Manchester Avenue/Interstate 5 Interchange Project

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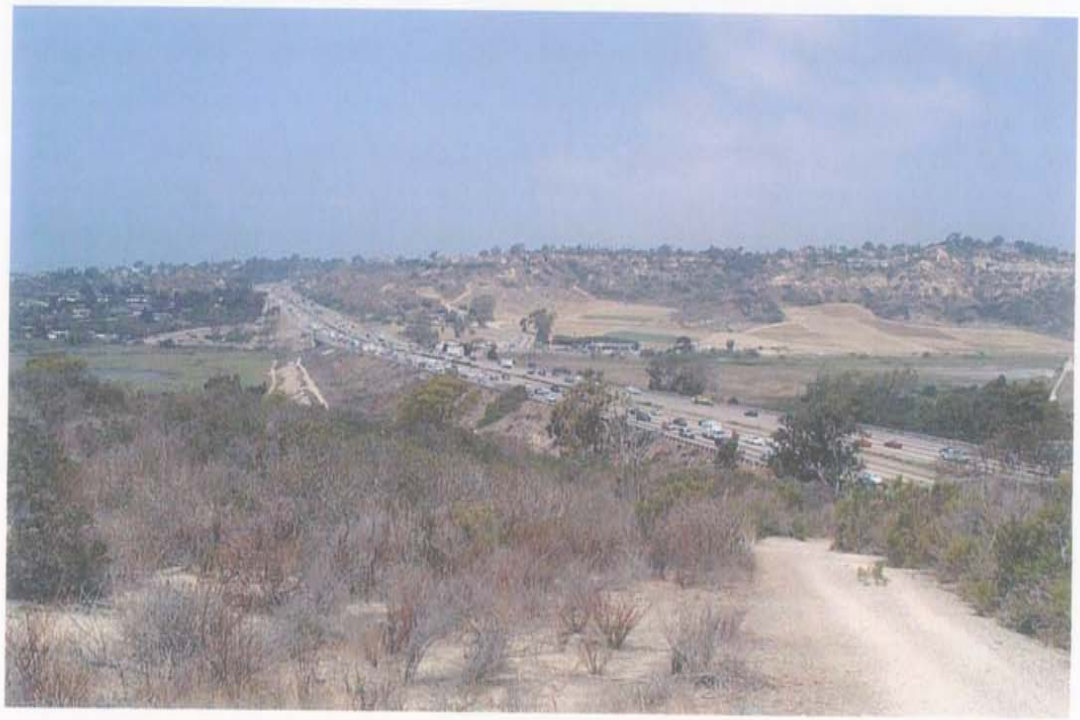

Natural Environment Study Report

City of Encinitas

and

City of Solana Beach

San Diego County, California

Caltrans District 11 - SD-5-KP38.6 (Kharrati)

EA 24140K

Caltrans Metric

January 2004

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Prepared for the City of Encinitas, City of Solana Beach,

and Caltrans District 11

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Summary

This Natural Environment Study Report has been prepared by EDAW, Inc., as a subconsultant to Dokken Engineering, in support of the Manchester Avenue/Interstate 5 (Manchester/I-5) Interchange project. The project proponent is the City of Encinitas, which is the local lead agency for California Environmental Quality Act compliance. The California Department of Transportation (Caltrans) is the lead agency for National Environmental Policy Act compliance. Compliance with federal environmental regulations is necessitated by the use of federal funds for project development. The preliminary engineering design has been provided by Dokken Engineering.

The Manchester/I-5 Interchange project site is located between Birmingham Drive and Lomas Santa Fe Drive in southern Encinitas, within San Diego County. The project objectives are to (1) implement improvements that will enhance traffic operations on Manchester Avenue, specifically at the I-5 ramp intersections, and (2) implement project improvements consistent with Caltrans' ultimate I-5 improvements through the project limits, currently being studied, for the addition of two high occupancy vehicle lanes in the median in each direction and one additional outside lane in each direction on I-5.

