah sparrows were found in San Dieguito, San Elijo, and Batiquitos Lagoons during the spring 2005 surveys within the I-5 study area, as well as the Buena Vista Lagoon during the CDFG surveys in 2005.[3] Additional surveys were completed at San Dieguito Lagoon in 2006 that identified more Belding's savannah sparrows in the northeastern portion of the study area.[4] Belding's savannah sparrows have been observed on the eastern side of I-5 near Batiquitos Lagoon. Belding's savannah sparrows also nest within Buena Vista Lagoon but are not found adjacent to I-5 due to the limited amount of appropriate habitat.[5]

The white-tailed kite (*Elanus caeruleus*)—a California Fully Protected (CFP) Species and State Species of Species Concern—was occasionally observed foraging over the study area, usually over the agricultural fields; however, no nest sites were observed or are known in the I-5 study area.

The Pacific pocket mouse (*Perognathus longimembris pacificus*) is the only rodent listed as a Federally Endangered and CDFG Species of Special Concern that potentially occurs within the I-5 highway project area. The Pacific pocket mouse is endemic to the southern California coast from Los Angeles County to the Mexico-San Diego border. The small rodent prefers fine-grain and sandy substrates in coastal sage scrub; however, in San Diego County they have also been found in open patches of ground surrounded by weeds. The highest-quality habitat was found near San Dieguito and San Elijo

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1 *I-5 NCC Project Natural Environmental Study,* June 2008.
2 *I-5 NCC Project Final EIR/EIS* (Sections 3.17 and 3.21), October 2013.
3 *I-5 NCC Project Natural Environmental Study,* June 2008.
4 Zembal et al. 2006, as cited in *I-5 NCC Project Natural Environmental Study,* June 2008.
5 *I-5 NCC Project Final EIR/EIS* (Sections 3.17 and 3.21),October 2013.

Lagoons in 2003 (although no pocket mice were found via protocol live-trapping and are not expected within the project limits).[6]

There are two fish species potentially occurring within the project area listed as Federally Endangered and CDFG Species of Special Concern: the tidewater goby and the southern steelhead trout Southern Evolutionarily Significant Unit (ESU) (*Oncorhynchus mykiss*). The tidewater goby is endemic to coastal lagoons and lower stream reaches in brackish to fresh, slow moving to still, but not stagnant water. The tidewater goby is unlikely to occur in Los Peñasquitos Lagoon because of the lagoon size, the number of lagoon predators, and the distance from known populations of this fish. The tidewater goby is also unlikely to occur in the San Dieguito Lagoon because of the high flows in the river channel, the distance from the mouth of the estuary, and the large number of predators within the lagoon. In addition, monitoring of fish populations associated with the SONGS mitigation has not identified any tidewater goby. No tidewater gobies were observed during fisheries surveys in the I-5 highway study area at San Elijo, Batiquitos, and Agua Hedionda Lagoons; however, tidewater goby surveys are recommended by USFWS as there is a potential for them to occur within Batiquitos and Buena Vista Lagoons. Because of the tidal weir at Buena Vista Lagoon, the tidewater goby is not anticipated within this lagoon. Surveys in these lagoons in 2012 did not identify any tidewater goby within the I-5 highway study area. Tidewater goby were recently found within the San Luis Rey River near the mouth. Southern Steelhead Trout ESU are found in coastal drainages. In May 2007, a steelhead trout was reported by CDFG personnel in the lower San Luis Rey River. The new Pacific Street bridge has allowed for a permanent opening of the San Luis Rey River for easier access to the river by goby and steelhead trout.

The wandering skipper butterfly (*Panoquina errans*) uses salt grass (*Distichlis spicata*) as a host plant and can also be found in adjacent habitats such as coastal sage scrub. Wandering skipper butterflies were observed near the I-5 at San Dieguito, San Elijo, Batiquitos, and Buena Vista Lagoons.

Wildlife Corridors. Wildlife corridors connect large patches of natural open space that allow for the immigration and emigration of wildlife. Such movement assures the continual sharing of genetic information that helps maintain genetic diversity and reduces the probability of extinction through random events. For animals with a larger home range, such as mule deer (*Odocoileus hemionus*), coyotes (*Canis latrans*), and mountain lions (*Felis concolor*), corridors provide a link between habitat patches increasing the area available for dispersal, foraging and breeding. For smaller animals, the corridor itself may provide the habitat needed to sustain viable populations. Within the study area, the lagoons and habitats surrounding the lagoons are considered important linkages for wildlife movement. During I-5 NCC surveys, mule deer and their signs were primarily observed west of I-5 near Genessee and along Carmel Valley leading to Peñasquitos Lagoon. Coyote scat was observed near all lagoons and in coastal sage scrub throughout the corridor. Although no mountain lion or bobcat scat or tracks were observed, they are known to occur in habitats around the lagoons. In addition to the lagoons, the San Luis Rey River is also a major wildlife corridor.

The Multiple Species Conservation Program names Peñasquitos Lagoon and San Dieguito Lagoon as key Biological Core and Linkage Areas, and they are identified in regional conservation plans as either preserved or an area targeted for conservation. The I-5 highway itself is a barrier to wildlife movement; however, the existing bridges over the lagoons do provide limited crossings on the abutments.

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[6] URS 2003, as cited in *I-5 NCC Project Natural Environmental Study*, June 2008.

Critical Habitat. Critical habitat for the least Bell's vireo, western snowy plover, southwestern willow flycatcher, tidewater goby, and the California gnatcatcher occurs within the I-5 highway study area. Critical habitat for the least Bell's vireo within the study area occurs along the San Luis Rey River near the I-5/SR-76 interchange. Critical habitat for the southwestern willow flycatcher is also proposed along the San Luis Rey River. Critical habitat for the tidewater goby within the study area occurs at Agua Hedionda Lagoon. Critical habitat for the California gnatcatcher occurs within coastal sage scrub around San Elijo Lagoon, Batiquitos Lagoon, Lawrence Canyon, and near the Center City Golf Course in Oceanside.

Essential Fish Habitat (EFH) is identified in the Magnuson-Stevens Fishery Conservation and Management Act as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The EFH has been identified for four groups of fish: Pacific salmon, Pacific groundfish, coastal pelagic species, and highly migratory species. The Pacific salmon group does not include steelhead trout, which are protected by the Endangered Species Act. There are no Pacific salmon known to occur in Northern San Diego County.

The Pacific Coast Groundfish Fishery Management Plan covers more than 82 species of bottom-dwelling fish, including rockfish, flatfish, Pacific whiting, sole, and skate. The EFH for Pacific groundfish is defined as water and substrate along the entire Pacific coast line that is less than or equal to 11,480 feet deep shoreward to the mean high high water (MHHW) line. The coastal lagoons fall within this range. Therefore, Pacific groundfish have a potential to occur in San Dieguito, San Elijo, Batiquitos, Agua Hedionda Lagoons and possibly the San Luis Rey River within the study area. These coastal pelagic species also may inhabit Los Peñasquitos Lagoon; however, saltwater influence does not reach I-5 and project impacts on this lagoon would only be indirect. Pacific groundfish may occur within any of the deeper waters of the lagoons within the project area.

The coastal pelagic species group includes northern anchovy (*Engraulis mordax*), Pacific sardine (*Sardinops sagax*), Pacific mackerel (*Scomber japonicus*), and the jack mackerel (*Trachurus symmetricus*). Although not captured during eelgrass and fish sampling in the lagoons, northern anchovy, Pacific sardine, and jack mackerel have a potential to occur in San Dieguito, San Elijo, Batiquitos, and Agua Hedionda Lagoons and possibly the San Luis Rey River within the study area. These coastal pelagic species also may inhabit Los Peñasquitos Lagoon; however, saltwater influence does not reach I-5 and project impacts on this lagoon would only be indirect. Coast pelagic fish species are most likely to occur in the open water at Batiquitos and Agua Hedionda Lagoons that are continuously open to the ocean.

The open water in all these lagoons (and potentially in the San Luis Rey River) provides EFH. Replacement and construction of the bridges in these lagoons and river may adversely affect EFH. The construction of new bridges pilings, fill placed along the abutments, and demolition of the bridges to be replaced could have direct impacts to EFH. Shading by the wider bridges and increased runoff from the wider roadway could also affect EFH. During construction of the bridges' false work some kind of work platform may be used, and this could have a temporary impact to EFH. Conservation measures to minimize these impacts are discussed in the following sections. Lengthening the bridges at San Elijo and Batiquitos Lagoons would increase EFH near the bridges, and would also allow for increased tidal range and fluvial transport and decreased residence times that would also benefit EFH.

5.5.2 PWP/TREP Concerns

Environmental documentation and analysis prepared for the PWP/TREP rail and highway corridor improvements indicate that ESHAs and special-status species are known to occur within the project

improvement areas that could be affected by implementation of the proposed rail and highway improvements. Many of the corridor's significant sensitive resources have experienced and may continue to experience varying degrees of ongoing degradation because of adjacent development and the existing transportation facilities addressed by the PWP/TREP.

5.5.2.1 Natural Resource Deficiencies

Chapter 3A identifies resource deficiencies in the corridor related to historic and ongoing degradation of environmentally sensitive habitats and species. While significant stands of native wetland and upland habitat areas have been preserved in and around the lagoons and other protected open space areas, corridor habitats have been adversely affected by the development of adjacent urban areas and transportation facilities, realignment and/or channelization of inland waterways, armoring of the shoreline, vegetation clearing and thinning for fire protection of adjacent development, and rapid spread of exotic plant materials that supplant native plant species.

As detailed in Section 5.4, the peripheries of corridor lagoons are particularly subject to habitat disturbance and degradation, most often resulting from development encroachment, intense recreational use, and lack of adequate upland habitat buffers. In the corridor, these impacts are demonstrated by areas of severely degraded habitat void of vegetation, areas of disturbed southern arroyo woodland, and salt marsh and coastal brackish marsh. These areas have suffered from excessive erosion and have become infested with non-native and invasive plant species. In addition, wetland and riparian habitats typically found in inland waterways have been severely degraded by previous realignment and channelization of the corridor streams and drainages by both transportation improvements and adjacent land development. Several of the small streams and drainages that have been channelized are void of permeable surface and vegetation while other areas that have not been channelized continue to support some disturbed southern willow scrub, mulefat scrub, freshwater marsh, southern arroyo woodland, and salt marsh/brackish marsh. As with the disturbed habitat areas around many lagoon peripheries, the NCC's smaller inland streams and drainages experience erosion and infestation of non-native and invasive plant species. Development encroachment adjacent to the NCC's lagoons and inland waterways has caused a chronic loss of transitional habitat and has reduced the overall biological diversity of the resource, severed connections between coastal waterbodies and upland habitat, and limited the ability of the resources to evolve in response to environmental conditions such as sea level rise. In addition, development encroachment has eliminated natural buffers that provide water-quality benefits and limit disturbance of wildlife from adjacent land uses.

Upland habitats—including coastal sage scrub, southern maritime chaparral, and native and non-native grassland—provide habitat for certain endangered and threatened plant and animal species and serve as important buffers and transitional habitat for the corridor lagoons and inland waterways. These upland areas also provide wildlife corridors that connect remaining coastal and inland habitat areas, which allows for wildlife movement. Urbanization has caused reductions in upland habitat, resulting in areas with large openings of bare earth or areas that are vegetated with non-native species. Many of the disturbed upland areas in the corridor occur along trails or adjacent to development. The existing transportation facilities act as barriers to east-west wildlife migration where lagoons, rivers, creeks, and the surrounding upland habitat would otherwise provide corridors for wildlife to cross between inland and coastal areas. Although many of the existing highway and rail bridges have steep, narrow abutments at lagoon crossings or channelized drainages that wildlife can utilize for crossing, the design of these facilities does not adequately facilitate or support their use as wildlife corridors.

5.5.2.2 Potential PWP/TREP Project Impacts

The ESHAs and special-status species are known to occur within the project improvement areas and could be affected by proposed grading, construction, and operational activities. The ESHAs in the corridor have been subject to disturbance as a result of development; thus, the remaining habitats within the corridor have become increasingly valuable as a resource. Further loss and degradation of these communities could occur if corridor projects located in areas of sensitivity are not properly designed, monitored, and managed during construction to avoid or mitigate potential impacts to the resource.

The PWP/TREP improvements located within or adjacent to ESHAs could result in impacts to ESHAs and special-status species as result of the following:

- Bridge improvements involving pilings and structural grade beams resulting in direct disruption and displacement of sensitive habitat and wetlands.
- Construction activities or long-term maintenance and operational activities for portions of the rail corridor located at or near coastal bluffs and associated shoreline protective features in the marine environment.
- Increased fill caused by rail- or highway-widening projects.
- Providing inadequate setbacks/buffers between development and areas containing ESHAs necessary to ensure adjacent land uses are developed and maintained compatible with the continuance of habitat areas.
- Short- and long-term construction activity impacts that could occur during important roosting, breeding, foraging, migrating, and nesting periods for special-status species or otherwise displace sensitive wildlife species.
- Potential adverse impacts to riparian habitat and marine resources from stream alterations, increased erosion, and contaminated storm runoff.
- Temporary lighting impacts during infrastructure construction that could alter or disrupt feeding, roosting, breeding, foraging, migrating, and nesting of wildlife and special-status species.
- Indirect shading impacts resulting in decreased light penetration in coastal waterbodies and loss of eelgrass.

However, without the proposed PWP/TREP infrastructure improvements, many of the corridor's wetland, riparian, and upland habitat areas will continue to degrade. The PWP/TREP REMP along with optimized lagoon bridge designs (detailed in Chapter 6B) could significantly restore and enhance natural resources in the corridor and thereby improve many of the existing deficiencies affecting the corridor's ESHAs and special-status species. As discussed in Section 5.4, the PWP/TREP would modify existing bridges to improve existing deficiencies of water quality, lagoon, wetland and riparian habitat resources, and wildlife corridors, which would otherwise remain extremely constrained and degraded. The optimized bridge designs at the corridor lagoons would maximize avoidance and minimization of impacts, reduce tidal muting, and restore/improve wildlife movement. These optimized bridge designs in concert with expanded channel dimensions allow for possible future establishment, restoration, and enhancement of tidal wetlands and improved water quality within the lagoons. In addition, implementation of the PWP/TREP REMP would result in strategically acquiring and preserving ESHAs and degraded habitat areas in conjunction with habitat restoration and establishment opportunities. In corridor lagoon areas, new or improved transitional habitat and buffer areas, restored riparian corridors, and preservation or restoration of habitat via the purchase of adjacent upland habitat would help address the habitat needs of special-status and wildlife species.

5.5.2.3 LOSSAN Rail Corridor Impact Assessment

The PWP/TREP improvements would result in unavoidable impacts to upland and wetland ESHAs as the LOSSAN rail facility is an existing north-south transportation corridor that transects the east-west lagoon systems and is adjacent to existing ESHAs. Proposed rail track improvements would be contained primarily within the existing right-of-way or in tunnels that would minimize the need for significant grading and landform modification that could otherwise disrupt or displace existing ESHAs; however, it is still possible that upland or wetland ESHAs could be located within the right-of-way. Rail improvements involving parking area expansion at stations would occur primarily in developed areas and are therefore not likely to result in substantial impacts to ESHAs; however, construction of a new platform at the Del Mar Fairgrounds could involve new development in the San Dieguito River Valley area and therefore could possibly affect adjacent sensitive resources.

Potential rail impacts to ESHAs could include permanent or temporary (and direct or indirect impacts) to ESHAs or special-status species (Figures 5.5-1A–5.5-6B). Direct impacts to ESHAs could include permanent displacement and removal of vegetation and habitat within the footprint of the physical improvements and would total up to 10.18 acres pending selection of the future Del Mar tunnel. Indirect operational impacts could include increased noise from trains (including horns), increased shading effects from elevated infrastructure over plant and wildlife habitat areas, and other indirect infrequent impacts associated with the operation of an additional railway line. These potential impacts would be assessed in detail at the project-level environmental review, as applicable, to better define their likelihood, extent, and severity.

Federal regulations set forth and define required railroad safety standards, which dictate maintenance activities within right-of-way that must occur on the railroad infrastructure. The contiguous linear track area, signal equipment areas, access roads, and parking areas are typically maintained to be free and clear of vegetation. Other maintenance activities may include inspections, replacement of ballast, ties or rails, turn-out or crossing repair, and structures and signal work. As such, infrastructure maintenance activities and inspections occurring within the railroad right-of-way almost exclusively occur within non-vegetated and disturbed areas. Sensitive areas between the road and the track are avoided when practicable. The majority of rail maintenance activities are performed directly on the track, some of which use machines that operate solely and exclusively on the track as well. Access from the road to the track typically is done in a non-sensitive location and material and equipment is then moved along the track to the work location. If work is performed at night, lighting is of relatively low power and is located in close proximity to the work area, focusing directly onto the track.

Temporary impacts would be those related to construction activities, including, but not limited to, construction access, material storage, excavation spoils handling areas, and staging areas. Potential impacts may include disturbance to or removal of habitat or sensitive plant species or vegetation communities, and wildlife displacement and disruption. In lagoon areas and bridge work across rivers and streams, construction may involve extensive in-water work, requiring the use of a barge or a dredge for sediment removal, if necessary. Bridge work could also include installation of coffer dams, dewatering within cofferdams and drilling to bedrock, placement of rebar cages, and pouring of concrete, resulting in potential turbidity and sedimentation impacts, disturbance or removal of underwater habitat features such as large rocks, boulders, or existing earthen fill, and vibration impacts to aquatic life from pile-driving activities. Temporary indirect impacts would include those resulting from construction-related noise (including construction equipment, haul trucks, and tunnel portal excavation activities), lighting during nighttime work, and other disruptions to or physical separation of habitat areas.

Upland Habitat

The PWP/TREP improvements would result in unavoidable impacts to potential ESHAs. Preliminary assessment indicates that approximately 10 acres of native upland habitat within the LOSSAN rail corridor would be directly affected by proposed rail improvements.

Plants

Generally, rail alignment options that involve tunneling would avoid most impacts to plant species because the construction activities and new facility improvements would occur below ground surface, thereby minimizing the potential for vegetation removal or indirect impacts. At-grade improvements (including trenching) would have the potential to disturb plant species through direct vegetation clearing or indirect temporary construction effects.

Construction could, in certain circumstances, also encourage the spread of noxious weeds or other exotic plant species. Seeds of non-native plants can adhere to tires of construction vehicles or contaminate fill that may need to be imported into the construction area. Trains themselves may also contribute to the spread of seeds of exotic plant species.

Wildlife

In the Oceanside to Carlsbad LOSSAN rail segment, CNDDB records indicate special-status species are present, including, but not limited to, San Diego fairy shrimp, orange-throated whiptail, and California gnatcatcher. The USFWS data indicate that designated critical habitat for the San Diego fairy shrimp and Riverside fairy shrimp is present in the Carlsbad and could be affected. Wildlife using the San Luis Rey River as a movement corridor could be temporarily affected during construction. Coastal sage scrub habitat, which could be occupied by gnatcatchers in this segment, could also be affected. Double-tracking across Buena Vista Lagoon could also affect the light-footed clapper rail, which has been observed utilizing areas within the footprint of the proposed construction. Altogether, waters and associated wildlife habitat could be affected at the San Luis Rey River, Buena Vista and Batiquitos Lagoons, and surrounding open areas, particularly during construction near or in the waterways and lagoons.

In Encinitas and Solana Beach, CNDDB records show the potential for Belding's savannah sparrow and clapper rail to be affected. Wildlife habitat (and possibly wildlife movement corridors) would temporarily be affected at the San Elijo Lagoon during construction in or around the lagoon. Coastal sage scrub habitat occupied by the California gnatcatcher could also be affected in this segment, with California gnatcatcher critical habitat adjacent to the rail corridor impacts areas in San Elijo Lagoon.

In Del Mar, high-quality coastal sage scrub supporting gnatcatchers could exist and may be fragmented where the Camino Del Mar tunnel option daylights at the south end of Del Mar and at the northern end of the I-5 tunnel. In addition, there are some areas of southern maritime chaparral mapped along the tunnel alignment. For either tunnel alignment option, wildlife habitat and possible wildlife movement corridors would be affected at the San Dieguito Lagoon and surrounding open areas and Los Peñasquitos Lagoon and Preserve. The CNDDB records the potential for California least tern to be affected by the added track in the north portion of Del Mar. The USFWS indicates that western snowy plover critical habitat may be crossed by proposed track in the south of the Del Mar coastal segment.

Replacing and/or widening the bridges at San Dieguito, San Elijo, and Batiquitos Lagoons, as well as at the San Luis Rey River could adversely affect EFH. Shading from the wider bridges and increased runoff could have indirect impacts to EFH.

Generally, LOSSAN rail alignment options that involve tunneling would avoid most impacts to wildlife because of tunneling below the ground surface; however, at-grade improvements would disturb the ground surface, thus potentially resulting in temporary and possibly permanent impacts to resources. In addition, trenching for rail improvements could remove vegetation, which may also affect wildlife resources that depend on those plants. As such, the trench options for rail improvements would have a slightly higher potential for impacts to wildlife resources, as vegetation removal would be greater than at-grade options.

5.5.2.4 I-5 Highway Corridor Impact Assessment

The PWP/TREP improvements would result in unavoidable impacts to wetland and upland ESHAs as the I-5 highway facility is an existing north-south transportation corridor that transects the east-west lagoon systems and is adjacent to existing sensitive habitat areas. The majority of impacts to corridor ESHAs are associated with facility widening. The *I-5 NCC Project Final EIR/EIS* analyzes and provides a comparison of potential ESHA and special-status species impacts for the four proposed Build Alternatives, and discusses in greater detail the specific effects of the Locally Preferred Alternative on sensitive habitats and special-status species at the corridor's lagoon systems.

Upland Habitat

Permanent impacts to six sensitive upland habitat associations would occur as a result of implementing proposed highway improvement, including coastal sage scrub, disturbed coastal sage scrub, maritime succulent scrub, native grassland, southern maritime chaparral, disturbed southern maritime chaparral habitat. The greatest impact would be to disturbed coastal sage scrub on the cut slopes of the I-5 in the southern half of the project study area. It is estimated that impacts to native upland areas within the I-5 corridor only would be approximately 61.09 acres (Figures 5.5-1A–5.5-6B). Table 5.5-2 provides a breakdown of potential I-5 highway and LOSSAN rail corridor permanent upland impacts according to the project phases (the full PWP/TREP Phasing Plan is presented in Chapter 6A)..

Temporary construction impacts to sensitive, native upland areas are anticipated to occur in four habitats and would include potential impacts to coastal sage scrub, maritime succulent scrub, southern maritime chaparral, and native grassland.

Plants

Nine sensitive plant species could be affected by proposed highway corridor improvements: Del Mar sand aster, Del Mar Manzanita, coastal scrub oak, Orcutt's pincushion, sea dahlia, wart-stemmed ceanothus, coast barrel cactus, southern tarplant, and Torrey pine. The degree of impact depends on the amount and location of fill needed. Mitigation measures that establish the protocol to minimize the overall harm to these species include salvaging and replanting them off-site.

Construction of the proposed project would provide an opportunity to control the invasive species on the slopes of the project during ground-disturbing activities. Through careful handling of the soil and equipment that works the soil, the invasive plants within the impact area could be removed. Revegetating the slopes would require maintenance to keep the weed species from reinvading the new slopes. Partnerships with the lagoon foundations and land owners would be required to eradicate similar invasive species outside of the impact areas.

Wildlife

Twenty-one non-listed sensitive wildlife species are located within the highway corridor and could be affected by the project. Based on vegetation impacts, impacts to wildlife that depend on affected plant species may include San Diego horned lizard, Coronado Island skink, orange-throated whiptail, rufous-crowned sparrow, raptors, loggerhead shrike, desert woodrat, and San Diego pocket mouse. Wildlife may also temporarily relocate during construction to avoid noise impacts and impacts associated with vegetation loss. Indirect impacts could result from increased ambient lighting, exposure to invasive species, habitat edge effects, and increased noise levels.

Listed species historically found within the project area that may be directly or indirectly impacted include the following species: Pacific pocket mouse, light-footed clapper rail, California least tern, western snowy plover, coastal California gnatcatcher, least Bell's vireo, Belding's savannah sparrow, southwestern willow flycatcher, tidewater goby, and the southern steelhead trout – Southern ESU.

Replacing and/or widening the bridges at San Dieguito, San Elijo, Batiquitos, and Agua Hedionda Lagoons, as well as at the San Luis Rey River could adversely affect the EFH. Shading from the wider bridges and increased runoff from the wider roadway could have indirect impacts to the EFH.

I-5 currently acts as an impediment for east to west movement for some wildlife. Each of the lagoons, rivers, and creeks and the surrounding upland habitat are potential corridors for wildlife to cross from east to west. Widening the freeway would not necessarily cut off these corridors; however, they could make existing crossings less attractive for use by wildlife. Studies have found that wildlife, especially large mammals, use wider wildlife crossings/corridors as the length of travel increases. Most of the existing lagoon bridges have steep, narrow abutments that are used by wildlife. The project provides opportunities for new bridges to be designed with a bench at the abutment to facilitate wildlife movement as well as use by hikers (who use the trails during the day), where determined appropriate by resource agencies. Although wildlife avoid people, wildlife generally use the trails under the bridges at night. Corridors at locations where bridges would not be replaced—San Dieguito and San Luis Rey—should not be further constrained due to large areas for movement and minimal increases to bridge width.

TABLE 5.5-2: PERMANENT UPLAND HABITAT IMPACTS VS. NO-NET-LOSS MITIGATION (BY YEAR/PHASE)

Phase[a]	Transportation Improvements	Impacts (Acres)	Mitigation Site	Upland Habitat Establishment (Acres)	Upland Habitat Restoration (Acres)	Total Available No Net Loss Mitigation (Releases 1 & 2 @ 30%)	Total Available No Net Loss Mitigation (Release 3 @ 10%)	Total Available No Net Loss Mitigation (Release 4 @ 10%)	Total Available No Net Loss Mitigation (Release 5 @ 25%)	Total Available No Net Loss Mitigation (Final @ 25%)	Total Mitigation (Acres)
2010-2020	YEAR 2013										
	Oceanside Through Track (2013)	0	Deer Canyon II (Los Peñasquitos)	14	0	4.2					
	Poinsettia Station Improvements (2013)	0	Dean Family Trust (San Dieguito)	20.8	0	6.24					
	TOTAL IMPACT (2013)	0	TOTAL AVAILABLE MITIGATION (2013)			10.44					
	TOTAL ROLLOVER MITIGATION AVAILABLE (AFTER 2013 IMPACTS SUBTRACTED)					10.44					
	YEAR 2014										
	No improvements scheduled for 2014.	0	Deer Canyon II (Los Peñasquitos)	Ongoing; year 1 monitoring			1.4				
			Dean Family Trust (San Dieguito)	Ongoing; year 1 monitoring			2.08				
			Hallmark (Agua Hedionda)	3.5	6.6	3.03					
	TOTAL IMPACT (2014)	0	MITIGATION RELEASED BY YEAR (2014)			3.03	3.48				
	TOTAL AVAILABLE MITIGATION (2014)						6.51				
	AVAILABLE MITIGATION SUBTOTAL (2013 ROLLOVER + 2014)						16.95				
	TOTAL ROLLOVER MITIGATION AVAILABLE (AFTER 2014 IMPACTS SUBTRACTED)						16.95				
	YEAR 2015										
	2 HOV lanes from Lomas Santa Fe to Birmingham Dr, including San Elijo Bridge Replacement, Manchester direct access ramp (DAR), bike paths/trails & ultimate grading (Phase 1- Unit 1)	22.08	Deer Canyon II (Los Peñasquitos)	Ongoing; year 2 monitoring				1.4			
	San Elijo Lagoon Double Track, includes San Elijo Bridge Replacement (2014)	0	Dean Family Trust (San Dieguito)	Ongoing; year 2 monitoring				2.08			
	CP Eastbrook to CP Shell Double Track (2015)	0	Hallmark (Agua Hedionda)	Ongoing; year 1 monitoring			1.01				
	Carlsbad Village Double Track, includes Buena Vista Bridge Replacement (2015)	0									
	TOTAL IMPACT (2015)	22.08	MITIGATION RELEASED BY YEAR (2015)				1.01	3.48			
	TOTAL AVAILABLE MITIGATION (2015)							4.49			
	AVAILABLE MITIGATION SUBTOTAL (2014 ROLLOVER + 2015)							21.44			
	TOTAL ROLLOVER MITIGATION AVAILABLE (AFTER IMPACTS SUBTRACTED)							-0.64[b]			

TABLE 5.5-2: PERMANENT UPLAND HABITAT IMPACTS VS. NO-NET-LOSS MITIGATION (BY YEAR/PHASE) (CONTINUED)

Phase	Transportation Improvements	Impacts (Acres)	Mitigation Site	Upland Habitat Establishment (Acres)	Upland Habitat Restoration (Acres)	Total Available No Net Loss Mitigation (Releases 1 & 2 @ 30%)	Total Available No Net Loss Mitigation (Release 3 @ 10%)	Total Available No Net Loss Mitigation (Release 4 @ 10%)	Total Available No Net Loss Mitigation (Release 5 @ 25%)	Total Available No Net Loss Mitigation (Final @ 25%)	Total Mitigation (Acres)
2010-2020 (continued)	YEAR 2016-2020										
	1 HOV/Managed Lane (ML) from Birmingham Dr to Palomar Airport Rd (Phase 1 – Units 2 and 3: 2016)	1.06	Deer Canyon II (Los Peñasquitos)	Ongoing; year 3 monitoring					3.5		
	Advanced Batiquitos Lagoon Bridge Replacement	8.8									
	2 HOV/Managed Lanes from La Jolla Village Dr to I-5/I-805 merge, includes Voigt DAR & I-5 /I-805 HOV Flyover Connector (Phase 1 – Units 4 and 5: 2017-2020)	0.57	Dean Family Trust (San Dieguito)	Ongoing; year 3 monitoring					5.2		
	Batiquitos Lagoon Double Track, includes Batiquitos Bridge Replacement (2016)	0.03	Hallmark (Agua Hedionda)	Ongoing; year 2 monitoring				1.01			
	Encinitas Station Parking	0	San Dieguito W19 (San Dieguito) (Release 1 anticipated 2016; Release 2 anticipated 2017)*	9.6	19.8	8.82*					
	Solana Beach Station Parking	0									
	San Dieguito Bridge Double Track and Platform , includes San Dieguito Bridge Replacement (2016)	0.01									
	TOTAL IMPACT (2016)	10.47	MITIGATION RELEASED BY YEAR (2016-2020)			8.82		1.01	5.2		
	TOTAL AVAILABLE MITIGATION (2016-2020)								15.03		
	AVAILABLE MITIGATION SUBTOTAL (2015 ROLLOVER + 2016-2020)								14.39		
	TOTAL ROLLOVER MITIGATION AVAILABLE (AFTER IMPACTS SUBTRACTED)								3.92		
	INITIAL-TERM TOTAL IMPACT	32.55	INITIAL-TERM TOTAL MITIGATION								74.3
2021-2030	2 Managed Lanes (ML) from I-5/I-805 to SR 56, including 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 (Phase 2A: 2020-2022)	0.99	Deer Canyon II (Los Peñasquitos) Dean Family Trust (San Dieguito) Hallmark (Agua Hedionda) San Dieguito W19 (San Dieguito)	Ongoing	Full mitigation /sign-off anticipated by 2021						
	2 ML from SR 56 to Lomas Santa Fe Dr, including San Dieguito River Bridge Widening and bike paths/trails (Phase 2B: 2020-2025)	20.6									
	2 ML from Union St to Palomar Airport Rd (Phase 2C: 2025-2030)	3.28									
	Oceanside Station Parking	0									
	Carlsbad Village Station Parking	0									
	Carlsbad Poinsettia Station Parking	0									
	CP Moonlight to CP Swami Double Track	0									
	MID-TERM TOTAL IMPACT	24.87	MID-TERM TOTAL AVAILABLE MITIGATION								41.75
	TOTAL MID-TERM ROLLOVER MITIGATION AVAILABLE (AFTER IMPACTS SUBTRACTED)										16.88

TABLE 5.5-2: PERMANENT UPLAND HABITAT IMPACTS VS. NO-NET-LOSS MITIGATION (BY YEAR/PHASE) (CONTINUED)

Phasea	Transportation Improvements	Impacts (Acres)	Mitigation Site	Upland Habitat Establishment (Acres)	Upland Habitat Restoration (Acres)	Total Available No Net Loss Mitigation (Releases 1 & 2 @ 30%)	Total Available No Net Loss Mitigation (Release 3 @ 10%)	Total Available No Net Loss Mitigation (Release 4 @ 10%)	Total Available No Net Loss Mitigation (Release 5 @ 25%)	Total Available No Net Loss Mitigation (Final @ 25%)	Total Mitigation (Acres)
2031-2040	2-4 ML from Palomar Airport Rd to SR 76, includes Agua Hedionda & Buena Vista Lagoon Bridge Replacements (Phase 3A-3C: 2030-2035)	0.77	Deer Canyon II (Los Peñasquitos) Dean Family Trust (San Dieguito) Hallmark (Agua Hedionda) San Dieguito W19 (San Dieguito)	Ongoing		Full mitigation/sign-off anticipated by 2021					
	Construct Braided Ramps from Roselle to Genesee (Phase 3D: 2030-2035)	5.57									
	LONG-TERM TOTAL IMPACT	6.34								LONG-TERM TOTAL AVAILABLE MITIGATION	16.88
										TOTAL LONG-TERM ROLLOVER MITIGATION AVAILABLE (AFTER IMPACTS SUBTRACTED)	10.54
NCC Totals (All Phases Excluding Vision Phase[1])		63.76	Sites identified above.	27.1	47.2	74.3					
2041-2050	Leucadia Blvd Grade Separation	0	Deer Canyon II (Los Peñasquitos) Dean Family Trust (San Dieguito) Hallmark (Agua Hedionda) San Dieguito W19 (San Dieguito)	Ongoing		Full mitigation/sign-off anticipated by 2021					
	Del Mar Tunnel - Camino Del Mar / Peñasquitos Double Track Option - I-5 / Peñasquitos Option	0.03 – 10.13									
	Peñasquitos Double Track	0									
	I-5/SR 78	0									
	VISION PHASE[C] TOTAL IMPACT	0.03 – 10.13								VISION PHASE TOTAL AVAILABLE MITIGATION	10.54
										TOTAL "ENHANCEMENT" FOLLOWING PROGRAM IMPLEMENTATION	0.41 – 10.51

Notes:

[a] Phasing presented in this table is for general mitigation accounting purposes only. The reader is referred to Chapter 6A for the RTP-approved project phasing plan and maps.

[b] In the event contingency mitigation credit is needed to ensure no net loss standards can be met in advance of project impacts, as established by Section 6B.4 above, traditional mitigation ratios would be triggered and applied as follows: 2:1 (mitigation to impact) for uplands. Additionally, the Batiquitos Bluffs site is being assessed for mitigation potential contingent upon a willing seller, and reasonable price.

[c] "Vision" Phase projects are programmatic in nature, and currently scheduled for implementation in years 2041 to 2050. At a future date and prior to their implementation, project-specific information would be made available to further refine the impact estimates presented herein.

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Los Peñasquitos

Coastal California gnatcatchers were not observed within the vicinity of Los Peñasquitos Lagoon during protocol surveys, and no western snowy plover nesting areas or foraging habitat are present in the project impact footprint or vicinity; as such, no direct impacts to these species are anticipated. Belding's savannah sparrow and light-footed clapper rail occur in the lagoon west of the I-5/SR-56 interchange; however, no wetlands would be permanently affected and minimal construction would occur in the vicinity. All known clapper rail and Belding's savannah sparrow locations are more than 1,000 feet from the proposed Sorrento Valley Road bike bridge. Clapper rails have also been identified upstream of I-805 on Los Peñasquitos Creek; however, the proposed project would not affect the creek and known locations are approximately 480 feet from the anticipated work (as well as being on the east side of northbound I-5 and I-805 from the work to be done), and no effects to light-footed clapper rail are anticipated. There is some potential for the wandering skipper butterfly to be affected at Los Peñasquitos Lagoon.

In addition, there would be a connection from the trail proposed under I-5, which would enhance wildlife movement opportunities in the area. With this trail connection, wildlife would be able to move from the lagoon, under the bike/pedestrian bridge, and continue under the I-5 bridge into the Carmel Valley Restoration Enhancement Project trail. The 10-foot-wide bench encompassing the proposed bike/pedestrian trail on the southern abutment of the Carmel Creek bridge would not result in any impacts to existing wetlands or other sensitive resources. The northern abutment under I-5 would be left in its existing condition, with an 8-foot-wide bench for wildlife movement. No new indirect impacts to habitats or wildlife are anticipated.

There is a potential for noise/vibration impacts to fish and bird species as a result of pile driving during bridge false-work construction. Given the existence of existing transportation facilities, the minimal nature of changes in operations following project implementation, and the lack of identified sensitive species locations, potential indirect impacts to sensitive species resulting from increased lighting, exposure to invasive species, edge effects, and long-term increases in noise, etc. are expected to be negligible.

San Dieguito Lagoon

Salt marsh habitat that potentially supports the State-listed endangered Belding's savannah sparrow and coastal sage scrub that supports federally listed threatened coastal California gnatcatcher would be affected by widening I-5 at San Dieguito Lagoon. Although Belding's savannah sparrow occurs in the adjacent SONGS salt marsh habitat, none have been observed in the project impact footprint. Similarly, least tern and western snowy plover nesting areas are near I-5 but not within the anticipated impact footprint. Light-footed clapper rail were not observed within the project impact footprint or vicinity during protocol surveys. Portions of territories associated with four pairs of coastal California gnatcatcher and one single male may be affected due to construction of wider fill slopes. The wandering skipper butterfly occurs at San Dieguito Lagoon, and there is potential for it to be directly affected by the proposed project.

The enhanced bike/pedestrian trail and bridge at San Dieguito Lagoon will be constructed with a small (6 feet tall or less) retaining wall to minimize the footprint within sensitive habitats and wildlife corridors. No pets would be allowed except in accordance with local regulations allowing leashed pets on some portions of the trail. The trail would be fenced and signed to keep pedestrians on the improved areas and out of the sensitive habitats. Bicycles will be allowed only on the bike path portion of the trail and not on pedestrian-only connections that lead to the ecological preserves. Although use is anticipated to increase, indirect impacts are anticipated to be minimal because of the restricted access through

sensitive vegetation, including wetlands. Restricting access to a specific trail with fencing and signs will limit impacts to sensitive habitats while still allowing wildlife to utilize the trails as well. No night lighting will be used; some daylight lighting may be used for portions of trails under bridges as necessary for safety purposes.

Indirect impacts to sensitive species can result from increased lighting, increased exposure to invasive species, edge effects, and increased potential for pollution from runoff, as well as long-term increases in noise. I-5 is 10 lanes in width across San Dieguito Lagoon, and as such, nighttime lighting, increased access from invasive species, and habitat bisection that could result in edge effects have already occurred. The remainder of the corridor has experienced increased development that has further encroached on native habitats at the lagoon. The proposed project improvements would result in incremental increases to indirect effects already occurring. Indirect effects such as increased dust, lighting, invasive species, and noise would be minimized through conservation measures such as standard dust control measures during construction (e.g., watering and equipment speed/access restrictions); directional lighting; and/or native species for landscaping/revegetation efforts.

With respect to potential project operational noise, under existing conditions, noise in excess of 70 a-weight decibel (dBA) occurs over various amounts of wetland and upland habitats that either support, or have the potential to support, special-status bird species at coastal lagoons in the NCC. Although population numbers have undergone natural fluctuations over the years, these species continue to forage, nest, breed, and otherwise consistently occur within suitable habitat during the breeding season in areas subjected to a wide range of noise levels. Within the project vicinity, three species are specifically known: California least tern, Belding's savannah sparrow, and coastal California gnatcatcher. A majority of the documented locations of the Belding's savannah sparrows east of I-5 (6 of the total 10 locations) and coastal California gnatcatcher west of I-5 (8 of the total 11 locations), occur within the existing 66 dBA Leq noise contour. The Belding's savannah sparrow population west of I-5 occurs in between the existing 56 and 62 dBA Leq contours and is not subject to the relatively higher noise levels on the eastern side. This is due primarily to the distribution of suitable habitat and naturally sound-attenuating geographic features of the landscape.

A bike/pedestrian path is proposed on the western freeway slopes across San Dieguito Lagoon. The slopes south of the San Dieguito River Bridge are relatively large and the bike/pedestrian path would be cut into a large fill slope in this area. The slopes of the San Dieguito watershed are generally higher than other lagoons, and the bike/pedestrian path would be located as far from sensitive habitats as feasible. The bike/pedestrian path would be fenced and signed to keep users on the trail, and no turn outs would be provided for users to stop beside the lagoon. Although a new facility, indirect impacts from bicycle movement and proximity of people to the marsh are anticipated to be minimal because of the upslope location and the lack of opportunities to leave or stop along the trail.

San Elijo Lagoon

I-5 improvements would result in impacts to portions of four coastal California gnatcatcher territories, as well as habitat used by wandering skipper butterfly. The permanent area of effect would not affect Belding's savannah sparrow or light-footed clapper rail habitat. Temporary impact areas and construction noise, however, may have an adverse effect on these two species. Construction-noise impacts to wildlife (including fish and bird species) in San Elijo Lagoon also may occur because of pile driving during bridge falsework construction.

Although the proposed pedestrian crossing from Manchester Avenue would likely increase the use of the San Elijo Lagoon trails, the new bike/pedestrian and pedestrian paths would be fenced and signed to keep pedestrians on the improved areas and out of the sensitive lagoon habitats and wildlife

corridors; no pets would be allowed on bike/pedestrian paths. Connections to the suspended section of the bike/pedestrian path would occur within area already disturbed for bridge improvements. A 6-foot-high retaining wall would support a 12-foot-wide bike/pedestrian path within the same slope footprint (without an increase in direct impacts). The new bike/pedestrian path connections would be designed to prevent bicycle access (using bollards or a U-shaped design) to the pedestrian trails that directly access the ecological reserve. With the bike/pedestrian paths being fenced and maintained in accordance with a formal maintenance agreement with the City of Solana Beach, increased indirect impacts to the lagoon are not expected. In the vicinity of the lagoon, the bike/pedestrian path would be placed closer to I-5 to minimize indirect effects to sensitive salt marsh species.

Indirect impacts to sensitive species can result from increased lighting, increased exposure to invasive species, edge effects, and increased potential for pollution from runoff, as well as long-term increases in noise. The presence of the existing 10-lane freeway and development near the lagoon have resulted in an existing condition that includes nighttime lighting, the presence of invasive species, and bisection of habitats being part of the existing condition. Ambient noise levels measured in varying locations at San Elijo Lagoon were between 60 and 67 dBA. Future noise-level increases during the noisiest hour at most receptor points are projected to be 1 to 3 dBA with an increase in traffic-related noise over the entire lagoon of approximately 2 dBA. Noise at Receptor 5 in San Elijo Lagoon would decrease by 1 dBA because of the widening of I-5 closer to intervening topography and would result in roadway noise being somewhat attenuated or deflected by an abutting steep slope. This increase in overall noise may have an adverse effect on some wildlife species. Although population numbers have undergone natural fluctuations over the years, species have continued to consistently forage, nest, and breed within suitable habitat in areas subjected to a wide range of noise levels.

Batiquitos Lagoon

One pair of federal and state-listed light-footed clapper rail has been identified within the permanent impact footprint northeast of I-5. One additional pair has been identified in the temporary impact area. Portions of four territories of California gnatcatcher using existing cut slopes of I-5 also would be affected. Portions of the habitat of at least one pair and one individual of Belding's savannah sparrow would be permanently affected by the project. Nesting areas used by California least tern and western snowy plover are approximately 250 feet east of the project impact area. There would be no direct permanent impacts to these species; however, there would be potential noise impacts during construction.

The new bike/pedestrian and pedestrian paths at Batiquitos Lagoon would be fenced and signed to keep pedestrians on the improved areas and out of the sensitive lagoon habitats and wildlife corridors. No pets would be allowed on bike/pedestrian paths except in accordance with local regulations providing for leashed pets on certain portions of trails. A 6-foot-high retaining wall would support a bike/pedestrian path within the same slope footprint without an increase in direct impacts. The new bike/pedestrian path connections would be designed to prevent bicycle access (using bollards or a U-shaped design) to the pedestrian trails that directly access the ecological reserve. With the bike/pedestrian paths being fenced and maintained in accordance with a formal maintenance agreement with the City of Carlsbad, increased indirect impacts to the lagoon are not expected. In the vicinity of the lagoon, the bike/pedestrian path would be placed closer to I-5 to minimize indirect effects to sensitive habitats. No night lighting would be used on the trails; for safety purposes, some daylight lighting may be used for portions of trails under bridges.

Indirect impacts to sensitive species could result from increased lighting, increased exposure to invasive species, edge effects, and increased potential for pollution from runoff, as well as long-term increases in noise. The documented special-status species locations for Batiquitos Lagoon are all

relatively close to the I-5 corridor and are located within or adjacent to the existing 66 dBA Leq noise contour. In general, the future traffic noise is projected to be 2 dBA higher across the entire lagoon. As a result, the majority of the least tern nesting area east of I-5 would experience an increase of 2 dBA over existing conditions, which range from 58 to 64 dBA. Least terns nesting on the western end of the nesting area may be more likely to be adversely affected than those located further east. Overall, I-5 is eight lanes in width across the lagoon; combined with surrounding urban development, the lagoon is affected by nighttime lighting, invasive animal and plant species, and bisected habitats that could result in edge effects. The PWP/TREP I-5 NCC improvements would result in incremental increases to these indirect effects already affecting the habitat.

Agua Hedionda Lagoon

There are no known federally or state-listed threatened or endangered wildlife species within the I-5 construction footprint or proximity at Agua Hedionda Lagoon; therefore, associated direct impacts are not anticipated. Indirect impacts to habitats and sensitive species can result from increased lighting, increased exposure to invasive species, edge effects, and increased potential for pollution from runoff (including sediment/siltation), and long-term increases in noise. Similar to the other lagoons, project noise modeling indicates a projected I-5 highway-related noise increase of approximately 2 dBA over a majority of the lagoon, with some portions of the lagoon subject to an increase of up to 3 dBA. No known sightings of any of the special-status bird species addressed in this study have occurred at Agua Hedionda Lagoon, however, and indirect impacts to these species are not expected. In addition, I-5 is eight lanes in width across the lagoon, and combined with surrounding urban development, results in an existing condition that includes night lighting, invasive species, bisection of habitats, and generation/discharge of urban pollutants. There is also a potential for construction-related noise impacts to bird and fish species from pile driving during bridge footing construction at the abutments (the foundation upon which the bridge rests).