The proposed Manchester/I-5 Interchange project would result in impacts to a variety of biological resources within the Area of Effect (AE). The AE is defined as that area within which it is anticipated that all roadway improvements, construction activities, and staging would be confined. Biological resources potentially affected by the proposed project include vegetation communities that are suitable for 32 sensitive plant species and 89 sensitive animal species. A general botanical and vegetation mapping survey was conducted for the site (Table S-1).

Based on the initial habitat reconnaissance surveys, as well as review of environmental documents prepared for nearby projects, it was determined that focused surveys were necessary for the following species: coastal California gnatcatcher (*Polioptila californica californica*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), western snowy plover (*Charadrius alexandrinus nivosus*), California least tern (*Sterna antillarum browni*), light-footed clapper rail (*Rallus longirostris levipes*), least Bell's vireo (*Vireo bellii pusillus*), and southwestern willow flycatcher (*Empidonax traillii extimus*). Surveys for the coastal

Table S-1: Habitat Impact Matrix (*hectares[acres]*)

Vegetation Community	Build Alternative		
	Permanent Impacts	Temporary Impacts	Total Impacts
Diegan coastal sage scrub	0.53 *(1.31)*	0.09 *(0.23)*	0.62 *(1.54)*
Disturbed coastal sage scrub	0.85 *(2.10)*	0.93 *(2.29)*	1.78 *(4.39)*
Southern maritime chaparral	0.03 *(0.07)*	0.04 *(0.10)*	0.07 *(0.17)*
Disturbed southern maritime chaparral	N/A	0.03 *(0.06)*	0.03 *(0.06)*
Nonnative grassland	0.33 *(0.82)*	0.31 *(0.76)*	0.64 *(1.58)*
Southern willow scrub	N/A	0.01 *(0.03)*	0.01 *(0.03)*
Disturbed southern willow scrub	0.03 *(0.08)*	0.03 *(0.06)*	0.06 *(0.14)*
Coastal brackish marsh	0.01 *(0.02)*	0.21 *(0.52)*	0.22 *(0.54)*
Coastal brackish marsh (Shading)	0.11 *(0.28)*	N/A	0.11 *(0.28)*
Disturbed freshwater marsh	0.09 *(0.21)*	0.02 *(0.05)*	0.11 *(0.26)*
Southern coastal salt marsh	0.02 *(0.04)*	0.14 *(0.35)*	0.16 *(0.39)*
Southern coastal salt marsh (Shading)	0.02 *(0.05)*	N/A	0.02 *(0.05)*
Open water	N/A	0.13 *(0.32)*	0.13 *(0.32)*
Open Water (Shading)	0.08 *(0.21)*	N/A	0.08 *(0.21)*
Agricultural fields	0.05 *(0.11)*	0.05 *(0.12)*	0.10 *(0.23)*
Ornamental	1.16 *(2.86)*	0.38 *(0.93)*	1.54 *(3.79)*
Developed	0.47 *(1.16)*	N/A	0.47 *(1.16)*
Ruderal	1.98 *(4.88)*	0.51 *(1.25)*	2.48 *(6.14)*
Disturbed habitat	0.13 *(0.32)*	0.08 *(0.20)*	0.21 *(0.52)*
TOTAL	5.88 *(14.52)*	2.94 *(7.27)*	8.84 *(21.80)*

N/A = not applicable

Note: With the exception of shading effects from the bridge expansion, which are included within the permanent impacts, indirect impacts are not quantified because there are no established standards to determine the extent of impacts from the point source (dust, sediment, lighting, runoff, illegal trespass, etc.).
Cumulative impacts cannot be determined at this time.