Some coastal sage scrub is located downslope on the southeastern slope of the proposed north/south bike/pedestrian path on the east side of Agua Hedionda Lagoon; however, no direct impacts to this area are anticipated. A short retaining wall would allow for bike/pedestrian path construction without additional impacts to the waters of the U.S./state wetland. While the proposed bike/pedestrian path could increase public use in this area, no associated indirect impacts are anticipated based on existing high levels of human use of the area by boaters, jet skiers, paddlers, and the like, as well as the general absence of sensitive habitats and species.

Buena Vista Lagoon

A portion of the territory of one pair of clapper rail may be temporarily affected during construction on the west side of the west- to southbound on-ramp from SR-78 to I-5.[7] No tidewater gobies were detected in protocol sampling near I-5 at Buena Vista Lagoon in 2012. The lack of Belding savannah sparrow habitat within the I-5 construction footprint eliminates the potential for direct impact to this species. Biological resources affected by the replacement and widening of the bridge would include waters of the U.S. and state wetlands and habitat occupied by light-footed clapper rail.

Indirect impacts to sensitive species can result from increased lighting, increased exposure to invasive species, edge effects, and increased potential for pollution from runoff, as well as long-term increases in noise. I-5 is eight lanes in width across the lagoon, and combined with surrounding development, results in an existing condition that includes nighttime lighting, access from invasive species, and

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[7] *I-5 NCC Project Final EIR/EIS* (Section 3.21), October 2013.

bisecting of habitats that could result in edge effects. With respect to indirect noise impacts, the anticipated future increase in traffic volumes on I-5 combined with the proposed wider footprint of the facility, would result in an increase of approximately 2 dBA across the lagoon; however, although population numbers have undergone natural fluctuations over the years, species have continued to consistently forage, nest, and breed, within suitable habitat in areas subjected to a wide range of noise levels (including noise in excess of 70 dBA). Regardless, most of the sensitive species are located a relatively long distance from the freeway, with a correspondingly lessened sensitivity to a 2 dBA increase in noise. Documented special-status bird species with known locations that could be affected include four locations of the light-footed clapper rail and eight locations of Belding's savannah sparrow. Although not expected to nest within the lagoon study area, other sensitive species whose habitat occurs within the lagoon habitat potentially affected by the increased traffic noise include the western snowy plover and California least tern. These species have been documented in the vicinity of the lagoon and may forage over the open water of the lagoon with an associated potential to be affected by increased noise.

5.5.3 PWP/TREP Opportunities, Policies, Design/Development Strategies and Implementation Measures

Proposed LOSSAN rail and I-5 highway improvements would potentially affect ESHAs and special-status species in the corridor; however, the majority of program improvements would occur within previously disturbed and developed areas within the existing rail and highway rights-of-way, and adjacent land areas. In this regard, the PWP/TREP program improvements minimize, to a large extent, potential impacts to ESHAs through design. Where facility improvements could adversely affect resources, mitigation measures would be implemented to avoid and minimize, to the extent feasible, those impacts to resources.

As described in Section 5.4, the proposed PWP/TREP provides a fundamentally unique opportunity to implement a comprehensive, corridor-wide program to restore ESHA and wetland habitat along the 30-mile NCC coastline. Implementation of the REMP could help to restore ESHA features lost by previous construction of adjacent development and uses and the transportation facilities. In addition, the proposed PWP/TREP REMP (detailed in Chapter 6B) would facilitate acquisition and restoration of upland and wetland habitat areas throughout the corridor, and facilitates major lagoon restoration programs that could improve tidal circulation and habitat diversity in the San Elijo and Buena Vista Lagoon systems. Restoring tidal circulation in lagoon systems would significantly improve water quality and the ecological value of the lagoons and adjacent areas to better support ESHAs, special-status species and wildlife. Table 5.5-3 and Table 5.5-4 identify potential upland ESHA impacts and creation, restoration and enhancement opportunities by project phase, as established by the PWP/TREP Implementation Plan Framework (Chapter 6A).

TABLE 5.5-3: SPECIAL-STATUS PLANT SPECIES (LOSSAN RAIL AND I-5 HIGHWAY STUDY AREA)

Scientific Name	Common Name	Special Status	Corridor Location	
			Rail	Highway
Adolphia californica Wats	California adolphia	CNPS List 2	San Elijo Lagoon, east of the San Elijo Lagoon Double Track , City of Encinitas.	Both sides of the slopes of I-5 near San Elijo Lagoon.
Agave shawii	Shaw's agave	CNPS List 2	San Elijo Lagoon, east of the San Elijo Lagoon Double Track, City of Encinitas.	N/A
Ambrosia Pumilla	San Diego ambrosia	CNPS List 1B FE	N/A	Closest recorded occurrence of this species is 2.5 mi east of I-5 along State Route 76 (SR 76).
Arctostaphylos glandulosa ssp. crassifolia	Del Mar Manzanita	CNPS List 1B FE	South and east of Del Mar Tunnel- I-5/Peñasquitos alignment, in the City of San Diego.	Approx. 70 plants were observed at the top of the slopes on both sides of I-5, just north of Del Mar Heights Road to Birmingham Drive.
Atriplex pacifica Nelson	South coast saltscale	CNPS List 1B	N/A	Approx. 100 individuals were observed along a dirt road northwest of the I-5 Manchester interchange.
Baccharis vanessae Beauchamp	Encinitas baccharis	CNPS List 1B FT, SE	N/A	Closest known occurrence is approx. 1,230 ft east of the I-5 near Encinitas Blvd.
Brodiaea filifolia	thread-leaved brodiaea	CNPS List 1B FT, SE	N/A	Closest known location is approx. 1.86 mi east of I-5 near SR 78.
Brodiaea orcuttii	Orcutt's brodiaea	CNPS List 1B	South of Poinsettia Station in the City of Carlsbad.	N/A
Ceanothus cyaneus	Lakeside ceanothus	CNPS List 1B	Potentially occurs in study area in City of Del Mar.	N/A
Ceanothus verrucosus	Wart-stemmed ceanothus	CNPS List 2	San Dieguito Lagoon, east of Jimmy Durante Blvd, and north and east of Del Mar Tunnel- I-5/Peñasquitos alignment, in the cities of Del Mar and San Diego.	Occurs northeast of the I-5 Del Mar Heights Road interchange in San Diego, and east of the I-5 Birmingham Avenue interchange in Encinitas.
Centromadia parryi spp. australis	Southern tarplant	CNPS List 1B	N/A	Occurs along the dirt access road east of I-5 and north of the San Dieguito River.
Centromadia pungens ssp. laevis	Smooth tarplant	CNPS List 1B	Potentially occurs in study area near Camp Pendleton/City of Oceanside boundary.	N/A
Chaenactis Glabriuscula var. orcuttiana	Orcutt's pincushion	CNPS List 1B	Potentially occurs in study area in the cities of Encinitas and Carlsbad.	Approx. 4,700 individuals were observed within the study area around San Elijo Lagoon on both sides of I-5.

Status Key

CNPS:	California Native Plant Society	SE:	State-listed as endangered
FE:	Federally listed as endangered	ST:	State-listed as threatened
FT:	Federally listed as threatened	SR:	State-listed as rare

TABLE 5.5-3: SPECIAL-STATUS PLANT SPECIES (LOSSAN RAIL AND I-5 HIGHWAY STUDY AREA) (CONTINUED)

Scientific Name	Common Name	Special Status	Corridor Location	
			Rail	Highway
Chorizanthe orcuttiana	Orcutt's spineflower	CNPS List 1B FE, SE	Southwest of Los Peñasquitos Lagoon in the City of San Diego, and west of the Del Mar Tunnel-Camino Del Mar alignment, in the City of Del Mar.	N/A
Orcuttia californica	California orcutt grass	CNPS List 1B FE, SE	South of Poinsettia Station in the City of Carlsbad.	N/A
Comarostaphylis diversiloba ssp. diversiloba	Summer holly	CNPS List 1B	Northern border of San Elijo Lagoon in the City of Encinitas, and south of the Del Mar Tunnel-I-5/Peñasquitos alignment in the City of San Diego.	South of San Elijo Lagoon on the southbound slopes of I-5.
Coreopsis maritime	Sea dahlia	CNPS List 2	Southwest of Batiquitos Lagoon and west of the Batiquitos Lagoon Double Track , City of Carlsbad.	Approx. 389 individual plants were observed in the study area primarily north of Manchester Avenue on both sides of I-5.
Corethrogyne filaginifolia var. llinifolia	Del Mar sand aster	CNPS List 1B	Multiple locations within the cities of San Diego, Encinitas and Carlsbad around Batiquitos Lagoon.	Over 2,000 individual plants were observed within the study area between Del Mar Heights Road and Birmingham Avenue along the upper slopes on both sides of I-5.
Corethrogyne filaginifolia var. incana	San Diego sand aster	CNPS List 1B	Northern border of San Elijo Lagoon in the City of Encinitas.	N/A
Dichondra occidentalis	Western dichondra	CNPS List 4	Aqua Hedionda Lagoon, east of LOSSAN rail tracks, City of Carlsbad; and near the Encinitas Pedestrian Crossing at Santa Fe Dr, City of Encinitas.	N/A
Dudleya brevifolia	Short-leaved dudleya	CNPS List 1B SE	East of Del Mar Bluffs Stabilization Phase 3 and west of Del Mar Tunnel-Camino Del Mar alignment, City of Del Mar.	N/A
Dudleya viscida	Sticky dudleya	CNPS List 1B	Near San Luis Rey River north of the CP Eastbrook to CP Shell rail, City of Oceanside.	N/A
Eryngium aristulatum var. parishii	San Diego button-celery	CNPS List 1B FE, SE	Near Poinsettia Station in the City of Carlsbad.	Camp Pendleton, Carlsbad, San Marcos, Miramar Naval Air Station, Clairemont Mesa, and Otay Mesa. *No vernal pools in study area, so not expected to occur within project limits.*

Status Key

CNPS:	California Native Plant Society	SE:	State-listed as endangered
FE:	Federally listed as endangered	ST:	State-listed as threatened
FT:	Federally listed as threatened	SR:	State-listed as rare

TABLE 5.5-3: SPECIAL-STATUS PLANT SPECIES (LOSSAN RAIL AND I-5 HIGHWAY STUDY AREA) (CONTINUED)

Scientific Name	Common Name	Special Status	Corridor Location	
			Rail	Highway
Euphorbia misera	Cliff spurge	CNPS List 2	Aqua Hedionda Lagoon, east of the 8-Carlsbad Double Track rail, City of Carlsbad.	N/A
Ferocactus viridescens	Coast barrel cactus	CNPS List 2	South and east of Del Mar Tunnel- I-5/Peñasquitos alignment, in the City of San Diego.	Found on slopes northwest of the I-5/Genesee interchange, on the slopes on both sides of I-5 near San Elijo Lagoon, and west of I-5 on the northern slopes of Batiquitos Lagoon.
Harpagonella palmeri	Palmer's grappling hook	CNPS List 2	San Elijo Lagoon, east of San Elijo Lagoon Double Track, City of Encinitas.	N/A
Lotus nuttallianus	Nuttall's lotus	CNPS List 1B	San Luis Rey River and near Oceanside Harbor in the City of Oceanside; south and west of Batiquitos Lagoon in the City of Carlsbad; and within San Elijo Lagoon in the City of Encinitas.	N/A
Myosurus minimus ssp. apus	Little mousetail	CNPS List 3	South of Poinsettia Station in the City of Carlsbad.	N/A
Navarretia fossalis	Moran/Spreading navarretia	CNPS List 1B FT	N/A	Occurred in relatively few of the San Diego County vernal pools. Found in Carlsbad, San Marcos, Ramona, and Otay Mesa. *Not expected to occur in the study area due to lack of suitable habitat.*
Pinus torreyana ssp. Torreyana	Pinaceae (Torrey Pine)	CNPS List 1B	West of I-5, north and south of the Del Mar Tunnel- I-5/Peñasquitos alignment, City of San Diego.	Planted Torrey pines along much of the I-5. Some near San Elijo Lagoon may be native occurrences.
Quercus dumosa	Nuttall's scrub oak	CNPS List 1B	Potential to occur within study area as part of the Miramar Tunnel alignment.	Observed at the top of the north and southbound slopes, just north of Del Mar Heights Road and on the upper slopes near San Elijo Lagoon.
Suaeda esteroa	Estuary seablite	CNPS List 1B	San Dieguito and Batiquitos Lagoon.	High salt marsh around San Dieguito, Batiquitos, and Agua Hedionda Lagoons.

Status Key

CNPS: California Native Plant Society
FE: Federally listed as endangered
FT: Federally listed as threatened
SE: State-listed as endangered
ST: State-listed as threatened
SR: State-listed as rare

TABLE 5.5-4: SPECIAL-STATUS WILDLIFE SPECIES (LOSSAN RAIL AND I-5 HIGHWAY STUDY AREA)

Scientific Name	Common Name	Federal/State Status	Corridor Location	
			Rail	Highway
Accipiter striatus	Sharp-shinned hawk	SSC	N/A	Observed during general wildlife surveys.
Accipiter cooperii	Cooper's hawk	SSC	Observed east of I-5 and Del Mar Tunnel- I-5/Peñasquitos alignment, on the Dean Family Trust property, City of San Diego.	Observed during general wildlife surveys.
Agelaius tricolor	Tricolored blackbird	SSC	Observed within San Dieguito Lagoon in the City of San Diego, near its border with the City of Del Mar.	N/A
Aimophila ruficeps canescens	Rufous-crowned sparrow	SSC	Observed east of the Del Mar Tunnel- I-5/Peñasquitos alignment in the City of San Diego.	Observed during general wildlife surveys at San Dieguito Lagoon.
Ardea herodias	Great blue heron	SSC	Observed within San Luis Rey River in the City of Oceanside, and within San Dieguito Lagoon at the City of Del Mar/San Diego border.	Observed in lagoons during general wildlife surveys. Some nesting habitat may be present at San Elijo Lagoon.
Asio otus	Long-eared owl	SSC	Observed within San Elijo Lagoon, east of San Elijo Lagoon Double Track, City of Encinitas.	N/A
Branchinecta sandiegonensis	San Diego fairy shrimp	FE	Observed Near Poinsettia Station and near Palomar Airport Road, City of Carlsbad.	N/A
Campylorhynchus brunneicapillus couesi	Coastal cactus wren	SSC	Observed east of I-5 and Del Mar Tunnel- I-5/Peñasquitos alignment.	N/A

Status Key

FE: Federally listed as endangered
FT: Federally listed as threatened
FSC: Federal Species of Concern
SE: State-listed as endangered
ST: State-listed as threatened
SR: State-listed as rare
CFP: State of California fully protected
SP: State of California protected
SSC: State of California (CDFG) Species of Concern
BLM: Bureau of Land Management Sensitive Species

TABLE 5.5-4: SPECIAL-STATUS WILDLIFE SPECIES (LOSSAN RAIL AND I-5 HIGHWAY STUDY AREA) (CONTINUED)

Scientific Name	Common Name	Federal/State Status	Corridor Location	
			Rail	Highway
Casmerodius albus	Great egret	SSC	N/A	Observed in and around lagoons and associated upland habitat during general wildlife surveys.
Charadrius alexandrinus nivosus	Western snowy plover	FT, SSC	Observed near outlet of Batiquitos Lagoon to Pacific Ocean, west of the rail track, in the City of Carlsbad, and within the northwestern portion of Los Peñasquitos Lagoon, east and west of the rail corridor, in the City of San Diego.	Known to occur in some of the coastal lagoons; however, no nesting area within the project footprint. Some foraging habitat may be impacted at Batiquitos and Agua Hedionda Lagoons.
Circus cyaneus	Northern harrier	SSC	Observed near San Luis Rey River in the City of Oceanside, near the southwestern border of the San Dieguito River, and adjacent to the Del Mar Tunnel- I-5/Peñasquitos in the City of Del Mar.	Observed at San Dieguito Lagoon.
Cnemidophorus hyperythrus	Orange-throated whiptail	SSC, SP	Observed northeast of the northern terminus of Los Peñasquitos Lagoon in the City of Del Mar, and east of I-5 and Del Mar Tunnel- I-5/Peñasquitos alignment, on the Dean Family Trust property, in the City of San Diego.	Observed during general wildlife surveys in coastal sage scrub.
Dendroica petechia	Yellow warbler	SSC	Observed within San Luis Rey River Southern Coastal Salt Marsh between rail and highway corridors, City of Oceanside, and within San Elijo Lagoon, east of the San Elijo Double Track, City of Encinitas.	Observed during general wildlife surveys in riparian areas.

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TABLE 5.5-4: SPECIAL-STATUS WILDLIFE SPECIES (LOSSAN RAIL AND I-5 HIGHWAY STUDY AREA) (CONTINUED)

Scientific Name	Common Name	Federal/State Status	Corridor Location	
			Rail	Highway
Elanus leucurus majusculus	White-tailed kite	FP, SSC	Observed in San Dieguito Lagoon.	Observed foraging within the study area, generally over agricultural fields and at San Dieguito and San Elijo Lagoons during general wildlife surveys. No nest sites were observed.
Empidonax traillii extrimus	Migrant flycatcher	FE, SE	Migrant flycatchers observed within and near San Luis Rey River in the City of Oceanside.	Surveys within the San Luis Rey River riparian habitat did not detect the flycatcher. San Elijo Lagoon Conservancy has records of migrant flycatchers at the Lagoon outside the study area.
Eremophila alpestris actia	California horned lark	SSC	Observed within San Elijo Lagoon, east of the San Elijo Lagoon Double Track, in the City of Encinitas, and within San Dieguito River in the City of San Diego.	Present on revegetating slopes of the new Auxiliary lane on the northbound side of I-5, south of San Dieguito River.
Eucyclogobius newberryi	Tidewater goby	FE, SSC	Potentially occurs in study area in San Luis Rey River, Buena Vista and Agua Hedionda Lagoon.	Recorded in San Mateo Creek, San Onofre Creek, Las Pulgas Creek, Aqua Hedionda, and Buena Vista Lagoons. Known to occur in the San Luis Rey. Surveys and habitat evaluations of the lagoons found no habitat or gobies near I-5.
Eumeces skiltonianus interparietalis	Coronado Island skink	SSC	Potentially occurs in study area south of Los Peñasquitos Lagoon.	At least one individual observed near the I-5/I-805 merge. Others potentially throughout the study area.
Falco peregrinus	Peregrine falcon	CFP	Observed near the Encinitas Pedestrian Crossing at Montgomery in the City of Encinitas; and within San Elijo Lagoon, east of the San Elijo Lagoon Double Track, in the City of Encinitas.	Observed near San Dieguito Lagoon

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TABLE 5.5-4: SPECIAL-STATUS WILDLIFE SPECIES (LOSSAN RAIL AND I-5 HIGHWAY STUDY AREA) (CONTINUED)

Scientific Name	Common Name	Federal/State Status	Corridor Location	
			Rail	Highway
Felis concolor	Mountain lion	CFP	Observed south of Los Peñasquitos Lagoon, west of the rail corridor, in the City of San Diego.	N/A
Ixobrychus exilis	Least bittern	SSC	N/A	Observed in the drainage parallel to I-5 near San Dieguito Lagoon, and in general wildlife surveys near San Elijo Lagoon..
Lanius ludovicianus	Loggerhead shrike	FSC, SSC	Observed within San Dieguito Lagoon in the City of San Diego, west of the I-5, northeast of the Del Mar Tunnel- I-5 Peñasquitos alignment.	Observed at the Racetrack View Mitigation Site west of I-5. High probability to occur in other areas based on historical location data and presence of suitable habitat within the study area.
Larus californicus	California gull	SSC	Observed within southern portion of the San Dieguito River in the City of Del Mar, near its border with the City of San Diego.	N/A
Neotoma lepida intermedia	San Diego desert woodrat	SSC	Potentially occurs in study area in the City of Del Mar.	Captured during trapping studies south of San Dieguito Lagoon.
Numenius americanus	Long-billed curlew	SSC	Observed within San Dieguito Lagoon in the City of Del Mar, near its border with the City of San Diego.	Observed during general wildlife surveys feeding in mudflats within the lagoons.
Nycticorax nycticorax	Black-crowned night heron	BLM Sensitive Special Animal	Observed within the San Luis Rey River, east of CP Eastbrook to CP Shell rail, City of Oceanside; and within San Dieguito Lagoon near the border of the City of San Diego and City of Del Mar.	Observed during general wildlife surveys in several of the lagoons.
Oncorhynchus mykiss irideus	Southern Steelhead Trout – Southern ESU	FE, SSC	N/A	In May 2007, a steelhead trout was reported by CDFG personnel in the lower San Luis Rey River.
Pandion haliaetus	Osprey	SSC	N/A	Observed at Batiquitos and San Dieguito Lagoons.

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TABLE 5.5-4: SPECIAL-STATUS WILDLIFE SPECIES (LOSSAN RAIL AND I-5 HIGHWAY STUDY AREA) (CONTINUED)

Scientific Name	Common Name	Federal/State Status	Corridor Location	
			Rail	Highway
Passerculus sandwichensis beldingi	Belding's savannah sparrow	SE	Observed within Los Peñasquitos Lagoon east of the Peñasquitos Double Track and west of the Del Mar Tunnel-I-5/Peñasquitos alignment in the City of San Diego, north of San Dieguito River in the City of Del Mar, and within San Dieguito Lagoon near the City of Del Mar/San Diego border.	In 2005, sparrows were found in San Dieguito, San Elijo, Batiquitos, and Buena Vista Lagoons. In 2006, additional surveys completed at San Dieguito identified more sparrows in the northeastern portion of the study area.
Pelecanus erythrorhynchos	American white pelican	SSC	Observed within Buena Vista Lagoon in the City of Carlsbad; and within San Elijo Lagoon, east of the San Elijo Lagoon Double Track, in the City of Encinitas.	Observed in San Elijo, Batiquitos, and Buena Vista Lagoons during general wildlife surveys.
Perognathus fallax fallax	Northwestern San Diego pocket mouse	SSC	Potentially occurs in study area in Los Peñasquitos Lagoon.	Captured during trapping studies on the slopes south of San Dieguito Lagoon, and around San Elijo Lagoon.
Perognathus longimembris pacificus	Pacific pocket mouse	FE, SSC	Observed south of the Del Mar Tunnel- I-5/Peñasquitos alignment and north of the alignment near the San Dieguito River in the City of San Diego.	In San Diego County, found in open patches of ground surrounded by weeds as well as sandy soils within coastal sage scrub habitat. *Based on protocol live-trapping results, no pocket mice are expected to occur within the project area..*
Phalacrocorax auritus	Double-crested cormorant	SSC	Observed near Buena Vista Lagoon in the City of Carlsbad; within San Dieguito Lagoon in the City of Del Mar, near its border with the City of San Diego; and within San Elijo Lagoon, east of the San Elijo Lagoon Double Track, in the City of Encinitas.	Observed foraging in lagoons during general wildlife surveys.

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TABLE 5.5-4: SPECIAL-STATUS WILDLIFE SPECIES (LOSSAN RAIL AND I-5 HIGHWAY STUDY AREA) (CONTINUED)

Scientific Name	Common Name	Federal/State Status	Corridor Location	
			Rail	Highway
Phrynosoma coronatum blainvillei	San Diego horned lizard	SSC	N/A	At least one individual caught near Del Mar Heights Road during small mammal trapping. More likely to occur within the study area.
Plegadis chihi	White-face ibis	SSC	Observed within San Dieguito Lagoon in the City of San Diego, near its border with the City of Del Mar.	N/A
Polioptila californica californica	Coastal California gnatcatcher	FT, SSC	Observed near the Los Peñasquitos Lagoon and Sorrento Valley Bridge Replacement in the cities of Del Mar and San Diego, and east of the Del Mar Tunnel- I-5/Peñasquitos alignment, on the Dean Family Trust property in the City of San Diego.	Found along the fill slopes of a few cut slopes adjacent to the lagoons and in a few adjacent canyons with coastal sage scrub habitat.
Progne subis	Purple martin	SSC	Observed within San Elijo Lagoon, east of the San Elijo Lagoon Double Track, in the City of Encinitas.	N/A
Rallus longirostris levipes	Light-footed clapper rail	CFP FE, SE	Observed near Buena Vista Lagoon in the City of Oceanside and City of Carlsbad, within San Elijo Lagoon, east of the San Elijo Lagoon Double Tracl, in the City of Encinitas, and within Los Peñasquitos Lagoon, east of the Peñasquitos Double Track and west Del Mar Tunnel- I-5/Peñasquitos alignment in the City of San Diego.	Detected within 500 ft of I-5 in Buena Vista and San Elijo Lagoons. Detected south of the survey area. Observed adjacent to the park and ride at La Costa and on the north shore of Batiquitos Lagoon.
Rana draytonii	California red-legged frog	FT	Observed east of the rail corridor, near Loma Alta Creek in the City of Oceanside.	N/A
Riparia riparia	Bank swallow	ST	Observed within San Elijo Lagoon, east of the San Elijo Lagoon Doulbe Track, in the City of Encinitas.	Observed on eastern slopes of I-5 at San Dieguito Lagoon

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TABLE 5.5-4: SPECIAL-STATUS WILDLIFE SPECIES (LOSSAN RAIL AND I-5 HIGHWAY STUDY AREA) (CONTINUED)

Scientific Name	Common Name	Federal/State Status	Corridor Location	
			Rail	Highway
Rynchops niger	Black skimmer	SSC	Observed within San Dieguito Lagoon in the City of San Diego, near its border with the City of Del Mar.	N/A
Sterna antillarum browni	California least tern	CFP FE, SE	Observed south and west of Batiquitos Lagoon in the City of Carlsbad, within San Luis Rey River in the City of Oceanside, within San Dieguito Lagoon at the City of Del Mar; and, west of the San Dieguito Double Track and Platform, near the Del Mar Fairgrounds Special Event Platform, in the City of Del Mar.	Known nesting areas in San Elijo and Batiquitos Lagoons. Observed foraging in San Elijo and Batiquitos Lagoon within the study area in 2003.
Sterna elegans	Elegant tern	SSC	Observed within San Dieguito Lagoon in the City of Del Mar, near its border with the City of San Diego.	N/A
Streptocephalus woottoni	Riverside fairy shrimp	FE	Observed east of Poinsettia Station in the City of Carlsbad.	N/A
Thamnophis hammondii	Two-striped garter snake	SSC	N/A	Observed during general wildlife surveys near San Dieguito River.
Vireo bellii pusillus	Least Bell's vireo	FE, SE	Observed south of Los Peñasquitos Lagoon in the City of San Diego, north of San Elijo Lagoon, and west of the rail in the City of Carlsbad.	Two vireo territories were detected in the willow woodland east of I-5 near the San Dieguito River outside the study area. They were also detected in Oceanside in small patches of riparian habitat near the I-5.

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5.5.3.1 PWP/TREP Lagoon, Wetland, Riparian and Upland Enhancement Opportunities

The PWP/TREP includes a comprehensive REMP that has been developed to identify compensatory mitigation measures to address unavoidable ESHA impacts, and to implement resource enhancement opportunities that exceed the benefits of standard compensatory mitigation programs. The REMP employs a combination of measures to mitigate for ESHA impacts resulting from implementation of the NCC transportation improvements and community enhancement projects. In addition to the REMP projects and funding elements that will enhance and maintain ESHA associated with the NCC's coastal lagoons and inland waterways (as detailed in Section 5.4), the REMP includes upland habitat mitigation parcels purchased for the PWP/TREP program in consideration of the sites' contribution to protecting and enhancing NCC lagoon system and watershed functions and the sites' ability to meet no net loss of sensitive upland habitat through establishment, restoration, preservation, and to support special-status plant and animal species. In addition, the REMP approach to advancing habitat establishment, restoration and preservation mitigation projects ahead of PWP/TREP impacts, and designing transportation facility infrastructure improvements to avoid and minimize project impacts, thereby inherently enhancing lagoon system function and services, where feasible, results in greater benefits to coastal resources on a corridor-wide level than if only ratio-based, project- and site-specific mitigation were employed.

The opportunities identified within this REMP, including early acquisition of sites containing high-value habitat for long-term preservation, will be phased ahead of or concurrent with unavoidable impacts from planned PWP/TREP transportation infrastructure and community enhancement projects. Implementing the REMP and individual compensatory mitigation sites in advance of unavoidable impacts will serve to reduce typically required mitigation ratios by reducing the uncertainty of location, type, and quantity of mitigation and by reducing temporal loss of habitat acreage, functions, and services from construction-related impacts. In addition, phasing transportation facility infrastructure at sensitive locations has been specifically designed to avoid and minimize impacts, protect existing lagoon system functions and services, and allow for future large-scale lagoon restoration projects.

The program would achieve no net loss of upland habitat to ensure that the quantity, variety, and range of coastal habitats in the corridor would not be diminished because of the proposed rail and highway improvements. The program also provides for habitat preservation, thereby facilitating the preservation of remaining upland resources in the corridor. Furthermore, as detailed in Section 5.4, the PWP/TREP would facilitate the implementation of comprehensive lagoon restoration efforts for San Elijo and Buena Vista Lagoons. In Batiquitos and Los Peñasquitos Lagoons, an endowment for long-term lagoon maintenance will also be provided as part of the REMP. Furthermore, all mitigation sites include funding for long-term maintenance and management efforts. These efforts would serve not only to substantially enhance and restore water quality and wetlands in the corridor, they would also serve to restore, enhance, and protect different habitat types (and special-status species supported by those habitats) within the lagoon ecosystems. While these restoration efforts would not focus on traditional in-kind habitat replacement mitigation ratios, the overall programs would result in the restoration and enhancement of an integrated ecosystem, providing habitat for fish, birds, and benthic organisms, which would adequately compensate for the loss of wetland and upland habitat that would occur from the PWP/TREP rail and highway improvements. Opportunities for upland, lagoon, wetland, and riparian resource enhancement have been reviewed in all the watersheds along the NCC. These opportunities are described in detail in Chapter 4, "Scope of Planned Improvements" and Chapter 6A, "Implementation."

Furthermore, the PWP/TREP would also provide a unique opportunity to improve the coastal bluff area in Del Mar by potentially removing the existing rail service from the bluff area and precluding further rail

construction along the bluffs. These future improvements could reduce development and maintenance activities on the bluff and shoreline and create an opportunity to remove existing shoreline protective devices, restore coastal bluff resources, and reduce long-term shoreline erosion impacts in the marine environment.

It is recognized that new opportunities for various types of resource improvements may become available in the corridor after adoption of the PWP/TREP, due to factors such as additional funding availability, completed habitat restoration plans, or land acquisition options. In addition, some mitigation opportunities that would promote large-scale ecological improvements to resources may be considered more critical for the region, while others that would contribute to enhancing a smaller area within the corridor may be considered less critical for achieving regional goals. Widespread improvements to natural resources in the NCC require a unique, comprehensive approach to resource enhancement with input from multiple regulatory agencies and stakeholders. These factors make it necessary to maintain flexibility when considering the most appropriate mitigation opportunity.

The REMP is the framework used to describe the available resource enhancement opportunities on a corridor-wide level based on these evolving factors. The REMP framework provides for supplementing the mitigation opportunities package when new opportunities arise, which could be authorized pursuant to future project-specific Notice of Impending Developments (NOIDs) for PWP projects, coastal development permits, or federal consistency review, as applicable (see also REMP Implementation Framework section in Chapter 6A).

Accounting of REMP project implementation, credit establishment, and release, maintenance and monitoring will be tracked and reported pursuant to NOID, future phased federal consistency or coastal development permit submittals for all PWP/TREP projects to ensure the overall program implementation is consistent with approved impacts and meets required mitigation and resource benefits identified in the PWP/TREP Phasing Plan. Chapter 6 of the PWP/TREP also requires that a report updating the status of all projects within the REMP be submitted to the California Coastal Commission annually for review. Each no net loss mitigation site will have its own funding and mitigation and monitoring plan (with remedial measures) in the event the site is not attaining its goals. If a site develops a fatal flaw that cannot be corrected on-site, SANDAG/Caltrans will identify and implement mitigation at another location. In most cases, problems on a mitigation site can be corrected on-site through additional grading, planting, weeding, or soil amendment. In addition, funding could be shifted between projects if a project proposed now is not carried forward. In addition, the PWP/TREP Implementation Framework ensures that all REMP projects are reviewed and monitored as part of the development review process for all other projects included in the PWP/TREP, regardless of the specific Coastal Commission approval process required for each REMP project.

Caltrans and SANDAG continue to seek appropriate parcels for restoration and/or preservation of native upland habitats for mitigation in coordination with the affected resource agencies; current identified opportunities are described in detail within Chapter 6A, “Implementation.” SANDAG/Caltrans propose to complete mitigation in advance of project impacts, where feasible, and as approved by the resource agencies.

5.5.3.2 PWP/TREP Policies

Caltrans and SANDAG would implement the following policy to ensure that proposed improvements are designed, implemented, and maintained to provide for maximum protection of ESHAs and special-status species as identified in Figures 5.5-1A–5.5-6B.

Policy 5.5.1: Development of NCC transportation facility and community enhancement projects shall be sited and designed to ensure that ESHAs are protected against any significant disruption of habitat values. Development in areas adjacent to ESHAs shall be sited and designed to prevent impacts that would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

5.5.3.3 PWP/TREP Design/Development Strategies

The following design and development strategies provide guidance for siting and designing specific PWP/TREP rail projects, and Caltrans/SANDAG shall utilize the following design and development strategies for all projects subject to NOID procedures, consistent with the ESHA and special-status species protection policies of PWP/TREP Policy 5.5.1, amended LCPs, and the Coastal Act.

1. Project-level analysis for potential impacts of new transportation improvements and associated community and resource enhancements improvements on ESHAs and special-status species shall be conducted and subject to review during subsequent project-specific Federal Consistency, NOID, or Coastal Development Permit Reviews to assess and identify all potential permanent or temporary impacts to ESHAs and special-status species and appropriate mitigation measures to ensure project consistency with Coastal Act Section 30240.
2. Habitat Mitigation and Monitoring Plans (HMMP) will be prepared for mitigation areas and will specify the design and implementation of biological resources mitigation measures, including habitat replacement and revegetation, protection during construction, performance (growth) standards, maintenance criteria, and monitoring requirements. The REMP Working Group would review and approve draft HMMPs prior to NOID or coastal development permit submittal. The primary goal of an HMMP is to ensure the long-term perpetuation of the existing diversity of habitats in the project area and adjacent urban interface zones.
3. Impact reduction measures for sensitive coastal upland and wetland habitats shall include construction monitoring and shall fully mitigate impacts pursuant to the REMP detailed in Chapter 6B as it relates to no net loss of habitat, habitat preservation, and comprehensive lagoon restoration program mitigation.
4. Mitigation measures for sensitive vegetation communities and rare plants shall include, but shall not be limited to, preconstruction focused surveys, construction monitoring, relocation of plants, seed collection, plant propagation, and salvaging of plant species to a suitable mitigation site. Prior to construction, focused surveys shall be conducted for sensitive plant species. Locations of sensitive plant species observed shall be mapped on construction drawings. Research must be conducted on appropriate methods to use on a species-by-species basis. Some plant species may require transplantation, whereas others may germinate from seed, and still others may need to be propagated in a greenhouse prior to planting on an appropriate mitigation site.
5. During construction, specific measures for weed control shall be developed to minimize or prevent the spread of weeds. Preventive measures during construction could include identifying areas with existing weed problems and controlling traffic moving out of those areas (e.g., cleaning of construction vehicles, limitations on movement of fill).
6. Mitigation measures for sensitive wildlife species may include, but not be limited to, preconstruction focused surveys, construction monitoring, and the restoration of suitable breeding and foraging habitat as established in the REMP. Prior to construction, focused surveys would be conducted for sensitive wildlife species, with locations of sensitive wildlife species observed mapped on construction drawings. Vegetation clearing prior to onset of construction impacts may be implemented to minimize the wildlife use of areas slated for construction, and thereby minimize indirect and direct impacts to wildlife species. The clearing and grubbing of native wetland, riparian,

and/or upland habitats shall occur outside of the breeding seasons for nesting birds to avoid impacts to sensitive species. All native or sensitive habitats outside and adjacent to the permanent and temporary construction limits shall 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 shall be allowed within these areas. Temporary construction fencing and markers shall be maintained in good repair until the completion of each phase of project construction and removed upon completion of each project phase.

7. Wildlife crossings shall be of a design, shape and size to be sufficiently attractive to encourage wildlife use. Overcrossings and undercrossings for wildlife shall be appropriately vegetated to afford cover, fenced as needed to promote directional movement through the corridor, and other species requirements. Functional corridors shall be established to provide connectivity to protected land zoned for uses that provide wildlife permeability.
8. To minimize impacts to migratory birds dependent on lagoons for stop over, resting, and foraging habitats along the Pacific flyway, PWP/TREP infrastructure construction activities shall not occur in more than two lagoons at any one time.
9. A project-specific biological evaluation of the development area shall be conducted for all improvements proposed in areas where ESHA and special status species may occur and shall be submitted with the project-specific submittal package. The evaluation shall include any changed site conditions that could affect ESHA values or special-status species protected by the PWP/TREP. A biological evaluation shall be completed in the proposed development area (i.e., the proposed development footprint and a surrounding 100-foot buffer area). Should ESHAs and/or special-status species be identified during this process that are not already considered in the PWP/TREP, all ESHA and/or special-status species resource protection measures included in this PWP/TREP shall be applied to the newly identified resources. For any newly identified ESHA, an appropriate buffer shall be established, based on site-specific conditions in accordance with Implementation Measure 5.5.9.

5.5.3.4 Implementation Measures

Caltrans/SANDAG would utilize the following implementation measures for all projects, subject to NOID procedures:

- **Implementation Measure 5.5.1:** The following conservation measures shall be implemented during construction for all new transportation improvements and associated community and resource enhancements to minimize impacts to sensitive communities as identified in Figure 5.5-1A through Figure 5.5-6B:
  - All native habitats outside the permanent and temporary construction limits shall be temporarily fenced during construction with orange snow fence and no access will be allowed.
  - Cut slopes would be revegetated with native upland habitats with similar composition to those within the project limits. Fill slopes and areas adjacent to wetlands and drainages would be revegetated with appropriate native upland and wetland species. The revegetated areas would have temporary irrigation and be planted with native container plants and seeds selected by the biologist. There would be at least three years of plant establishment/maintenance on these slopes to control invasive weeds and ensure that the plants become established, and review of these revegetation efforts would be included in the REMP reports submitted to the Coastal Commission. Success criteria for plant establishment would be included in any revegetation plan submitted for cut slopes and areas of temporary impacts. Bioswales and detention basins would be planted with appropriate native species as determined by the biologist and storm water personnel.

- Landscaping plans shall include only species native to southern California such that the proposed planted areas will be compatible with surrounding natural and manmade areas. No plant species listed as problematic or invasive by the California Native Plant Society (http://www.CNPS.org/), the California Invasive Plant Council (http://www.cal-ipc.org/), or as may be identified from time to time by the State of California shall be employed or allowed to naturalize or persist on the site. No plant species listed as a "noxious weed" by the State of California or the U.S. Federal Government shall be utilized within the property.
- Any seeding of native upland habitats would be completed between October and February to ensure that the seed has proper conditions for germination.
- Top soil from areas with coastal sage scrub, maritime succulent scrub, and maritime chaparral that do not have high weedy species would be stockpiled and used during the revegetation effort to aid in revegating the slopes with native habitats.
- All temporary impact areas would be revegetated and restored to pre-existing conditions.

- **Implementation Measure 5.5.2:** Seeds shall be collected or plants shall be salvaged to the extent practicable in the impact areas for all new transportation improvements and associated community and resource enhancement projects. Salvaged plants and seed shall be planted in mitigation sites, on revegetated new slopes, or in revegetated areas that were temporarily impacted.
- **Implementation Measure 5.5.3:** All efforts shall be made to eradicate invasive plant species. 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 would be removed. Weed removal would be conducted within the project right-of-way at least once per year during the construction period. Revegetated slopes would be kept weed free to prevent any invasive weed species from reinvading the slopes. Measures shall be implemented to avoid the transporting, use and disposing of soils with invasive weed seeds, such as inspection and cleaning of construction equipment, use of eradication strategies, and washing all heavy equipment prior to entering any lagoon area, to minimize the spread of invasive weeds. All weedy vegetation removed during construction would be properly disposed of to prevent spread into areas outside of the construction area.
- **Implementation Measure 5.5.4:** To minimize impacts to nesting migratory bird species, all native vegetation and non-native shrubs and trees within the impact areas shall be removed outside of the breeding season (February 15 to September 15), if possible. Otherwise, a qualified biologist shall thoroughly survey all vegetation prior to removal to ensure there are no nesting birds on-site. If nesting birds are identified on-site, vegetation removal shall be delayed and an appropriate buffer established, until the chicks have fledged or the nest has failed.
- **Implementation Measure 5.5.5:** Future bridges shall be designed to be bat friendly.
- **Implementation Measure 5.5.6:** Exclusion devices shall be installed on bridge drain holes and ledges during the non-breeding season (September 1 through February 15) to stop swallows, swifts, and any other birds or bats from nesting on or within bridges to be demolished.
- **Implementation Measure 5.5.7:** Impacts to Del Mar Manzanita shall be mitigated by salvaging individual plants from the affected area and planting them in a compensatory mitigation site for the project.
- **Implementation Measure 5.5.8:** The following mitigation measures shall be implemented for all new transportation and associated community and resource enhancement projects to minimize impacts to wildlife species during construction.

- A channel large enough to maintain hydrologic function/connectivity and for fish passage would be kept open throughout construction within the San Luis Rey River and all of the lagoons.
- All pile driving near the lagoons would be completed outside the bird breeding season (February 15-September 15) to minimize construction noise impacts to bird species around the lagoons.
- If pile-driving takes place in or adjacent to lagoon waters greater than 1 meter in depth, there shall be a hydroacoustic monitoring plan to avoid injury to fish or marine mammals from high levels of underwater sound. The plan shall take into consideration both peak and cumulative exposure to sound. The plan shall include provisions for stopping pile driving if Caltrans dual criteria for injury to fish are exceeded.
- During in-water bridge construction activities at all lagoons, bubble curtains or other methods to minimize acoustical impacts to aquatic species would be implemented. These measures would be developed in conjunction with the resource agencies when the project design and construction methodology is further developed.
- A qualified biologist would be made available for both the preconstruction and construction phases to review grading plans, address protection of sensitive biological resources, and monitor ongoing work. The biologist should be familiar with the habitats, plants, and wildlife of the project area, and maintain communications with the resident engineer, to ensure that issues relating to biological resources are appropriately and lawfully managed.
- Detention basins would be placed in many of the loop ramps, and bioswales would be placed on many of the slopes to treat runoff from the freeway.
- Lighting used at night for construction would be shielded away from ESHAs.
- Dust generated by proposed operations would be controlled with BMPs.

- **Implementation Measure 5.5.9:** Buffers/setbacks for ESHAs delineated at the time of PWP/TREP certification shall be maintained, unless reduced ESHA buffers/setbacks are authorized pursuant to the NOID and/or Public Works Plan Amendment procedures contained in Chapter 6A. For any new ESHAs identified and delineated pursuant to Design/Development Strategy 9, development shall be sited and designed to minimize ESHAs impacts, appropriate buffers/setbacks provided based on a site-specific biological evaluation confirming the buffers/setbacks are adequate to avoid or minimize significant adverse impacts to ESHA.
- **Implementation Measure 5.5.10:** NOID or Coastal Development Permit submittals for native upland habitat establishment, restoration and/or enhancement plans proposed in accordance with the REMP detailed in Chapter 6B shall include the following information and materials:
  - Clearly stated objectives and goals for the habitat establishment, restoration and/or enhancement plans.
  - Baseline data regarding the biological, physical, and chemical criteria for the establishment, restoration and/or enhancement site.
  - Documentation demonstrating that the proposed establishment, restoration, or enhancement project will continue to function over the long term.
  - Technical detail in the project design including, at a minimum, an engineered grading plan and water control structures, methods for conserving or stockpiling topsoil, a planting program including removal of exotic species, a list of all species to be planted, sources of seeds or plants, timing of planting, plant locations and elevations on the mitigation site base map, and maintenance techniques.

- Documentation of performance standards, which provide a mechanism for making adjustments to the establishment, restoration or enhancement site when it is determined through monitoring that the enhancement or restoration techniques are not successful.
- Description of management and maintenance requirements, and provisions for remediation should the need arise.
- An implementation plan that demonstrates there is sufficient scientific expertise, supervision, and financial resources to carry out the proposed activities.
- A monitoring program to be implemented for 5 to 10 years after completion of the habitat establishment, restoration or enhancement project with appropriate provisions to ensure the project has successfully met the stated goals and long-term objectives, such as a permanent restrictive covenant to be recorded over the mitigation area.

5.5.4 Coastal Act Consistency

Coastal Act Section 30240

Coastal Act Section 30240 provides for the protection of environmentally sensitive habitat areas of the coastal zone:

a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Section 30240 of the Coastal Act sets forth a strict limitation on the type of development and uses that are permitted to occur in ESHA, and requires that new development be compatible with the continuance of ESHA, and be sited and designed to prevent impacts that would significantly degrade ESHA.

5.5.4.1 PWP/TREP ESHA Impacts and Allowable Uses

Section 30240 of the Coastal Act mandates that only resource-dependent uses be allowed in ESHAs. As the existing location of the NCC rail and highway facilities requires that some PWP/TREP improvements occur in areas containing ESHAs, it is infeasible to avoid all impacts to ESHAs during construction of the proposed improvements. Thirteen (13) proposed PWP/TREP community enhancement projects that would improve public access to trails (i.e., community enhancements SD#1, SD#3, SB#2, EN#1, EN#3, EN#4, EN#6b, CB#1a, CB#2, CB#3, OC#1, OC#6, and OC#7; see Chapter 4 for details)and contemplated habitat restoration plans are considered resource-dependent uses and therefore are permitted uses in ESHAs; however, the majority of the PWP/TREP improvements consist of public facility improvements, which are not typically considered resource-dependent uses. As such, PWP/TREP improvements that do not consist exclusively of resource-dependent uses are inconsistent with the limited uses permitted in ESHAs as required by Section 30240 of the Coastal Act. The issue of PWP/TREP conflicts with Section 30240 of the Coastal Act is discussed further in this section under Coastal Act Consistency Analysis, and is evaluated in detail in Section 5.10, Coastal Act Policy Conflict Resolution. As detailed in Section 5.10, the proposed PWP/TREP could be found consistent with the Coastal Act through the conflict-resolution provision of Coastal Act Section 30007.5, when it is demonstrated that there are no feasible less-damaging alternatives for project components that would

result in unavoidable impacts to ESHA, and that feasible mitigation measures have been included in the PWP/TREP to minimize significant adverse environmental impacts.