California gnatcatcher, least Bell's vireo, Belding's savannah sparrow, western snowy plover, and California least tern were completed by EDAW biologists. The San Elijo Lagoon Conservancy (SELC) conducted surveys for the light-footed clapper rail and southwestern willow flycatcher. The SELC also provided additional survey data for the least Bell's vireo, Belding's savannah sparrow, western snowy plover, and California least tern. In addition to these 7 species, there are an additional 10 federally or state-listed threatened or endangered animal species that are known from the region. However, the absence of required habitats or other constituent elements indicated that these other 10 species are not present within the study area, and therefore focused surveys are not recommended. Table S-2 lists the special status species that may be impacted as a result of the project.

Subsequent to the general and focused biological surveys of the Biological Study Area (BSA), additional portions of the AE were identified for preservation. Permanent project features and temporary impacts from construction or staging activities would be excluded from these portions of the AE. All subsequent impact acreage calculations assume preservation of these exclusion areas.

Botanical surveys of the BSA were conducted in September 2002 and focused rare plant surveys were conducted in April and May 2003. These surveys were conducted at a time when spring and early summer ephemeral species would be observable. During the surveys, 11 sensitive plant species were observed within the BSA: California adolphia (*Adolphia californica*), Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), south coast saltscale (*Atriplex pacifica*), wart-stemmed ceanothus (*Ceanothus verrucosus*), Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*), summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), sea dahlia (*Coreopsis maritima*), San Diego barrel cactus (*Ferocactus viridescens*), Del Mar Mesa sand aster (*Lessingia filaginifolia* var. *linifolia*), Torrey pine (*Pinus torreyana*), and Nuttall's scrub oak (*Quercus dumosa*). The Torrey pine individuals were planted as ornamentals and do not represent natural populations. Two other sensitive plant species, Shaw's agave (*Agave shawii*) and cliff spurge (*Euphorbia misera*), were observed outside of but immediately adjacent to the BSA. Based on the populations observed during focused surveys, only the Del Mar Mesa sand aster could potentially be impacted as a result of the project (Table S-2).

There are other sensitive plant species that are known from the vicinity of the project but were not observed during the surveys. Surveys were conducted to coincide with the traditional blooming periods of these species. A majority of these species either

Table S-2: Special Status Species Impact Matrix

Species	Population Size Observed within BSA	Suitable Habitat within Bld. Alt. AE	Impacted within Bld. Alt. AE	Potential Compensatory Mitigation Ratio or Rate	Maximum Compensatory Mitigation Amount or Area
Del Mar manzanita	31 individuals	0.06 hectare (0.13 acre)	No direct or indirect impacts	There would not be any direct impacts to Del Mar manzanita. Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	N/A
Del Mar Mesa sand aster	1,462 individuals	2.67 hectares (6.56 acres)	229 individuals directly impacted; additional individuals indirectly impacted	Compensatory mitigation measures for direct impacts to Del Mar Mesa sand aster would, in part, be habitat based. Securing comparable habitat at the required mitigation ratio will mitigate for the direct impacts to most species. Since this species is a narrow endemic, additional species-specific measures would likely be required in addition to habitat compensation. Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	To be determined through discussions with the resource agencies
Sea dahlia	389	1.87 hectares (4.59 acres)	No direct impacts, several individuals potentially indirectly impacted	Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, and erosion would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	N/A

Table S-2: Special Status Species Impact Matrix (Continued)

Species	Population Size Observed within BSA	Suitable Habitat within Bld. Alt. AE	Impacted within Bld. Alt. AE	Potential Compensatory Mitigation Ratio or Rate	Maximum Compensatory Mitigation Amount or Area
South coast saltscale	100	0	No direct or indirect impacts	Since there would not be any direct or indirect impacts to south coast saltscale, no compensatory mitigation measures would be required.	N/A
Orcutt's pincushion	4,700	3.93 hectares (9.67 acres)	52 individuals directly impacted; additional individuals indirectly impacted.	Direct impacts would be mitigated through habitat-based mitigation. Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, and erosion would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	To be determined through discussions with the resource agencies
California adolphia	281 individuals	1.82 hectares (4.48 acres)	No direct or indirect impacts	Since there would not be any direct or indirect impacts to California adolphia, no compensatory mitigation measures would be required.	N/A
Wart-stemmed ceanothus	343 individuals	0.06 hectare (0.13 acre)	No direct impacts, potential indirect impacts	Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	N/A
Summer holly	2 individuals	0.06 hectare (0.13 acre)	No direct or indirect impacts	Since there would not be any direct or indirect impacts to summer holly, no compensatory mitigation measures would be required.	N/A

Table S-2: Special Status Species Impact Matrix (Continued)

Species	Population Size Observed within BSA	Suitable Habitat within Bld. Alt. AE	Impacted within Bld. Alt. AE	Potential Compensatory Mitigation Ratio or Rate	Maximum Compensatory Mitigation Amount or Area
San Diego barrel cactus	117 individuals	1.88 hectares (4.61 acres)	No direct impacts; potential indirect impacts	Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, and erosion would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	N/A
Nuttall's scrub oak	24 individuals	0.06 hectare (0.13 acre)	No direct impacts; potential indirect impacts	Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	N/A
Torrey pine	3 individuals but all are from ornamental plantings and are not natural populations	0	No direct or indirect impact to natural individuals; two "planted" individuals impacted	Since there would not be any direct or indirect impacts to natural populations of Torrey pine, no compensatory mitigation measures would be required.	N/A
Orange-throated whiptail	1 individual	2.50 hectares (6.20 acres)	No direct or indirect impact to known population	Under the MHCP, mitigation would occur through acquisition of coastal sage scrub habitat (or an equivalent monetary contribution into a management fund) at a ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, additional mitigation may be required for impacts to the orange-throated whiptail, as determined through discussions with the CDFG.	To be determined through discussions with the resource agencies

Table S-2: Special Status Species Impact Matrix (Continued)

Species	Population Size Observed within BSA	Suitable Habitat within Bld. Alt. AE	Impacted within Bld. Alt. AE	Potential Compensatory Mitigation Ratio or Rate	Maximum Compensatory Mitigation Amount or Area
Light-footed clapper rail	1 individual	0.16 hectare (0.39 acre)	No direct impact to known population; potential indirect noise impacts	Under the MHCP, mitigation would occur through acquisition of salt marsh habitat (or an equivalent monetary contribution into a management fund) at a ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, additional mitigation may be required for impacts to the light-footed clapper rail, as determined through consultation with the USFWS and CDFG.	To be determined through discussions with the resource agencies
Yellow-breasted chat	1 individual	0.07 hectare (0.17 acre)	No direct impact to known population; potential indirect noise impacts	Under the MHCP, mitigation would occur through acquisition of riparian habitat (or an equivalent monetary contribution into a management fund) at a ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, additional mitigation may be required for impacts to the yellow-breasted chat, as determined through discussions with the USFWS and CDFG.	To be determined through discussions with the resource agencies
Coastal California gnatcatcher	21 individuals (9 pairs, 1 unpaired male, and 2 juveniles)	2.40 hectares (5.93 acres)	Potential direct and indirect impacts to 6 pairs and 2 individuals	Under the MHCP, mitigation would occur through acquisition of coastal sage scrub habitat (or an equivalent monetary contribution into a management fund) at a ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, additional mitigation may be required for impacts to the coastal California gnatcatcher, as determined through consultation with the USFWS.	To be determined through discussions with the resource agencies

Table S-2: Special Status Species Impact Matrix (Continued)

Species	Population Size Observed within BSA	Suitable Habitat within Bld. Alt. AE	Impacted within Bld. Alt. AE	Potential Compensatory Mitigation Ratio or Rate	Maximum Compensatory Mitigation Amount or Area
Belding's savannah sparrow	16 individuals (8 pairs)	0.16 hectare (0.39 acre)	No direct impact to known population; potential indirect noise impacts	Under the MHCP, mitigation would occur through acquisition of salt marsh habitat (or an equivalent monetary contribution into a management fund) at a ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, additional mitigation may be required for impacts to the Belding's savannah sparrow, as determined through consultation with the CDFG.	To be determined through discussions with the resource agencies

would not be expected or would have a low potential to occur within the BSA because of lack of suitable habitat or because of the disturbed condition of many areas of the BSA.