Evaluation of Feasible Alternatives

Section 5.10, Coastal Act Policy Conflict Resolution analyzes program-level alternatives to address mobility deficiencies and enhance multimodal access throughout the corridor. Based on this analysis, the program of improvements included in the PWP/TREP provides the least environmentally damaging, feasible project alternative to avoid or reduce impacts to coastal resources, while implementing Coastal Act policies that mandate protection of coastal resources by 1) minimizing energy consumption and vehicle miles travelled, and protecting air quality (Section 30253); 2) concentrating new development in or adjacent to areas able to accommodate growth (Section 30250); 3) providing and enhancing transit and non-automobile circulation, and ensuring that the potential for public transit is provided for high-intensity uses (Section 30252); and 4) protecting and enhancing public access to recreational resources in the Coastal Zone (Sections 30210, 30211, 30212, 30212.5, 30213, 30223, and 30252). The proposed PWP/TREP improvements consist primarily of improvements to existing transportation facilities located in previously developed and disturbed areas within existing LOSSAN rail and I-5 highway right-of-way. Improvements or changes to the existing rail and highway facilities are generally expansions or reconfigurations of existing facilities or, where new rail alignment tunnel options are being considered, would occur primarily below ground; therefore, by design, the proposed PWP/TREP improvements would involve limited expansion or encroachment into wetlands and other sensitive habitat areas that might otherwise occur if new transportation infrastructure were to be constructed as separate and distinct facilities from the existing LOSSAN rail and I-5 highway right-of-way to address mobility deficiencies and enhance multimodal access throughout the corridor.

In addition to the programmatic analysis of project alternatives discussed previously and included in Section 5.10, detailed project alternatives analyses for proposed improvements for the PWP/TREP have been completed and are described in detail within the *I-5 NCC Project Final EIR/EIS* and are reflected within the selection of the Locally Preferred Alternative.

In addition to the programmatic analysis of project alternatives discussed previously and included in Section 5.10, a detailed, design-level alternatives analysis for proposed PWP/TREP LOSSAN rail and I-5 highway improvements that affect upland ESHAs and associated special-status species was conducted consistent with the Coastal Act Policy Conflict Resolution process to identify the least environmentally damaging alternative. Lagoon optimization studies were conducted for San Elijo, Batiquitos, and Buena Vista Lagoons to identify the optimal length of bridges and channel design configurations to provide for improved hydraulic lift and facilitation of large-scale lagoon restoration efforts that would benefit a variety of sensitive habitats and special-status species. Additional technical analysis and detailed design avoidance and minimization features for all corridor waterbodies and adjacent upland areas supporting sensitive species potentially affected by the I-5 project's Locally Preferred Alternative are discussed at length in the *I-5 NCC Project Final EIR/EIS.* As discussed therein, to minimize impacts to all sensitive habitats, the slopes of the freeway were designed at a steeper 2:1 grade versus the standard 4:1 grade. To further minimize impacts, retaining walls were also included in the project design on cut slopes, but could not be used on fill slopes. Through analysis of lagoon sediment data from geotechnical borings, it was determined that lagoon soil liquefaction would prevent the use of retaining walls to minimize the roadbed fill in the lagoon. Soil liquefaction requires that any structures taller than approximately 6 feet have support piles that are driven to bedrock, which is located at a depth of more than 100 feet. All pilings for the bridge supports would be driven to this depth, but this would not be practical for retaining walls. Riprap is used to protect the existing

abutments and would also be used to protect the abutments of the proposed bridges. Because of the depth of bridge pilings, riprap is not required to armor the channel bottom.

As part of the proposed REMP, new and improved transitional habitat and buffer areas, restored riparian corridors, and preservation or restoration of habitat areas via the purchase of land areas adjacent to corridor lagoons would ensure that impacts from proposed improvements are mitigated corridor-wide . In addition, facilitation of comprehensive lagoon restoration through funding of major restoration efforts would address water quality improvements and habitat needs of special-status and wildlife species, and would achieve the overall goal of enhancing biodiversity and habitat value throughout the corridor. Bridge designs at the corridor lagoons were maximized for avoidance and minimization of impacts, to reduce tidal muting, and restore/improve wildlife movement. These optimized bridge designs in concert with expanded channel dimensions allow for possible future establishment, restoration, and enhancement of tidal wetlands and improved water quality within the lagoons.

Potential impacts from auxiliary lanes would be minimized where possible, especially in the vicinity of the lagoons. Auxiliary lanes were included in the project design only where required to relieve traffic congestion and weaving issues between on- and off-ramps. For instance, potential impacts associated with a proposed auxiliary lane between La Costa Avenue and Poinsettia Avenue across Batiquitos Lagoon were avoided (based on elimination of this potential auxiliary lane when traffic analysis determined that it would not be required).

To avoid impacts to wetlands from fill associated with creation of 12-foot-wide bike/pedestrian paths, short retaining walls (6 feet or lower in height) would be used. Another impact minimization option being examined (particularly at Batiquitos and Buena Vista Lagoons) would involve obtaining funds to replace these bridges in the first phase of construction (prior to construction of a proposed high-occupancy vehicle [HOV] lane in the median), instead of later in the construction process. This would reduce the overall bridge widths required for staging the bridge replacements, thus reducing wetland impacts by more than an acre at each lagoon. However, because auxiliary lanes in each direction are proposed at Agua Hedionda Lagoon, resulting in the need for a wider finished bridge, accelerated timing of bridge replacement would not minimize wetland impacts at this location.

Feasible project alternatives and avoidance and minimization measures for LOSSAN rail improvements potentially affecting wetlands are also addressed as part of the lagoon optimization studies at San Elijo, Batiquitos, and Buena Vista Lagoons, and would be determined in project-level analyses and during phased federal consistency review, as applicable, for other lagoon crossings.

Feasible Mitigation Measures

Section 5.5.4 and the following consistency analysis sections for proposed PWP/TREP improvements demonstrate that feasible mitigation measures have been included in the PWP/TREP as project design features, policies, design/development strategies, and/or implementation measures to minimize significant adverse environmental impacts.

5.5.4.2 PWP/TREP Consistency Analysis

The PWP/TREP provides that project-level analysis for potential impacts of public facility improvements on ESHAs and special-status species would be conducted and subject to review during subsequent project-specific federal consistency, NOID, or coastal development permit review, as applicable, to assess and identify all potential permanent or temporary impacts to ESHAs and special-status species and appropriate mitigation measures to ensure project consistency with Coastal Act Section 30240.

Proposed PWP/TREP policies, design and development strategies, and implementation measures would serve to avoid (where feasible), minimize, and mitigate potential impacts to ESHAs and special-status species. Implementation of the design and development strategies would require the NCC transportation facility and community enhancement projects to be sited and designed to ensure that ESHAs are protected against any significant disruption of habitat values. Similarly, development in areas adjacent to ESHAs would be sited and designed to prevent impacts that would significantly degrade those areas, and would be compatible with the continuance of those habitat areas.

HMMPs would be prepared to specify the design and implementation of biological resources mitigation measures, including habitat replacement and revegetation, protection during construction, performance (growth) standards, maintenance criteria, and monitoring requirements to ensure the long-term viability of habitats in the project area. Mitigation strategies would address sensitive plant and wildlife species and may include preconstruction surveys, construction monitoring, relocation of plants or plant propagation, restoration of suitable breeding and foraging habitat, and consideration of wildlife corridors in design. To minimize potential impacts to sensitive communities during construction, implementation measures require that native habitats outside the construction limits be shown on project maps and access be prohibited. Furthermore, cut slopes would be revegetated with native upland habitats with similar composition to those within the project limits and any seeding of native upland habitats would be completed between October and February to ensure that the seed has proper conditions for germination. Temporary impact areas would be revegetated and restored to pre-existing conditions to reduce the permanent impact of short-term construction.

Additional measures would be employed during construction to minimize impacts to nesting migratory bird species and migratory birds dependent on lagoons. All native vegetation and non-native shrubs and trees within the impact areas would be removed outside of the breeding season (February 15 to September 15), if possible, and in instances where this would not be possible, consultation with the appropriate resource agencies would be conducted and biological monitors would be present on-site. Exclusion devices would be installed on bridge drain holes and ledges during the non-breeding season (September 1 through February 15) to stop swallows, swifts, and any other birds or bats from nesting on or within bridges to be demolished. To minimize impacts to migratory birds dependent on lagoons for stop over, resting, and foraging habitats along the Pacific flyway, PWP/TREP transportation improvement construction activities would not occur in more than two lagoons at any one time. When necessary, a qualified biologist would thoroughly survey all vegetation prior to removal to ensure there are no nesting birds on-site.

A qualified biologist would also be made available for both the preconstruction and construction phases to review grading plans, to address protection of sensitive biological resources, to monitor ongoing work and to minimize impacts to threatened and endangered species. Other measures implemented to minimize impacts to threatened and endangered species include maintaining adequate channel width of the San Luis Rey River and lagoons to maintain hydrologic function/connectivity and to facilitate fish passage; creating detention basins to treat runoff from the freeway; providing light shielding to protect ESHAs; and, restricting pile driving activity outside of the breeding season to reduce construction noise impacts to bird species around the lagoons. During in-water bridge construction activities at all lagoons, bubble curtains or other methods to minimize acoustical impacts to aquatic species would be implemented. These measures would be developed in conjunction with the resource agencies when the project design and construction methodology is further developed.

Implementation measures also require that a biological evaluation of the development area be conducted prior to each development project to evaluate any changed site conditions that could affect ESHAs or special-status species addressed by the PWP/TREP. The biological evaluation would

analyze the proposed development area, which includes the proposed development footprint and a surrounding 100-foot buffer area. In the event ESHAs or special-status species are identified during this process that are not already considered in the PWP/TREP, all ESHA or special-status species resource protection measures included in this PWP/TREP would be applied to the newly identified resources.

In addition, PWP/TREP design and development strategies and implementation measures provide that potential impacts to ESHA be fully mitigated pursuant to the REMP detailed in Chapter 6B as it relates to no net loss of habitat, habitat preservation, and comprehensive lagoon restoration program mitigation. To further protect plant communities, specific mitigation measures for weed control may also be implemented, where applicable, to minimize or avoid the spread of weeds during construction and operation.

5.5.4.3 Coastal Act Consistency Analysis Summary

The proposed PWP/TREP improvements consist primarily of improvements to existing transportation facilities located in previously developed and disturbed areas within existing LOSSAN rail and I-5 highway rights-of-way. Improvements or changes to the existing rail and highway facilities are generally expansions or reconfigurations of existing facilities that involve minimal encroachment into adjacent areas and, as such, the majority of PWP/TREP facility improvements would not result in substantial impacts to adjacent ESHAs or special-status species. Nevertheless, impacts to ESHAs would be unavoidable given the locations of the existing LOSSAN rail and I-5 highway facilities that cross six coastal lagoons and upland habitat areas. As such, the proposed PWP/TREP raises Coastal Act issues relative to permitted uses in ESHAs.

The PWP/TREP includes a comprehensive REMP, described in Chapter 6B, which would serve to significantly enhance water quality, marine, and upland habitat resources—all of which would facilitate enhancement of ESHA and special-status species habitats throughout the corridor. The proposed program provides for advanced mitigation opportunities that would allow for habitat establishment or significant enhancement of degraded habitat prior to project implementation. This could result in eliminating a temporary loss in the amount of habitat in the corridor. In addition, the program provides for no net loss of habitat to ensure that the variety and range of significant coastal habitats in the corridor is not diminished because of the proposed PWP/TREP improvements. The program also provides for habitat preservation, thereby facilitating conservation of remaining sensitive habitats in the corridor. In addition, the PWP/TREP would facilitate the development and implementation of comprehensive lagoon restoration efforts for San Elijo and Buena Vista Lagoons. These efforts would serve to not only substantially enhance and restore water quality in the corridor, they would also restore, enhance, and protect different habitat types within the lagoon ecosystems. While these restoration efforts would not focus on traditional in-kind habitat replacement mitigation ratios, the overall programs would restore and ultimately enhance an integrated ecosystem that provides habitat for fish, birds, and benthic organisms, which would not only adequately compensate for the loss of ESHA that would occur from the PWP/TREP improvements, but would provide for enhancement of ESHA over the entire corridor.

5.5.5 Local Coastal Program Consistency

For LOSSAN rail projects included in the PWP/TREP that maintain or improve the movement of freight, passenger, or interstate rail service, the local coastal program (LCP) policy consistency analysis provides guidance and background information for analyzing rail project consistency with Section 30240 of the Coastal Act, as appropriate and applicable (see Section 1.1.3 for additional discussion of

LCP applicability to rail projects that may fall under the exclusive jurisdiction of the Surface Transportation Board [STB]). All of the LCPs include policies that mirror, in part, the requirements of Coastal Act policies addressing impacts to ESHAs; however, the certified LCPs also include a range of additional, detailed and site-specific policies and development standards that address protection, enhancement and potential impacts to ESHAs and special-status species. The corridor's LCP water ESHA policies are summarized in the following section, and are followed by a brief LCP consistency summary that integrates and supplements the above consistency analysis for Section 30240 of the Coastal Act.

5.5.5.1 Local Coastal Program Consistency Analysis Summary

Included in all of the LCPs are policies that are consistent with Section 30240 of the Coastal Act. Specifically, this section states that ESHAs shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. Development in areas adjacent to ESHAs and parks and recreation areas shall be sited and designed to prevent impacts that would significantly degrade those areas and shall be compatible with the continuance of those habitat and recreation areas.

Each LCP has explicit policies or development standards that require the protection, avoidance, or minimization of effects to ESHAs. Common policies or development standards that reflect the protection of ESHAs throughout all of the jurisdictions' LCPs are:

- Minimizing grading and removal of vegetation.
- Revegetating graded and disturbed areas with native, drought tolerant plant species.
- Restriction or avoidance of grading and development on bluffs, canyons or steep slopes or slopes possessing ESHAs.
- Control of drainage and runoff to prevent siltation of ESHAs throughout construction and operation/maintenance of the project, development or improvement.
- Prohibiting impacts to ESHA pursuant to Section 30240 of the Coastal Act.
- Prohibiting impacts to wetland and riparian habitat pursuant to Section 30233 of the Coastal Act.
- Imposing setback (buffer) requirements from wetlands, streams, and the shoreline.
- Requiring mitigation of impacts to ESHA through either on- or off-site restoration activities.

These LCP policies are generally applied on a citywide basis in the respective jurisdictions, but in some instances are also applied to specifically address the many significant coastal resources that are identified by the LCP within each city.

City of San Diego

The City of San Diego LCP contains further and more specific ESHA protection policies in the North City Land Use Plan, in addition to each of the five individual Community Plans affected by the proposed PWP/TREP improvements.

North City Land Use Plan

- Canyons, with their riparian habitat, should remain as open space, and similar habitat areas in side canyons should also be protected.

Torrey Pines Community Plan

- Coastal lagoons and estuaries that are designated and zoned as open space shall remain undeveloped.
- Public access in areas of ESHAs shall be limited to low-intensity recreational, scientific, or educational use. Access shall be controlled or confined to designated trails or paths, and no access shall be approved that results in disruption of habitat.
- New development adjacent to and affecting biologically sensitive areas shall be responsible for the restoration and enhancement of that area. In particular, when mitigation areas are needed for public projects, the disturbed areas in Crest Canyon should be revegetated with coastal mixed chaparral and Torrey pines.
- Riparian vegetation in channels through the Sorrento Valley industrial area shall be preserved in its natural state in order to maintain its vital wildlife habitat value. When vegetation removal is necessary for flood control, the required state and federal permits shall be obtained.
- Preserve and enhance all open space and wildlife corridors especially those linking Los Peñasquitos Lagoon with Torrey Pines State Reserve Extension and the Carroll Canyon Creek Corridor.
- Crest Canyon shall be left in its natural state in order to preserve those biologically sensitive habitats identified within this park. A small portion of the parkland located adjacent to Del Mar Heights Road and Durango Drive should accommodate some limited passive park development.
- Construction or improvements of roadways adjacent to biologically sensitive areas or open space shall be designed to avoid impacts, especially in wetlands and wetland buffer areas. Protection of sensitive habitats through buffers, realignments and reduced development areas shall also be considered.
- All Torrey pine trees on public property should be preserved and protected.

University Community Plan

- Preserve the natural resources of the community through the appropriate designation and use of open space. Major topographic features and biological resources should be preserved as undeveloped open space.

Torrey Hills Community Plan

The policies below are cited and discussed by resource area:

- Individual projects should be designed to preserve natural topography, unique geologic formations and native vegetation to the fullest extent possible.
- Natural slopes containing native vegetation with a gradient of 25 percent or greater remaining undisturbed as a result of the hillside review process shall be placed in a permanent open space easement or deed restriction as a condition of development approval. The purpose of the open space designation shall be to protect native vegetation and visual resources of importance to the entire community.

Policies pertaining to ESHA in the Torrey Pines Community Plan include:

- Development in areas of sensitive vegetation, such as coastal sage scrub, shall be in accordance with the City's Resource Protection Ordinance as appropriate.
- Encroachments into areas of sensitive vegetation shall be as defined in the Resource Protection Ordinance, where it applies.

- To the extent applicable, all new development within the Coastal Zone shall be designed to be consistent with multi-species and multi-habitat preservation goals and requirements as established in the statewide Natural Communities Conservation Planning Program, shall comply with the City of San Diego Multiple Species Conservation Program Interim Habitat Loss Permit Process, or shall obtain an incidental take permit under Section 4d, Section 7 or Section l0a of the Endangered Species Act related to the California gnatcatcher. Compliance with these goals and requirements shall be implemented in consultation with the USFWS and CDFG.

North City Future Urbanizing Framework Plan

- No non-local native vegetation shall be allowed to be planted within these areas. Local native vegetation, if unavailable from on-site, can be obtained from sites with similar soils, slope, aspect, meso- or micro-climates as those on-site—preferably from nearby local sites within a 10-mile radius of the site.
- Areas of native habitat where low-impact forms of recreation can occur (such as trails), but which primarily function to provide distance and protection to the habitat protection area from lights, noise, activity, exotic plants and other potential forms of disturbance.

City of Del Mar

The City of Del Mar's LCP contains policies protective of sensitive lands such bluffs, slopes, canyons, downstream waterways and vegetation, and contains a Bluff, Slope and Canyon Overlay as well as a Lagoon Overlay. Applicable policies in the LCP are:

- No grading or construction activities shall be allowed on the face of a coastal bluff unless approved as part of a Shoreline Protective Permit or Setback Seawall Permit issued in accordance with the provisions of this Land Use Plan and when such activity on the bluff face has been minimized to the maximum extent feasible necessary to provide the authorized shoreline protection.
- Areas to be retained in their natural state pursuant to the coastal bluff regulations shall be subject to conditions to ensure the future protection of the designated area(s) from encroachment, disturbance or degradation. Said conditions shall include the recordation of an open space deed restriction or open space easement to ensure protection of the designated area and to serve notice to the property owner, subsequent owners, or interested parties of the restrictions in effect on such property.

City of Encinitas

The City of Encinitas references Section 30240(a) of the Coastal Act into its LCP, and contains various programwide policies to ensure the protection of ESHAs with its boundaries, in addition to a Special Study Overlay designation. In particular, the policies included in the LCP are:

- The Special Study Overlay designation shall be applied to lands that, because of their sensitive nature, should be developed only with consideration of specific constraints and features related to drainage courses, bluffs, slopes, geology and soils, biotic habitat, viewsheds and vistas, and cultural resources. Development within the overlay area shall be reviewed and approved in accordance with criteria and standards that protect coastal and inland resources.
- Significant natural features shall be preserved and incorporated into all development. Such features may include bluffs, rock outcroppings, natural drainage courses, wetland and riparian areas, steep topography, trees, and views.
- Ecological Resource/Open Space/Parks is a category intended to be applied to both active and passive parklands; lagoons; wetland habitat areas and their adjacent buffers; and other areas of

significant environmental quality or public resource value. Lands in the Ecological Resource/Open Space/Parks category, other than public parks, and similar areas for active recreation, will be limited to uses and activities related to habitat enhancement; educational and scientific nature study; passive recreation that will have no significant adverse impact on habitat values; and, aquaculture having no significant adverse effect or negative visual impact on natural processes or scenic quality.

- Preserve the existence of present natural open spaces, slopes, bluffs, lagoon areas, and maintain the sense of spaciousness and semirural living within the I-5 View Corridor and within other view corridors, scenic highways and vista/view sheds as identified in the Resource Management Element.

City of Carlsbad

The City of Carlsbad incorporates Section 30240(a) of the Coastal Act into its LCP, and contains various program wide policies in addition to policies that are specific to individual properties and areas that are protective of ESHA. The Carlsbad Habitat Management Plan (HMP) is a comprehensive, citywide program to identify how the City, in cooperation with federal and state agencies, can preserve the diversity of habitat and protect sensitive biological resources within the city and the Coastal zone. Policies in the LCP that are applicable to the area affected by the proposed project include:

- Buffers to be provided between all preserved habitat areas and development and minimum buffer widths are as follows: 100 feet for wetlands; 50 feet for riparian areas; 20 feet for all other native habitats (coastal sage scrub, southern maritime chaparral, maritime succulent scrub, southern mixed chaparral, native grassland, oak woodland).
- A no net loss of upland habitat and at least a 1:1 mitigation ratio; more specifically, impacts to coastal sage scrub shall be mitigated at an overall ratio of 2:1, impacts to southern maritime chaparral or maritime succulent scrub shall be mitigated at an overall ratio of 3:1, with the establishment component satisfying one-third of the total obligation; and impacts to southern mixed chaparral, native grassland and oak woodland shall be mitigated at ratios of 1:1, 3:1, and 3:1, respectively.
- Hardline Preserve Boundaries to ensure that the future development is sited to preserve the maximum amount of ESHA within the Coastal Zone, and to establish viable habitat corridors and preserve areas.
- Properties constrained by ESHA in the Coastal Zone require that if more than 80 percent of the property by area is covered with ESHA, at least 75 percent of the property shall be conserved, or if the city, with the concurrences of the wildlife agencies and the Coastal Commission through an LCP amendment, approved a Hardline Preserve Boundary for any of the above-described properties as part of the HMP, then the amount of on-site preservation as identified in the Hardline Boundary shall apply.

City of Oceanside

The City of Oceanside's LCP contains policies protective of marine environments, wetlands, riparian corridors and ESHA. In specific, the LCP policies are:

- Prior to approving any developments on dry lands adjacent to Buena Vista Lagoon, the City shall consult the CDFG to ensure that adequate measures are provided to protect and enhance the lagoon's sensitive resources. Such measures shall include, where appropriate: a) Provision for adequate buffers between development and the lagoon; b) erection of barriers—such as fences—to prohibit access to sensitive portions of the lagoon; c) incorporation of native riparian plant

species into project design to enhance habitat value; d) construction of informational signs/kiosks educating the public on the value of the lagoon; and e) listing the regulations for public use. Habitat restoration measures (such as removal of built up sediment) providing that such measures are approved by the CDFG.