Many of the slopes along I-5 are dominated by exotic species such as ice plant (*Carpobrotus edulis*), eucalyptus (*Eucalyptus* sp.), myoporum (*Myoporum laetum*), and acacia (*Acacia* sp.). Exotic plants have been planted for a variety of reasons within the BSA, such as aesthetic or landscaping purposes, or to provide visual screens. Table S-3 lists all exotic plant species that occur within the BSA.

The draft Multiple Habitat Conservation Plan (MHCP) and City of Encinitas draft subarea plan are currently in the public review process. The City of Solana Beach is a participant in the MHCP but is not submitting a subarea plan. It is anticipated that the MHCP and the Encinitas subarea plan will be completed and approved by the end of 2002, although this process may take longer. Once in place, impacts to covered sensitive species and habitats would be regulated within the plan area. This area includes the Manchester Avenue portion of the proposed project. Under the habitat-based MHCP and subarea plan, impacts to sensitive plant and animal species would likely require mitigation and compensation through the acquisition of habitat suitable for the impacted species. Precise mitigation ratios for such impacts would be determined by the City of Encinitas following approval of the MHCP and the subarea plan. Because of the relative sensitivity of biological resources associated with San Elijo Lagoon and the surrounding coastal sage scrub habitats, the MHCP and the subarea plan may ultimately require additional measures such as preconstruction surveys and biological monitoring efforts to avoid and minimize impacts to covered species. Caltrans, however, is not a signatory to the MHCP; thus, the Caltrans right-of-way is not covered by the subregional planning effort. As such, any impacts within the AE to federally sensitive species would require a Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS). Similarly, if impacts to state-listed species are expected, a 2080.1 or 2081 analysis by CDFG may also be required.

If the MHCP and the Encinitas subarea plan are not approved before the start of the Manchester/I-5 Interchange project, impacts to sensitive species and habitats would require discussions with the resource agencies, which is currently the case for the impacts to sensitive biological resources within the Caltrans right-of-way. Under this scenario, impacts to federally listed species would require either formal or informal consultation under the Federal Endangered Species Act Section 7 process. Impacts to state-listed species would require consultation under the California Endangered

Table S-3: Invasive Species List

Scientific Name	Common Name
ANGIOSPERMAE	
Dicotyledoneae	
Aizoaceae - Carpet-Weed Family	
Carpobrotus edulis	Iceplant
Mesembryanthemum crystallinum	Crystalline Iceplant
Mesembryanthemum nodiflorum	Slender-Leaved Iceplant
Tetragonia tetragonioides	New Zealand Spinach
Amaranthaceae – Amaranth Family	
Amaranthus sp.	Pigweed
Anacardiaceae - Sumac Family	
Schinus molle	Peruvian Pepper Tree
Schinus terebinthifolius	Brazilian Pepper Tree
Apiaceae - Carrot Family	
Foeniculum vulgare	Fennel
Asteraceae - Sunflower Family	
Centaurea melitensis	Tocalote
Chrysanthemum coronarium	Annual Garland Daisy
Cirsium vulgare	Bull Thistle
Conyza canadensis	Horseweed
Cotula australis	Australian Brass-Buttons
Filago gallica	Narrowleaf Filago
Gazania linearis	Gazania
Hedypnois cretica	Crete Hedypnois
Sonchus oleraceus	Common Sow-Thistle
Xanthium strumarium	Cocklebur
Brassicaceae - Mustard Family	
Brassica nigra	Black Mustard
Hirschfeldia incana	Perennial Mustard
Matthiola incana	Stock
Raphanus sativus	Wild Radish
Cactaceae - Cactus Family	
Opuntia ficus-indica	Indian-Fig
Caryophyllaceae – Pink Family	
Cardionema ramosissimum	Tread-Lightly
Silene gallica	Windmill Pink

Spergularia sp.	Sand-Spurry
Chenopodiaceae - Goosefoot Family	
Atriplex semibaccata	Australian Saltbush
Chenopodium ambrosioides	Mexican Tea
Salsola tragus	Russian-Thistle, Tumbleweed
Euphorbiaceae -Spurge Family	
Euphorbia sp.	Spurge
Ricinus communis	Castor Bean
Fabaceae - Pea Family	
Melilotus indica	Indian Sweet Clover
Geraniaceae – Geranium Family	
Erodium sp.	Filaree
Myoporaceae - Myoporum Family	
Myoporum laetum	Myoporum
Myrtaceae - Myrtle Family	
Eucalyptus sp.	Eucalyptus
Oxalidaceae – Wood-Sorrel Family	
Oxalis pres-caprae	Bermuda Buttercup
Plumbaginaceae - Leadwort Family	
Limonium perezii	Statice
Polygonaceae - Buckwheat Family	
Rumex crispus	Curly Dock
Primulaceae – Primrose Family	
Anagallis arvensis	Scarlet Pimpernel
Solanaceae - Nightshade Family	
Nicotiana glauca	Tree Tobacco
Monocotyledoneae	
Poaceae - Grass Family	
Avena barbata	Slender Wild Oat
Bromus diandrus	Ripgut Grass
Bromus madritensis ssp. *rubens*	Foxtail Chess
Cortaderia sp.	Pampas Grass
Cynodon dactylon	Bermuda Grass
Ehrharta calycina	Veldt Grass
Polypogon monspeliensis	Annual Beard Grass
Rhynchelytrum repens	Natal Grass

Species Act and California Fish and Game Code Sections 2080 through 2085. Additionally, a delay in the approval of the MHCP would also require that mitigation measures be determined through discussions with the resource agencies for impacts to nonthreatened or endangered sensitive species.

Protocol-level focused surveys were conducted within the BSA for the federally listed threatened coastal California gnatcatcher and the federally and state-listed endangered least Bell's vireo. A total of 21 coastal California gnatcatchers (9 pairs, 1 solitary male, and 2 juveniles) were observed within the BSA. The least Bell's vireo was not observed within the BSA during focused protocol-level surveys, although they were seen in suitable habitats adjacent to the study area, and as a migrant species on the west side of the BSA within the lagoon off of Manchester Avenue. Focused surveys were also conducted for the federally and state-listed endangered light-footed clapper rail, the federally listed threatened western snowy plover, the federally and state-listed endangered California least tern, and the state-listed endangered Belding's savannah sparrow. One pair of light-footed clapper rail and eight pairs of Belding's savannah sparrows were observed within the BSA, and a solitary California least tern was observed foraging immediately to the west of the study area. The reconnaissance and general surveys of the site also determined the presence of several lower-sensitivity animal species within the BSA, including the orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*) and yellow-breasted chat (*Icteria virens*), and suitable habitat for numerous other sensitive species.

Following approval of the MHCP and subarea plan, impacts to these covered wildlife species would be mitigated through the acquisition of habitats suitable for species whose habitats are impacted within the AE, coincident with the MHCP planning area outside of the Caltrans right-of-way. Therefore, impacts to upland species, such as the coastal California gnatcatcher and orange-throated whiptail, would require mitigating the loss of coastal sage scrub habitat for areas covered by the MSCP. Likewise, impacts to lagoon species would require mitigating for the loss of salt marsh habitat (Belding's savannah sparrow and light-footed clapper rail) and riparian habitats (yellow-breasted chat). For impacts to habitats occupied by sensitive species in areas under Caltrans jurisdiction, mitigation ratios would be determined through discussions with the resource agencies.