- In the area between I-5 and Alvarado Street, the City shall prohibit encroachment of development beyond the bluff line of the lagoon.
- New development on the private, commercially zoned land fronting the eastern segment of the lagoon, south of Highway 78 shall be sensitive to the lagoon and its environment.
- It is the policy of the City to prohibit filling in Loma Alta Creek, and the removal of existing vegetation shall not be permitted in Loma Alta Creek except when essential for flood control purposes. In such instances, the City will obtain necessary clearances from the CDFG prior to commencing work.
- The City shall continue to cooperate with other agencies including the CDFG, the cities of Carlsbad and Vista through the Joint Powers Committee, USFWS, SANDAG, and the Regional Water Quality Control Board in seeking ways to lessen the current impacts on the lagoon. Siltation and water pollution are two such impacts that are particularly critical.
- Any development proposed in an undeveloped area within a distance of up to 500 feet from a sensitive habitat area will be considered adjacent to that habitat area and be required to implement the mitigation measures with respect to buffer zones, grading restriction and erosion control, landscaping barriers and noise as stipulated in the LCP's Standards for the Identification and Protection of Sensitive Habitats.

The San Luis Rey Specific Plan also contains policies that are protective of ESHAs, wetlands, and riparian resources, including:

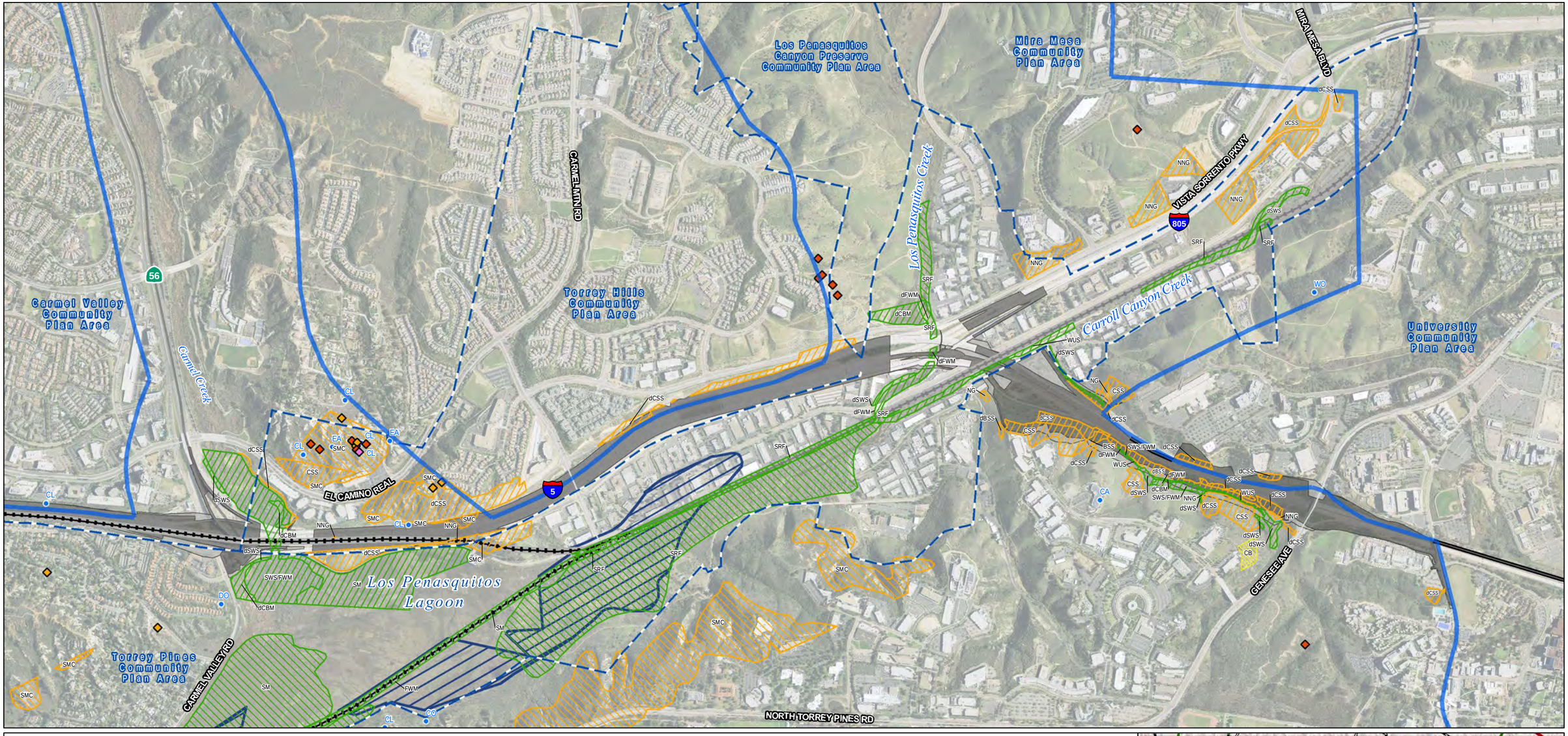
- In order to protect the sensitive resources of the river area the City shall a) post signs at appropriate locations noting regulations on littering, off-road vehicles, use of firearms, and leash laws; b) encourage the CDFG to actively enforce the CDFG code in the river area; c) require property owners to remove debris from their properties when fire or health hazards exist; d) monitor future public use of the river area to identify areas of overuse (and if such areas are identified, take steps to restrict access commensurate with the carrying capacity of the resources); and e) continue police and code enforcement against litterers, trespassers, off-road vehicles, and other violators.
- Developers proposing projects in the San Luis Rey Specific Plan study area shall a) maintain adequate buffers surrounding sensitive habitat areas, using setbacks, fencing and/or vertical separation; and b) protect habitat for the endangered *Dudleya viscida*. Where habitat impacts are unavoidable, the developer shall transplant the species to a protected location.

Proposed PWP/TREP improvements would generally be designed and implemented consistent with the cities' ESHA protection policies; however, City LCP policies requiring that new development shall not intrude into open space areas and that all mature trees and other significant existing vegetation shall be protected present potential policy conflicts for the proposed PWP/TREP improvements where such impacts cannot be avoided.

In addition, all of the corridor LCPs include specific policies that require buffers from wetland and riparian habitat areas, and some of the LCPs further address buffers for upland sensitive habitats. In addition, the LCPs collectively require both specified and unspecified mitigation requirements where impacts to wetland, riparian, and sensitive upland habitat areas are permitted. The corridor LCPs collectively include a range of policy requirements that address buffers and mitigation requirements—

some of which include buffer requirements without the option to adjust the buffers and others that provide for minimum buffer requirements but allow for adjustment if certain criteria are met. Buffer areas for wetland habitats in the certified cities are generally required to be 100 feet, and pursuant to some policies, may be reduced to 50 feet or less if it is demonstrated that a smaller buffer will protect the resources of the wetland area based on site-specific information. LCP policies generally require riparian habitat buffers to be a minimum of 100 to 50 feet, and that buffers from sensitive upland areas be a minimum of 20 feet, where applicable.

The existing location of the transportation facilities requires that the proposed projects occur in areas potentially containing ESHA; therefore the proposed PWP/TREP improvements would not provide the minimum buffer requirements articulated in the corridor LCPs. In addition, because the proposed REMP is intended to significantly enhance sensitive resources in the corridor by implementing a combination of traditional and non-traditional measures to mitigate coastal resource impacts and to enhance and restore resources beyond standard mitigation requirements, the PWP/TREP improvements would not meet all of the traditional mitigation requirements for ESHA where included in the corridor LCPs. As such, these LCP policy requirements for the cities of San Diego, Encinitas, Carlsbad, and Oceanside present potential policy conflicts for proposed highway and community enhancement projects, which require amendment to ensure consistency of the PWP/TREP improvements with the certified LCPs. As such, SANDAG and Caltrans will seek amendments to the LCPs of San Diego, Encinitas, Carlsbad, and Oceanside to allow for conflict resolution under Section 30007.5 of the Coastal Act. Section 5.10 evaluates the PWP/TREP improvements under the Coastal Act's conflict-resolution provision (Section 30007.5). The conflict resolution analysis concludes that denying or modifying the PWP/TREP to avoid the ESHA impacts discussed in this section would conflict with several other Chapter 3 policies of the Coastal Act, and thus, approval of the PWP/TREP on balance is the most protective of significant coastal resources.



I-5 NCC Project Area

I-5 NCC Project Overlay

- Permanent Impact Area
- Temporary Impact Area
- LOSSAN Proposed Track
- LOSSAN Existing Track
- City Boundary
- Coastal Zone Boundary
- Stream/River
- City of San Diego Community Plan Area
- Coastal Commission Permit Jurisdiction

NORTH

0 500 1,000 1,500 Feet

Special Status Vegetation

MSHCP Caltrans CNDDB — Upland Vegetation

BSS = Black Sage Scrub
dBSS = Black Sage Scrub (Disturbed)
CSS = Coastal Sage Scrub/Diegan Coastal Sage Scrub
dCSS = Coastal Sage Scrub (Disturbed)
NG = Native Grassland
NNG = Non-native Grassland/Valley and Foothill Grassland
SMC = Southern Maritime Chaparral/Southern Mixed Chaparral

Special Status Vegetation

MSHCP Caltrans CNDDB — Wetland Vegetation

dCBM = Coastal Brackish Marsh (Disturbed)
dFWM = Freshwater Marsh (Disturbed)
SM = Southern Coastal Salt Marsh
SRF = Southern Riparian Forest
SWS/FWM = Southern Willow Scrub/Freshwater Marsh
dSWS = Southern Willow Scrub (Disturbed)
WUS = Waters of the US

Special Status Plants

Caltrans — Other Sources (CNDDB, SanGIS)

Plants
CB = Coast barrel cactus

- Coast barrel cactus
- Del Mar Manzanita
- Wart-Stemmed ceanothus

Special Status Plants

Other Sources (CNDDB, SanGIS)

- Other Species

CA = Snake cholla
CL = Del Mar Mesa sand aster
CO = Orcutt's spineflower
DO = Western dichondra
EA = San Diego button-celery
WO = Woven-spored lichen

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-1A

Potential ESHA and Special Status Plant Species Detail Map (City of San Diego [South])

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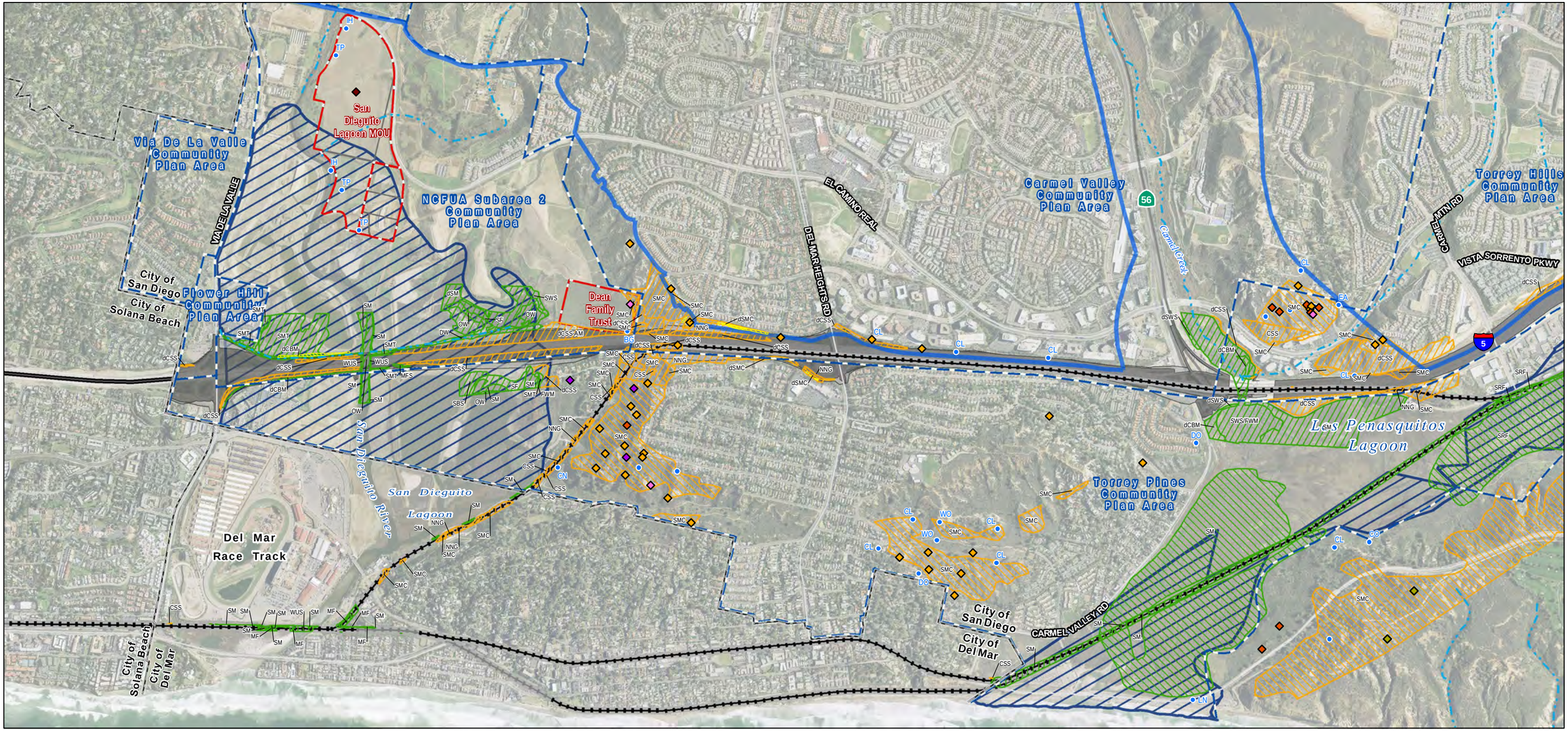


I-5 NCC Project Area
I-5 NCC Project Overlay
Permanent Impact Area
Temporary Impact Area
LOSSAN Proposed Track
LOSSAN Existing Track
City Boundary
Coastal Zone Boundary
Stream/River
City of San Diego Community Plan Area
Coastal Commission Permit Jurisdiction
Mitigation Site - Secured
Mitigation Site Parcel Lines

NORTH
0 500 1,000 1,500 Feet

Special Status Vegetation

MSHCP Caltrans CNDDB — Upland Vegetation

CSS = Coastal Sage Scrub
dCSS = Coastal Sage Scrub (Disturbed)
dCSS-AM = Coastal Sage Scrub (Disturbed) Already Mitigated
NNG = Non-native Grassland
SMC = Southern Maritime Chaparral
dSMC = Southern Maritime Chaparral (Disturbed)

Special Status Vegetation

MSHCP Caltrans CNDDB — Wetland Vegetation

dCBM = Coastal Brackish Marsh (Disturbed)
DW = Disturbed Wetland
FWM = Freshwater Marsh
MF = Mudflats
MFS = Mule Fat Scrub
OW = Open Water
SBS = Salt Bush Scrub
SF = Salt Flat
SM = Southern Coastal Salt Marsh

Special Status Vegetation

MSHCP Caltrans CNDDB — Wetland Vegetation

dSM = Southern Coastal Salt Marsh (Disturbed)
SMT = Salt Marsh Transition
SRF = Southern Riparian Forest
SWS = Southern Willow Scrub
dSWS = Southern Willow Scrub (Disturbed)
SWS/FWM = Southern Willow Scrub /freshwater Marsh
WUS = Waters of the US

Special Status Plants

Caltrans — Other Sources (CNDDB, SanGIS)

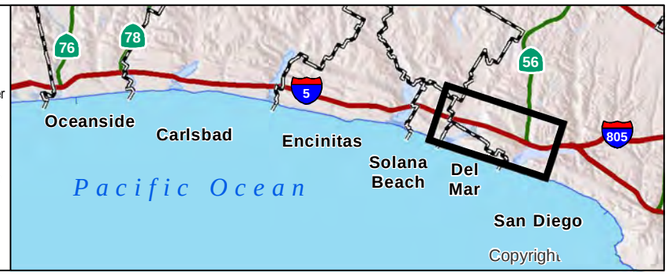
Plants
DM = Del Mar manzanita
NSO = Nuttall's scrub oak
ST = Southern tarplant
WC = wart-stemmed ceanothus

California adolphia
Coast barrel cactus
Del Mar Manzanita
Nuttall's scrub oak
Torrey pine
Wart-Stemmed ceanothus

Special Status Plants

Other Sources (CNDDB, SanGIS)

Other Species
BG = Beach goldenaster
CL = Del Mar Mesa sand aster
CN = San Diego sand aster
CO = Orcutt's spineflower
DB = Short-leaved dudleya
DO = Western dichondra
EA = San Diego button-celery
IH = San Diego marsh-elder
LN = Nuttall's lotus
SY = Summer holly
TP = Southern tarplant
WO = Woven-spored lichen



DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-1B

Potential ESHA and Special Status Plant Species Detail Map (City of San Diego [North])

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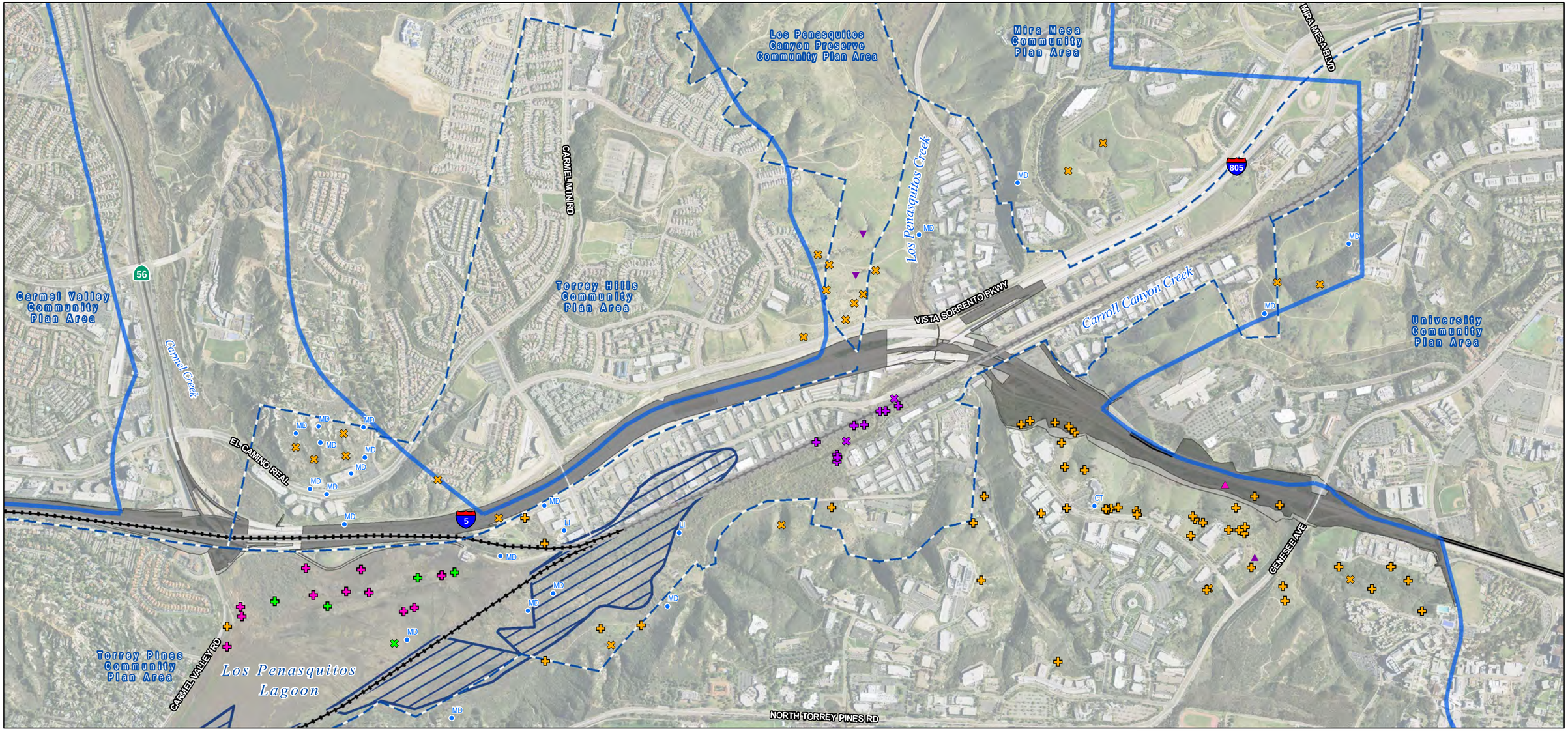

I-5 NCC Project Area

I-5 NCC Project Overlay

- Permanent Impact Area
- Temporary Impact Area
- LOSSAN Proposed Track
- LOSSAN Existing Track
- City Boundary

- Coastal Zone Boundary
- Stream/River
- City of San Diego Community Plan Area
- Coastal Commission Permit Jurisdiction

Special Status Wildlife

Caltrans	Other Sources (CNDDB, SanGIS)	
✚	✖	Belding's savannah sparrow
✚	✖	California gnatcatcher
✚	✖	Least Bell's vireo
✚	✖	Light-footed clapper rail
▲	▼	Orange-throated whiptail
▲	▼	Rufous-crowned sparrow

Special Status Wildlife

Other Sources (CNDDB, SanGIS)

- Other Species

CT = Coastal western whiptail
LI = Mountain lion
MD = Southern mule deer

NORTH

0 500 1,000 1,500 Feet

Note: Cited wildlife locations often come from surveys that have taken place during different years.

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-1C

Potential ESHA and Special-Status Wildlife Species Detail Map (City of San Diego [South])

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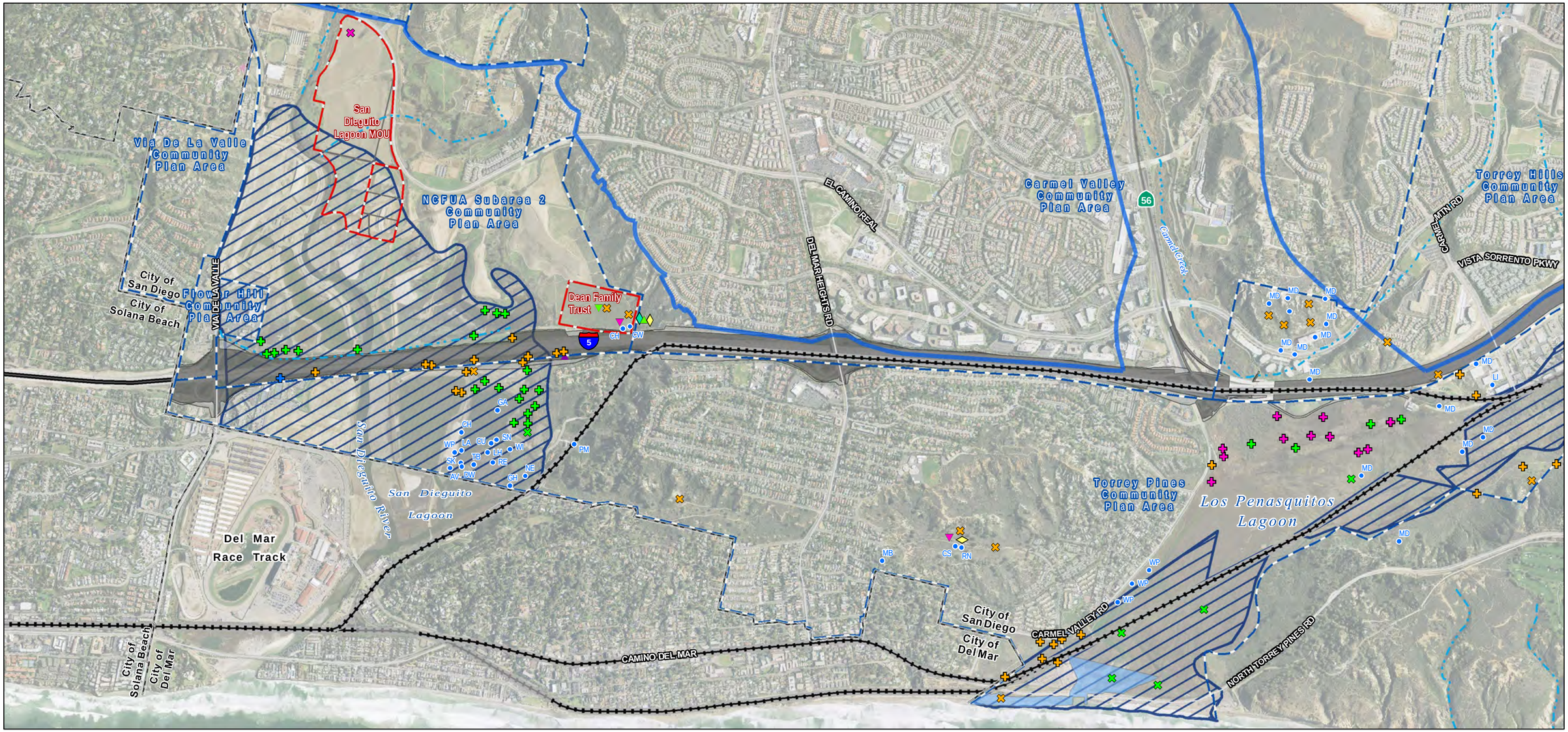


I-5 NCC Project Area

I-5 NCC Project Overlay

- Permanent Impact Area
- Temporary Impact Area
- LOSSAN Proposed Track
- LOSSAN Existing Track
- City Boundary
- Coastal Zone Boundary
- Stream/River
- City of San Diego Community Plan Area
- Coastal Commission Permit Jurisdiction
- Mitigation Site - Secured
- Mitigation Site Parcel Lines

US Fish and Wildlife Service
- Western Snowy Plover Critical Habitat

Special Status Wildlife (Caltrans / Other Sources (CNDDB, SanGIS))
- Belding's savannah sparrow
- California gnatcatcher
- California least tern
- Least bittern
- Light-footed clapper rail

Special Status Wildlife (Caltrans / Other Sources (CNDDB, SanGIS))
- NW San Diego pocket mouse
- Orange-throated whiptail
- Rufous-crowned sparrow
- San Diego desert woodrat
- San Diego horned lizard

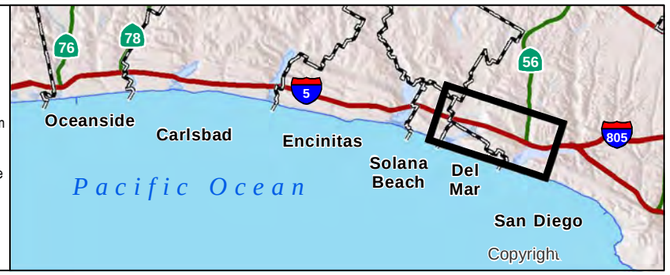
Special Status Wildlife (Other Sources (CNDDB, SanGIS))
- Other Species
  - AV = American avocet
  - CH = Cooper's hawk
  - CS = Coronado sink
  - CU = Canada goose
  - CW = Coastal cactus wren
  - DW = Downy woodpecker
  - GA = Gadwall
  - GH = Green Heron
  - LA = California horned lark
  - LH = Loggerhead shrike
  - LI = Mountain lion

Special Status Wildlife (Other Sources (CNDDB, SanGIS))
- Other Species
  - MB = Monarch butterfly
  - MD = Southern mule deer
  - NE = Black-crowned night heron
  - PM = Pacific pocket mouse
  - RE = Reddish egret
  - RN = San Diego ringneck snake
  - SK = Black skimmer
  - SN = Snow goose
  - TB = Tricolored blackbird
  - WI = White-faced ibis
  - WP = Western snowy plover

NORTH

0 500 1,000 1,500 Feet

Note: Cited wildlife locations often come from surveys that have taken place during different years.



DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-1D

Potential ESHA and Special-Status Wildlife Species Detail Map (City of San Diego [North])

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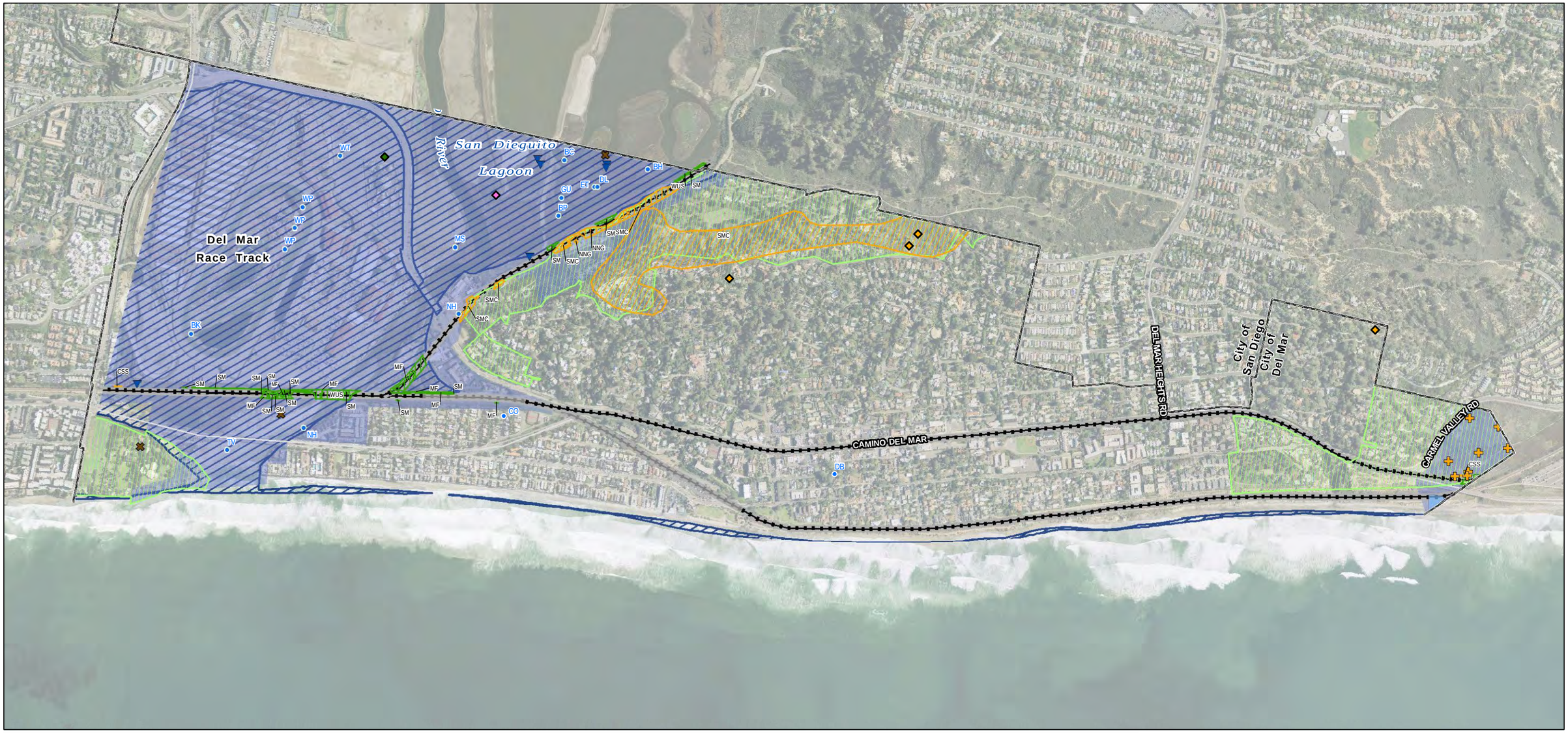

I-5 NCC Project Overlay
- Permanent Impact Area
- LOSSAN Proposed Track
- LOSSAN Existing Track
- City Boundary
- Coastal Commission Permit Jurisdiction

Del Mar LCP Designated ESHA
- Lagoon
- Bluff, Slope, and Canyon

US Fish and Wildlife Service
- Western Snowy Plover Critical Habitat

Special Status Vegetation
- MSHCP / CNDDB: Upland Vegetation
- CSS = Diegan Coastal Sage Scrub
- NNG = Non-Native Grassland
- SMC = Southern Mixed Chaparral

Special Status Vegetation
- MSHCP: Wetland Vegetation
- MF = Mudflats
- SM = Southern Coastal Salt Marsh
- WUS = Open Water

Special Status Plants
Other Sources (CNDDB, SanGIS)
- Del Mar Manzanita
- Sea dahila
- Wart-Stemmed ceanothus
- Other Species
  - CO = Orcutt's spineflower
  - DB = Short-leaved dudleya

Special Status Wildlife
Other Sources (CNDDB, SanGIS)
- Belding's savannah sparrow
- California gnatcatcher
- California least tern
- Other Species
  - BC = Long-billed curlew
  - BH = Great blue heron
  - BK = Black-shouldered kite
  - BP = California brown pelican

Special Status Wildlife
Other Sources (CNDDB, SanGIS)
- Other Species
  - DL = Double-crested cormorant
  - ET = Elegant tern
  - GU = California gull
  - MB = Monarch butterfly
  - MS = Saltmarsh skipper
  - NH = Northern harrier
  - TV = Turkey Vulture
  - WP = Western snowy plover
  - WT = Southwestern pond turtle

NORTH

0 550 1,100 Feet

Note: Cited wildlife locations often come from surveys that have taken place during different years.

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-2A

Potential ESHA and Special-Status Wildlife Species Detail Map (City of San Diego [North])

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I-5 NCC Project Area

I-5 NCC Project Overlay

Permanent Impact Area

Temporary Impact Area

LOSSAN Proposed Track

LOSSAN Existing Track

City Boundary

Stream/River

Coastal Commission Permit Jurisdiction

US Fish and Wildlife Service

California Gnatcatcher Critical Habitat

Special Status Vegetation

Caltrans

Upland Vegetation

dCSS = Coastal Sage Scrub (Disturbed)
dCSS-AM = Coastal Sage Scrub (Disturbed) Already mitigated
CSS/CHP = Coastal Sage Scrub/Chaparral
NNG = Non-native Grassland
SMC = Southern Maritime Chaparral
dSMC = Southern Maritime Chaparral (Disturbed)

MSHCP

Wetland Vegetation

FWM = Coastal and Valley Freshwater Marsh
SM = Southern Coastal Salt Marsh

Special Status Plants

Caltrans | Other Sources (CNDDB, SanGIS)

Plants

NSO = Nuttall's scrub oak
OP = Orcutt's pincushion
SA = Del Mar sand aster
WC = wart-stemmed ceanothus

Del Mar sand aster

Nuttall's scrub oak

Summer holly

Special Status Wildlife

Caltrans | Other Sources (CNDDB, SanGIS)

California gnatcatcher

Other Species

WI = White-faced ibis
CH = Cooper's hawk

NORTH

0 300 600 1,200 Feet

Note: Cited wildlife locations often come from surveys that have taken place during different years.

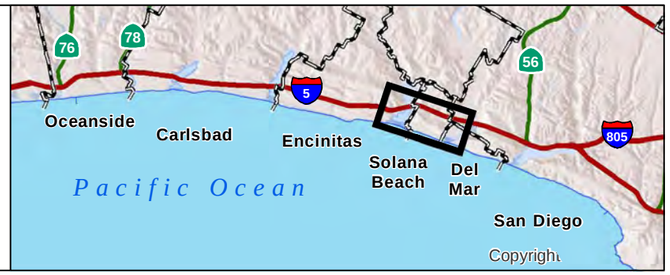

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FIGURE 5.5-3A

Potential ESHA and Special Status Species Detail Map (City of Solana Beach)

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I-5 NCC Project Area

I-5 NCC Project Overlay

- Permanent Impact Area
- Temporary Impact Area
- LOSSAN Proposed Track
- LOSSAN Existing Track
- City Boundary

- Stream/River
- Coastal Commission Permit Jurisdiction

City of Encinitas LCP Data within 1,000ft of Project Area

- Natural Sensitivity
- Hillside and Inland Bluff Overlay Zone
- Wetland Study Overlay Zone
- Slopes 25% or Greater

NORTH

0 500 1,000 1,500 Feet

Special Status Vegetation

Caltrans CNDDB — Upland Vegetation

dCSS = Coastal Sage Scrub (Disturbed)
NNG = Non-native Grassland
SMC = Southern Maritime Chaparral

Special Status Vegetation

MSHCP Caltrans — Wetland Vegetation

AS = Arundo Scrub
DW = Disturbed Wetland
FWM = Freshwater Marsh
dFWM = Freshwater Marsh (Disturbed)
SAWW = Southern Arroyo Willow Woodland
SM = Southern Coastal Salt Marsh
dSWS = Southern Willow Scrub (Disturbed)
WUS = Waters of the US

Special Status Plants

Other Sources (CNDDB, SanGIS)

- California adolphia
- Coast barrel cactus
- Wart-stemmed ceanothus

Special Status Plants

Other Sources (CNDDB, SanGIS)

Other Species
AM = Coastal scrub acacia
AR = San Diego sagewort
AS = Shaw's agave
CL = Del Mar Mesa sand aster
DO = Western dichondra
HP = Palmer's grappling hook
IH = San Diego marsh-elder
LN = Nuttall's lotus
SC = Ashy spike-moss
SY = Summer holly

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-4A

Potential ESHA and Special Status Plant Species Detail Map (City of Encinitas [South])

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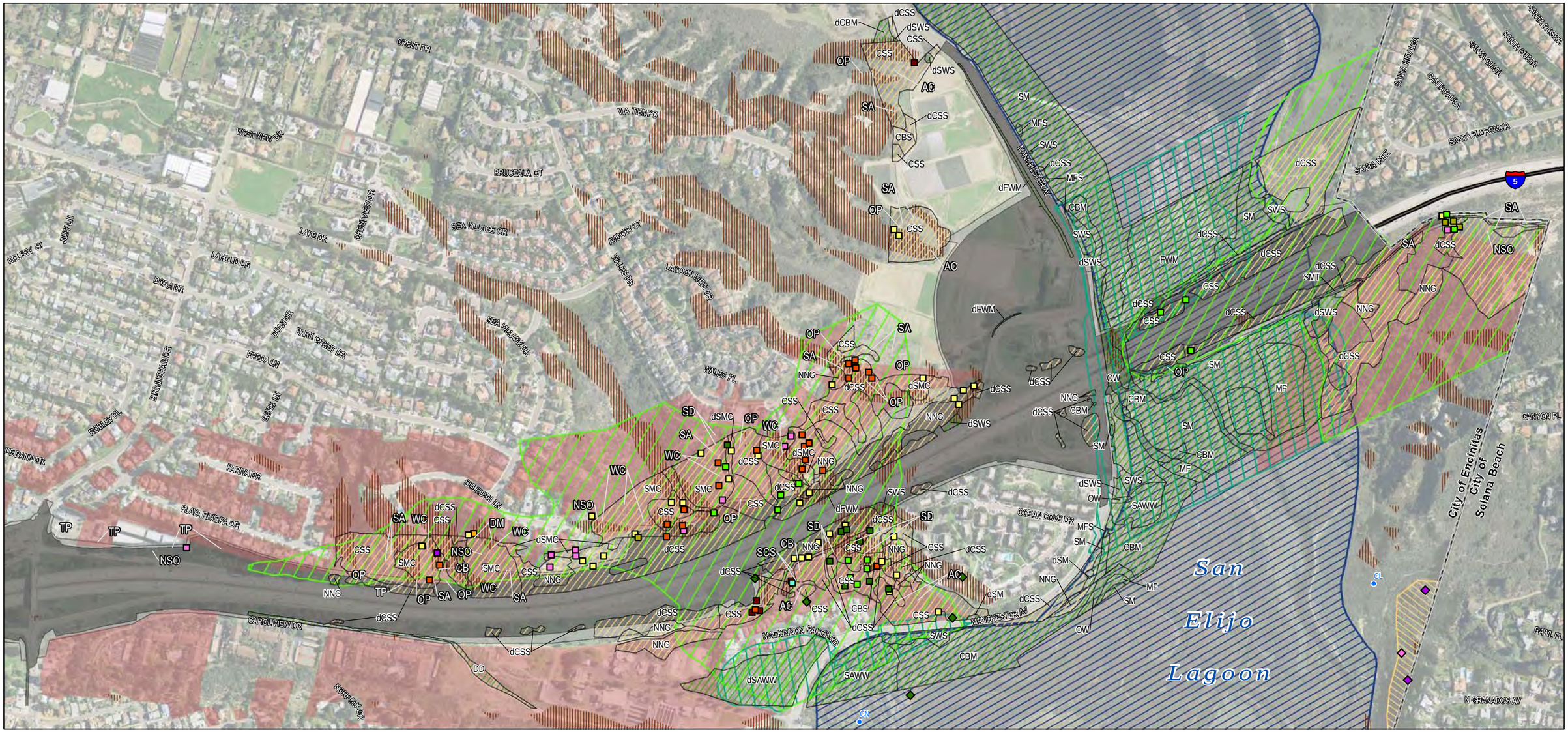

I-5 NCC Project Area
I-5 NCC Project Overlay
Permanent Impact Area
Temporary Impact Area
City Boundary

Encinitas LCP Designated ESHA
Natural Sensitivity
Hillside and Inland Bluff Overlay Zone
Wetland Study Overlay Zone
Slopes 25% or Greater

Special Status Vegetation
Caltrans CNDDB
Upland Vegetation
CBS = Coastal Bluff Scrub
CSS = Coastal Sage Scrub
dCSS = Coastal Sage Scrub (Disturbed)
NNG = Non-native Grassland
SMC = Southern Maritime Chaparral
dSMC = Southern Maritime Chaparral (Disturbed)

Special Status Vegetation
Caltrans
Wetland Vegetation
CBM = Coastal Brackish Marsh
dCBM = Coastal Brackish Marsh (Disturbed)
DD = Drainage Ditch (Concrete)
FWM = Freshwater Marsh
dFWM = Freshwater Marsh (Disturbed)
MF = Mud Flat
MFS = Mule Fat Scrub
OW = Open Water
SMT = Salt Marsh Transition

Special Status Vegetation
Caltrans
Wetland Vegetation
SAWW = Southern Arroyo Willow Woodland
dSAWW = Southern Arroyo Willow Woodland (Disturbed)
SM = Southern Coastal Salt Marsh
dSM = Southern Coastal Salt Marsh (Disturbed)
SWS = Southern Willow Scrub
dSWS = Southern Willow Scrub (Disturbed)

Special Status Plants
Caltrans
Plants
AC = Adolphia californica
CB = Coast barrel cactus
DM = Del Mar manzanita
NSO = Nuttall's scrub oak
OP = Orcutt's pincushion
SA = Del Mar sand aster
SCS = South coast saltscale
SD = Sea dahlia
TP = Torrey pine
WC = wart-stemmed ceanothus

Special Status Plants
Caltrans Other Sources (CNDDB, SanGIS)
California adolphia
Coast barrel cactus
Del Mar Manzanita
Del Mar sand aster
Nuttall's scrub oak
Orcutt's pincushion
Sea dahlia
South coast saltscale
Torrey pine
Wart-Stemmed ceanothus
Other
CL = Del Mar Mesa sand aster
CN = San Diego sand aster

NORTH
0 300 600 Feet

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-4B

Potential ESHA and Special Status Plant Species Detail Map (City of Encinitas [South])

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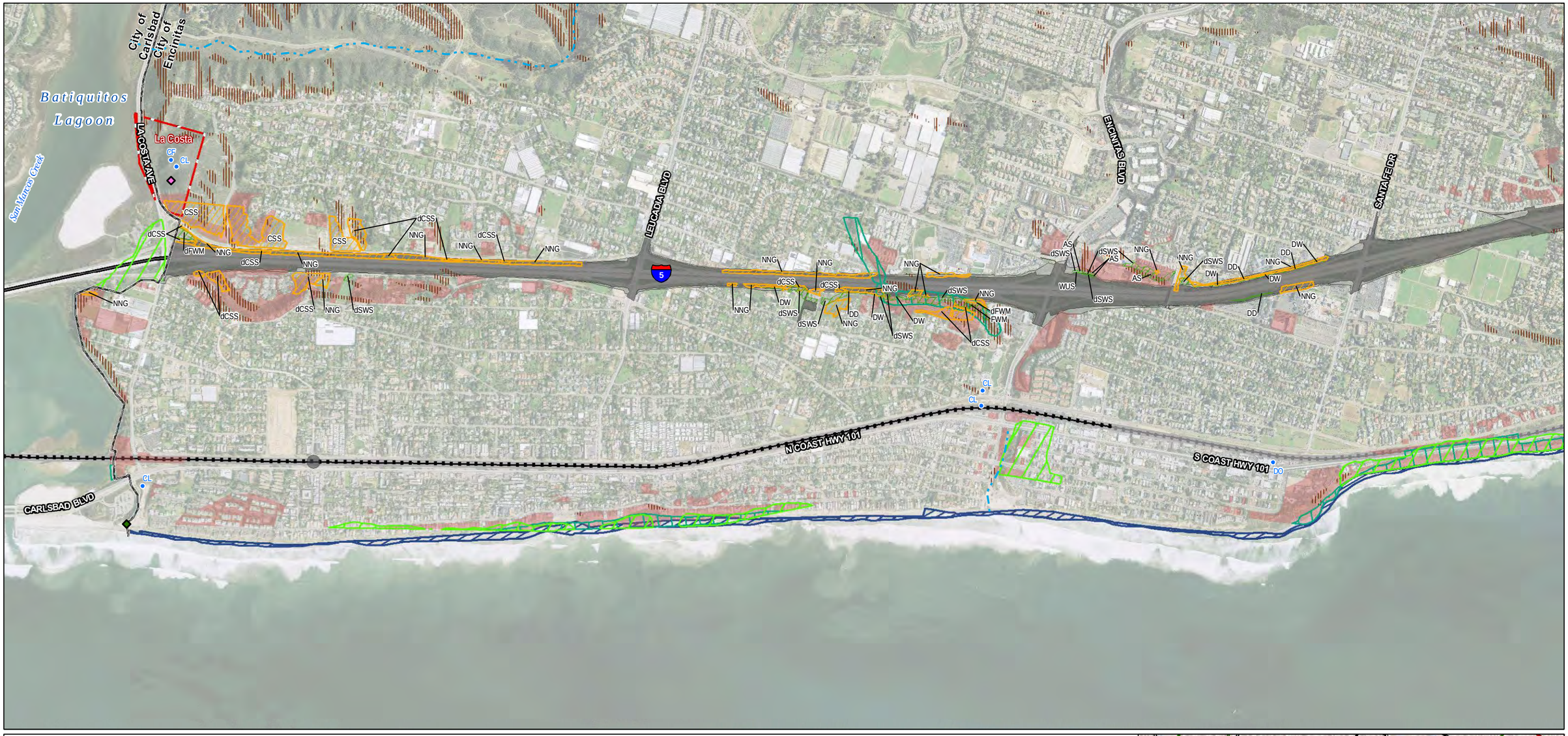


I-5 NCC Project Area

I-5 NCC Project Overlay

- Permanent Impact Area
- Temporary Impact Area
- LOSSAN Proposed Track
- LOSSAN Existing Track

- City Boundary
- Stream/River
- Coastal Commission Permit Jurisdiction
- Mitigation Site - Secured

Encinitas LCP Designated ESHA

- Natural Sensitivity
- Hillside and Inland Bluff Overlay Zone
- Wetland Study Overlay Zone
- Slopes 25% or Greater

Special Status Vegetation

Caltrans CNDDB

- Upland Vegetation

CSS = Coastal Sage Scrub
dCSS = Coastal Sage Scrub (Disturbed)
NNG = Non-native Grassland
SMC = Southern Maritime Chaparral

Special Status Vegetation

Caltrans

- Wetland Vegetation

AS = Arundo Scrub
DW = Disturbed Wetland
DD = Drainage Ditch (Concrete)
FWM = Freshwater Marsh
dFWM = Freshwater Marsh (Disturbed)
SMT = Salt Marsh Transition
dSWS = Southern Willow Scrub (Disturbed)
WUS = Waters of the US

Special Status Plants

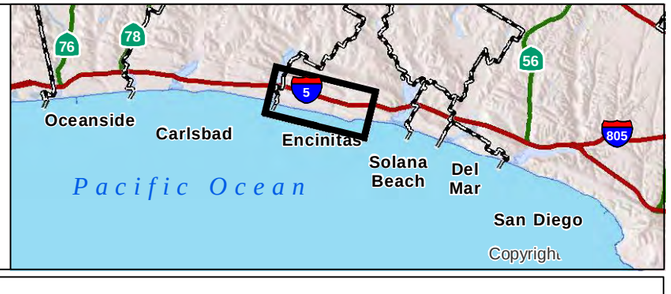
Other Sources (CNDDB, SanGIS)

- Sea dahila
- Wart-Stemmed ceanothus
- Other Species

CF = Coulter's goldfields
CL = Del Mar Mesa sand aster
DO = Western dichondra

NORTH

0 500 1,000 1,500 Feet



DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-4C

Potential ESHA and Special Status Plant Species Detail Map (City of Encinitas [North])

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I-5 NCC Project Area
I-5 NCC Project Overlay
Permanent Impact Area
Temporary Impact Area
LOSSAN Proposed Track
LOSSAN Existing Track
City Boundary

Stream/River
Coastal Commission Permit Jurisdiction

City of Encinitas LCP Data within 1,000ft of Project Area
Natural Sensitivity
Hillside and Inland Bluff Overlay Zone
Wetland Study Overlay Zone
Slopes 25% or Greater

NORTH
0 500 1,000 1,500 Feet

US Fish and Wildlife Service
California Gnatcatcher Critical Habitat

Special Status Wildlife
Caltrans | Other Sources (CNDDB, SanGIS)
Belding's savannah sparrow
California gnatcatcher
California least tern
Least Bell's vireo
Least bittern

Special Status Wildlife
Caltrans | Other Sources (CNDDB, SanGIS)
Light-footed clapper rail
NW San Diego pocket mouse
Orange-throated whiptail
Rufous-crowned sparrow

Special Status Wildlife
Other Sources (CNDDB, SanGIS)
Other Species
BE = Bald eagle
BH = Great blue heron
BL = Bank swallow
BW = Burrowing owl
CH = Cooper's hawk
DL = Double-crested cormorant
DW = Downy woodpecker
FA = Prarie falcon
FH = Ferruginous hawk

Special Status Wildlife
Other Sources (CNDDB, SanGIS)
Other Species
GE = Golden eagle
GH = Green Heron
LA = California horned lark
LH = Loggerhead shrike
LO = Long-eared owl
MB = Monarch butterfly
NE = Black-crowned night heron
NH = Northern harrier
PU = Purple martin

Special Status Wildlife
Other Sources (CNDDB, SanGIS)
Other Species
RE = Reddish egret
SW = Short-eared owl
TG = Two-striped garter snake
VF = Vermilion flycatcher
WB = Western bluebird
WH = White pelican
WS = Wood stork
YC = Yellow-breasted chat
YW = Yellow warbler

Note: Cited wildlife locations often come from surveys that have taken place during different years.

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-4D

Potential ESHA and Special Status Wildlife Species Detail Map (City of Encinitas [South])

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I-5 NCC Project Area

I-5 NCC Project Overlay

- Permanent Impact Area
- Temporary Impact Area
- LOSSAN Proposed Track
- LOSSAN Existing Track

- City Boundary
- Stream/River
- Coastal Commission Permit Jurisdiction
- Mitigation Site - Secured

Encinitas LCP Designated ESHA

- Natural Sensitivity
- Hillside and Inland Bluff Overlay Zone
- Wetland Study Overlay Zone
- Slopes 25% or Greater

US Fish and Wildlife Service

- California Gnatcatcher Critical Habitat

Special Status Wildlife

Other Sources (SanGIS, CNDDB)

- Belding's savannah sparrow
- California gnatcatcher

NORTH

0 500 1,000 1,500 Feet

Note: Cited wildlife locations often come from surveys that have taken place during different years.

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-4E

Potential ESHA and Special Status Wildlife Species Detail Map (City of Encinitas [North])

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I-5 NCC Project Area

I-5 NCC Project Overlay

Permanent Impact Area

Temporary Impact Area

LOSSAN Proposed Track

LOSSAN Existing Track

City Boundary

Stream/River

Local Coastal Program Element

Coastal Commission Permit Jurisdiction

Mitigation Site - Secured

Carlsbad LCP Designated ESHA

CSS, dCSS, and MSS

Slopes 25% or Greater

City of Carlsbad Habitat Management Plan Area

NORTH

0 500 1,000 1,500 Feet

US Fish and Wildlife Service

Spreading Navarretia Critical Habitat

Special Status Vegetation

MSHCP Caltrans

Upland Vegetation

CSS = Coastal Sage Scrub
dCSS = Coastal Sage Scrub (Disturbed)
MSS = Maritime Succulent Scrub
NNG = Non-native Grassland

Special Status Vegetation

MSHCP Caltrans CNDDB

Wetland Vegetation

AS = Arundo Scrub
CBM = Coastal Brackish Marsh
dCBM = Coastal Brackish Marsh (Disturbed)
DD = Drainage Ditch (Concrete)
dSWS = Southern Willow Scrub (Disturbed)
DW = Disturbed Wetland
WUS = Estuarine
FWM = Freshwater Marsh
dFWM = Freshwater Marsh (Disturbed)
MF = Mud Flat
OW = Open Water

Special Status Vegetation

MSHCP Caltrans CNDDB

Wetland Vegetation

Sand = Sand - Nesting Area
SF = Salt Flat
SMT = Salt Marsh Transition
SM = Southern Coastal Salt Marsh
SRF = Southern Riparian Scrub

Special Status Plants

Caltrans

Plants

CB = Coast barrel cactus

Eelgrass

Special Status Plants

Other Sources (CNDDB, SanGIS)

Other Species

BO = Orcutt's brodiaea
CF = Coulter's goldfields
CL = Del Mar Mesa sand aster
EA = San Diego button-celery
JA = Southwestern spiny rush
LN = Nuttall's lotus
MM = Little mousetail
NF = Prostrate navarretia
OC = California orcutt grass

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-5A

Potential ESHA and Special Status Plant Species Detail Map (City of Carlsbad [South])

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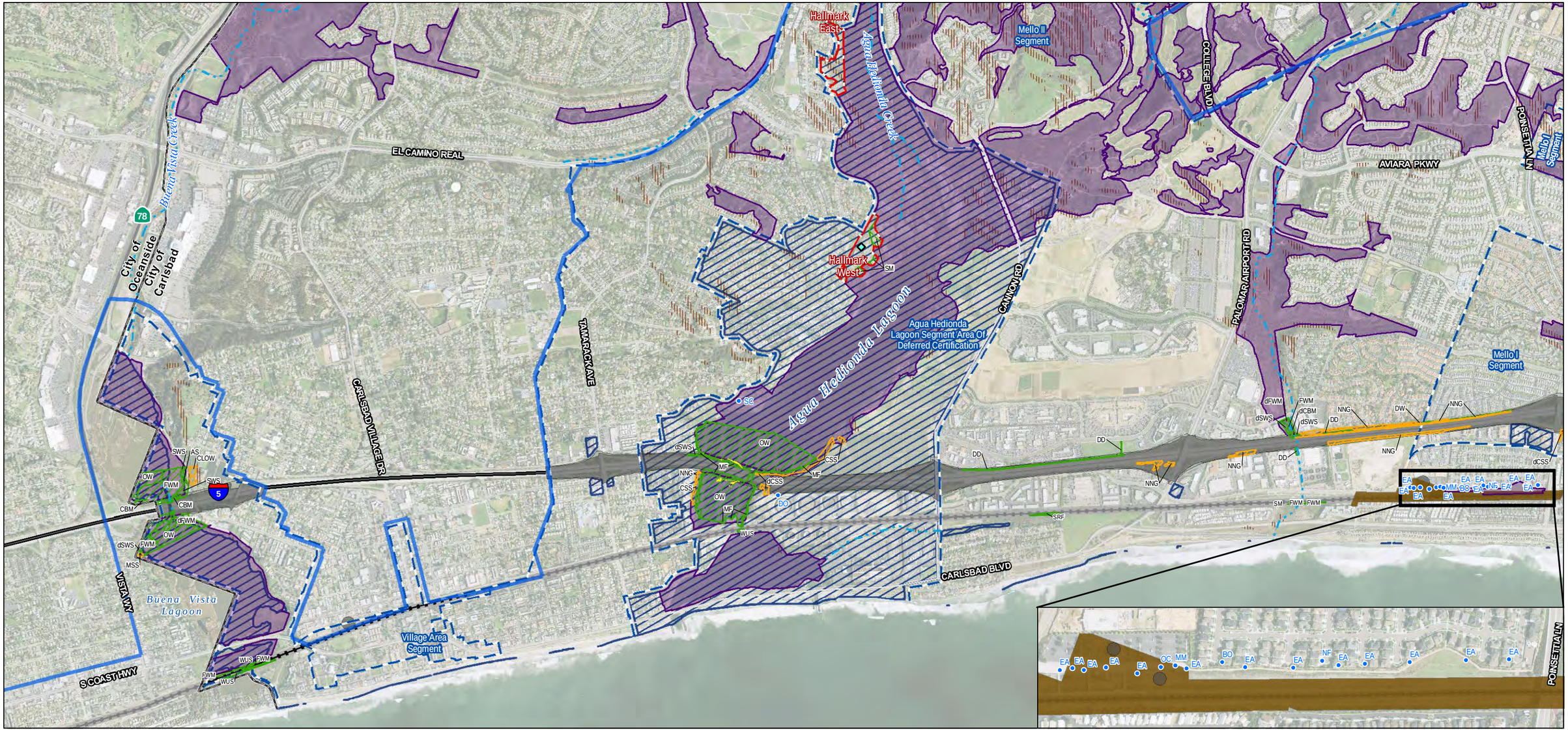

I-5 NCC Project Area

I-5 NCC Project Overlay

- Permanent Impact Area
- Temporary Impact Area
- LOSSAN Proposed Track
- LOSSAN Existing Track
- City Boundary

- Coastal Zone Boundary
- Stream/River
- Local Coastal Program Element
- Coastal Commission Permit Jurisdiction
- Mitigation Site - Secured

Carlsbad LCP Designated ESHA

- dCSS
- Slopes 25% or Greater
- City of Carlsbad Habitat Management Plan Area

US Fish and Wildlife Service

- Spreading Navarretia Critical Habitat

Special Status Vegetation

Caltrans

- Upland Vegetation

CLOW = Coast Live Oak Woodland
CSS = Coastal Sage Scrub
dCSS = Coastal Sage Scrub (Disturbed)
MSS = Maritime Succulent Scrub
NNG = Non-native Grassland

MSHCP Caltrans CNDDB

- Wetland Vegetation

AS = Arundo Scrub
CBM = Coastal Brackish Marsh
dCBM = Coastal Brackish Marsh (Disturbed)

Special Status Vegetation

MSHCP Caltrans CNDDB

- Wetland Vegetation

DD = Drainage Ditch (Concrete)
DW = Disturbed Wetland
WUS = Estuarine
FWM = Freshwater Marsh
dFWM = Freshwater Marsh (Disturbed)
MF = Mud Flat
OW = Open Water
SM = Southern Coastal Salt Marsh
SRF = Southern Riparian Scrub
SWS = Southern Willow Scrub
dSWS = Southern Willow Scrub (Disturbed)

Special Status Plants

Caltrans Other Sources (CNDDB, SanGIS)

- Eelgrass
- South Coast saltscale
- Other Species

BO = Orcutt's brodiaea
DO = Western dichondra
EA = San Diego button-celery
MM = Little mousetail
NF = Prostrate navarretia
OC = California orcutt grass
SC = Ashy spike-moss

NORTH

0 500 1,000 1,500 Feet

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-5B

Potential ESHA and Special Status Plant Species Detail Map (City of Carlsbad [North])

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I-5 NCC Project Area

I-5 NCC Project Overlay

- Permanent Impact Area
- Temporary Impact Area
- LOSSAN Proposed Track
- LOSSAN Existing Track
- City Boundary
- Stream/River
- Local Coastal Program Element
- Coastal Commission Permit Jurisdiction
- Mitigation Site - Secured

Carlsbad LCP Designated ESHA

- CSS, dCSS, and MSS*
- Slopes 25% or Greater

US Fish and Wildlife Service

- California Gnatcatcher Critical Habitat
- San Diego Fariy Shrimp Critical Habitat
- Riverside Fairy Shrimp Critical Habitat
- Western Snowy Plover Critical Habitat

Special Status Wildlife (Caltrans / Other Sources (SanGIS, CNDDB))

- Orange-throated whiptail
- Belding's savannah sparrow
- California gnatcatcher
- California least tern
- Least Bell's vireo
- Light-footed clapper rail
- San Diego fairy shrimp

Special Status Wildlife — Other Sources (SanGIS, CNDDB)

Other Species

- AV = American avocet
- BC = Long-billed curlew
- BH = Great blue heron
- BJ = S.D. black-tailed jackrabbit
- BK = Black-shouldered kite
- BL = Bank swallow
- BT = Black tern

Special Status Wildlife — Other Sources (SanGIS, CNDDB)

Other Species

- CH = Cooper's hawk
- DL = Double-crested cormorant
- DW = Downy woodpecker
- ET = Elegant tern
- GH = Green Heron
- LH = Loggerhead shrike
- NE = Black-crowned night heron
- NH = Northern harrier
- RS = Riverside fairy shrimp

Special Status Wildlife — Other Sources (SanGIS, CNDDB)

Other Species

- SK = Black skimmer
- SN = Snow goose
- TB = Tricolored blackbird
- TV = Turkey Vulture
- WH = White pelican
- WI = White-faced ibis
- WP = Western snowy plover
- YW = Yellow warbler

NORTH

0 500 1,000 1,500 Feet

*See ESHA Plant Figure for Code Definitions

Note: Cited wildlife locations often come from surveys that have taken place during different years.

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-5C

Potential ESHA and Special Status Wildlife Species Detail Map (City of Carlsbad [South])

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I-5 NCC Project Area

I-5 NCC Project Overlay

- Permanent Impact Area
- Temporary Impact Area
- LOSSAN Proposed Track
- LOSSAN Existing Track
- City Boundary

- Coastal Zone Boundary
- Stream/River
- Local Coastal Program Element
- Coastal Commission Permit Jurisdiction
- Mitigation Site - Secured

Carlsbad LCP Designated ESHA

- dCSS*
- Slopes 25% or Greater

US Fish and Wildlife Service

- California Gnatcatcher Critical Habitat
- Riverside Fairy Shrimp Critical Habitat
- San Diego Fariy Shrimp Critical Habitat

Special Status Wildlife

Caltans	Other Sources (SanGIS, CNDDB)	
✚	✖	Belding's savannah sparrow
	✖	California gnatcatcher
	✖	California least tern
✚	✖	Least Bell's vireo
✚	✖	Light-footed clapper rail
♦	♦	San Diego fairy shrimp
	◇	San Diego horned lizard

Special Status Wildlife

Other Sources (SanGIS, CNDDB)

- Other Species

BH = Great blue heron
BK = Black-shouldered kite
CU = Canada goose
DL = Double-crested cormorant
RS = Riverside fairy shrimp
WG = Western grebe
WH = White pelican
WT = Southwestern pond turtle

NORTH

0 500 1,000 1,500 Feet

*See ESHA Plant Figure for Code Definitions

Note: Cited wildlife locations often come from surveys that have taken place during different years.

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-5D

Potential ESHA and Special Status Wildlife Species Detail Map (City of Carlsbad [North])

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I-5 NCC Project Area

I-5 NCC Project Overlay

- Permanent Impact Area
- Temporary Impact Area
- LOSSAN Proposed Track
- LOSSAN Existing Track

- City Boundary
- Coastal Zone Boundary
- Stream/River
- Coastal Commission Permit Jurisdiction

Special Status Vegetation

Caltrans

Upland Vegetation

CSS = Coastal Sage Scrub
dCSS = Coastal Sage Scrub (Disturbed)
NNG = Non-native Grassland

Special Status Vegetation

MSHCP Caltrans CNDDB

Wetland Vegetation

AS = Arundo Scrub
CBM = Coastal Brackish Marsh
dCBM = Coastal Brackish Marsh (Disturbed)
FWM = Freshwater Marsh
dFWM = Freshwater Marsh (Disturbed)
OW = Open Water
WUS = Open Water
dSAWW = Southern Arroyo Willow Woodland (Disturbed)
SM = Southern Coastal Salt Marsh
SWS = Southern Willow Scrub
dSWS = Southern Willow Scrub (Disturbed)

Special Status Plants

Other Sources (CNDDB, SanGIS)

Other Species

DO = Western dichondra
DU = Sticky dudleya
JA = Southwestern spiny rush
LN = Nuttall's lotus

NORTH 0 350 700 1,400 Feet

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-6A

Potential ESHA and Special Status Plant Species Detail Map (City of Oceanside)

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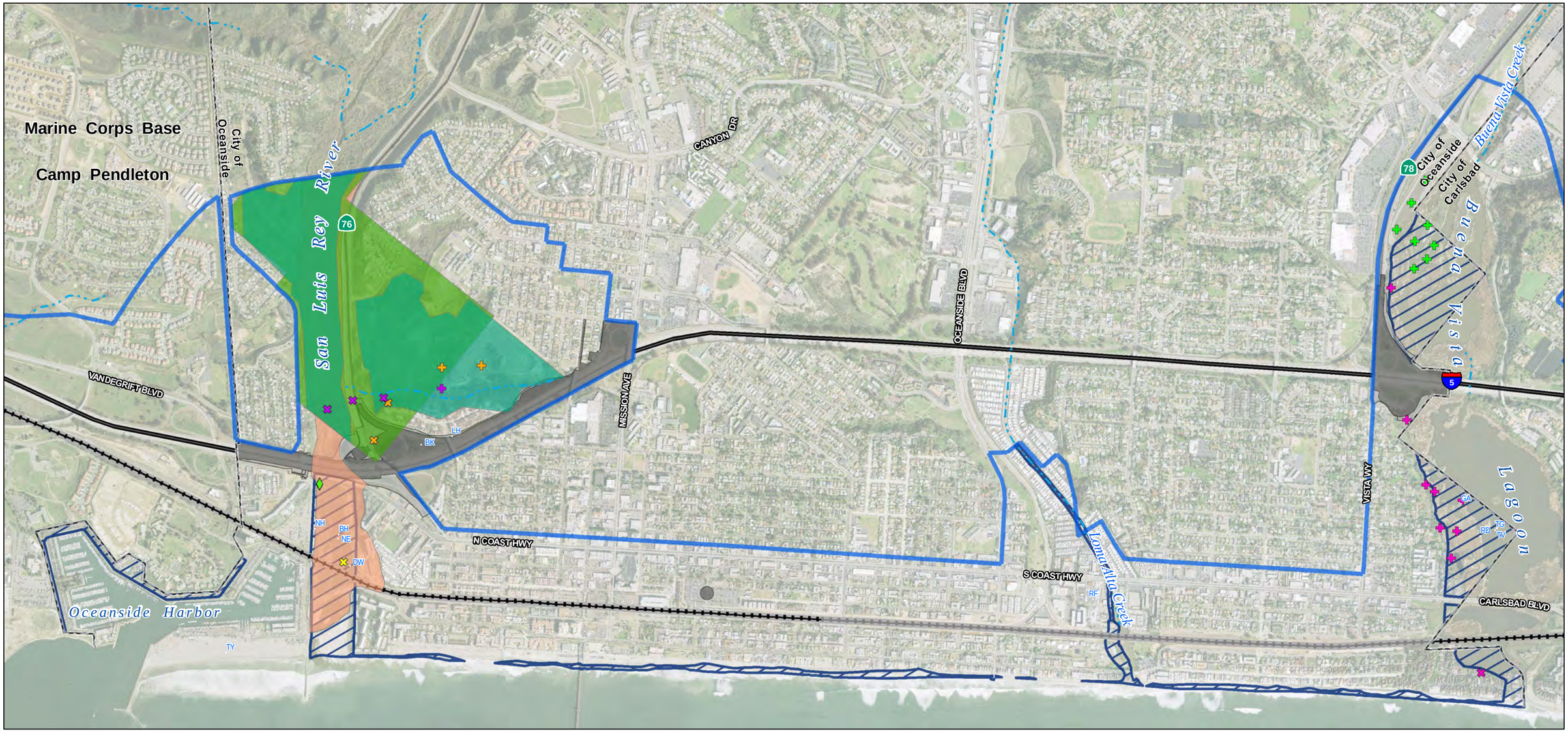

I-5 NCC Project Area

I-5 NCC Project Overlay

- Permanent Impact Area
- Temporary Impact Area
- LOSSAN Proposed Track
- LOSSAN Existing Track

- City Boundary
- Coastal Zone Boundary
- Stream/River
- Coastal Commission Permit Jurisdiction

US Fish and Wildlife Service

- California Gnatcatcher Critical Habitat
- Least Bell's Vireo Critical Habitat
- Southwestern Willow Flycatcher Critical Habitat

Special Status Wildlife

Caltrans	Other Sources (CNDDB, SanGIS)	
✚		Belding's savannah sparrow
✚	✖	California gnatcatcher
	✖	California least tern
✚	✖	Least Bell's vireo
✚	✖	Light-footed clapper rail
◆		Migrant willow flycatcher

Special Status Wildlife

Other Sources (CNDDB, SanGIS)

- Other Species

BH = Great blue heron
BK = Black-shouldered kite
DW = Downy woodpecker
GA = Gadwall
LH = Loggerhead shrike
NE = Black-crowned night heron
NH = Northern harrier

Special Status Wildlife

Other Sources (CNDDB, SanGIS)

- Other Species

RD = Redhead
RF = California red-legged frog
TG = Two-striped garter snake
TV = Turkey Vulture
TY = Tidewater goby

NORTH

0 350 700 1,400 Feet

Note: Cited wildlife locations often come from surveys that have taken place during different years.

DATA SOURCES: Caltrans, California Coastal Commission, Local Jurisdictions, SanGIS, SANDAG, Imagery: DigitalGlobe March 2008

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FIGURE 5.5-6B

Potential ESHA and Special Status Wildlife Species Detail Map (City of Oceanside)

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