In the event that the MHCP and the subarea plan are not approved by the time the Manchester/I-5 Interchange project construction is initiated, consultation with the USFWS for impacts to federally listed threatened or endangered animal species,

including the coastal California gnatcatcher and light-footed clapper rail, would be required for the entire project area, and not just for the impacts within the Caltrans right-of-way. Additionally, impacts to state-listed threatened or endangered animal species would require consultation with the California Department of Fish and Game (CDFG). Impacts to nonlisted sensitive animal species would also require discussions with the CDFG to determine appropriate mitigation measures.

The Build Alternative would impact jurisdictional wetlands and other waters within and adjacent to San Elijo Lagoon. Requisite state and federal wetland permits will need to be obtained from the CDFG, Regional Water Quality Control Board, and U.S. Army Corps of Engineers. A permit for the bridge work may need to be obtained from the U.S. Coast Guard.

No positive or beneficial impacts to biological resources are anticipated to result from implementation of the Manchester/I-5 Interchange project.

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List of Abbreviated Terms

AE	Area of Effect
amsl	Above mean sea level
BMP	Best Management Practice
BO	Biological Opinion
BSA	Biological Study Area
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
dB	decibels
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
FACW	facultative wetland
FCI	Functional Capacity Index
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FPA	Focused Planning Area
ft	feet/foot
HGM	hydrogeomorphic
I-5	Interstate 5
km	kilometer
LOS	Level of Service
m	meters/meter
MBTA	Migratory Bird Treaty Act
MHCP	Multiple Habitat Conservation Plan
NCCP	Natural Community Conservation Planning
NESR	Natural Environment Study Report
NWP	Nationwide Permit
OBL	obligate wetland species
OHWM	ordinary high water mark
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SELC	San Elijo Lagoon Conservancy
SWPPP	Storm Water Pollution Prevention Plan
TSA	Tidal Surge Attenuation
USFWS	U.S. Fish and Wildlife Service
WAA	Wildlife Assessment Area
WHU	Wildlife Habitat Utilization

1. Introduction

The Manchester Avenue/Interstate 5 (Manchester/I-5) Interchange project site is located between Birmingham Drive and Lomas Santa Fe Drive in southern Encinitas, within San Diego County (Figures 1a and 1b).

The city of Encinitas is bounded to the north and west by bodies of water (Batiquitos Lagoon and the Pacific Ocean), to the south by the city of Solana Beach, and to the east by the city of Carlsbad and unincorporated areas of San Diego County. I-5 is located in the western half of the city and serves as the main facility for transport of goods to and from the city and surrounding region. Manchester Avenue transitions from El Camino Real at the eastern limit of this project and continues along the northern shore of San Elijo Lagoon before connecting to I-5. The Manchester/I-5 interchange is the southernmost interchange of the six included within Encinitas and serves as the southern gateway to the city. The interchange also serves as a primary freeway access point for the communities of Cardiff, New Encinitas, and Olivenhain within the city of Encinitas, which adds to the current congestion at the Manchester/I-5 interchange. The southern portion of the Biological Study Area (BSA) occurs within the limits of the city of Solana Beach.

Funding sources are the City of Encinitas, the San Diego Association of Governments (SANDAG), state funds, and federal funds.

1.1. Project History

The objectives of the Manchester/I-5 Interchange project are to (1) implement improvements that will enhance traffic operations on Manchester Avenue, specifically at the Interstate 5 (I-5) ramp intersections and (2) implement project improvements consistent with the California Department of Transportation's (Caltrans) ultimate I-5 improvements through the project limits, currently being studied, for the addition of two high occupancy vehicle lanes in the median in each direction and one additional outside lane in each direction on I-5.

The Circulation Element of the Encinitas General Plan (as amended through May 11, 1995) classifies Manchester Avenue as a Prime Arterial roadway. A Prime Arterial roadway is characterized by a right-of-way width of 37 to 40 meters (m) (120 to 130 feet [ft]), and a pavement width of 30 to 34 m (100 to 110 ft). Manchester Avenue

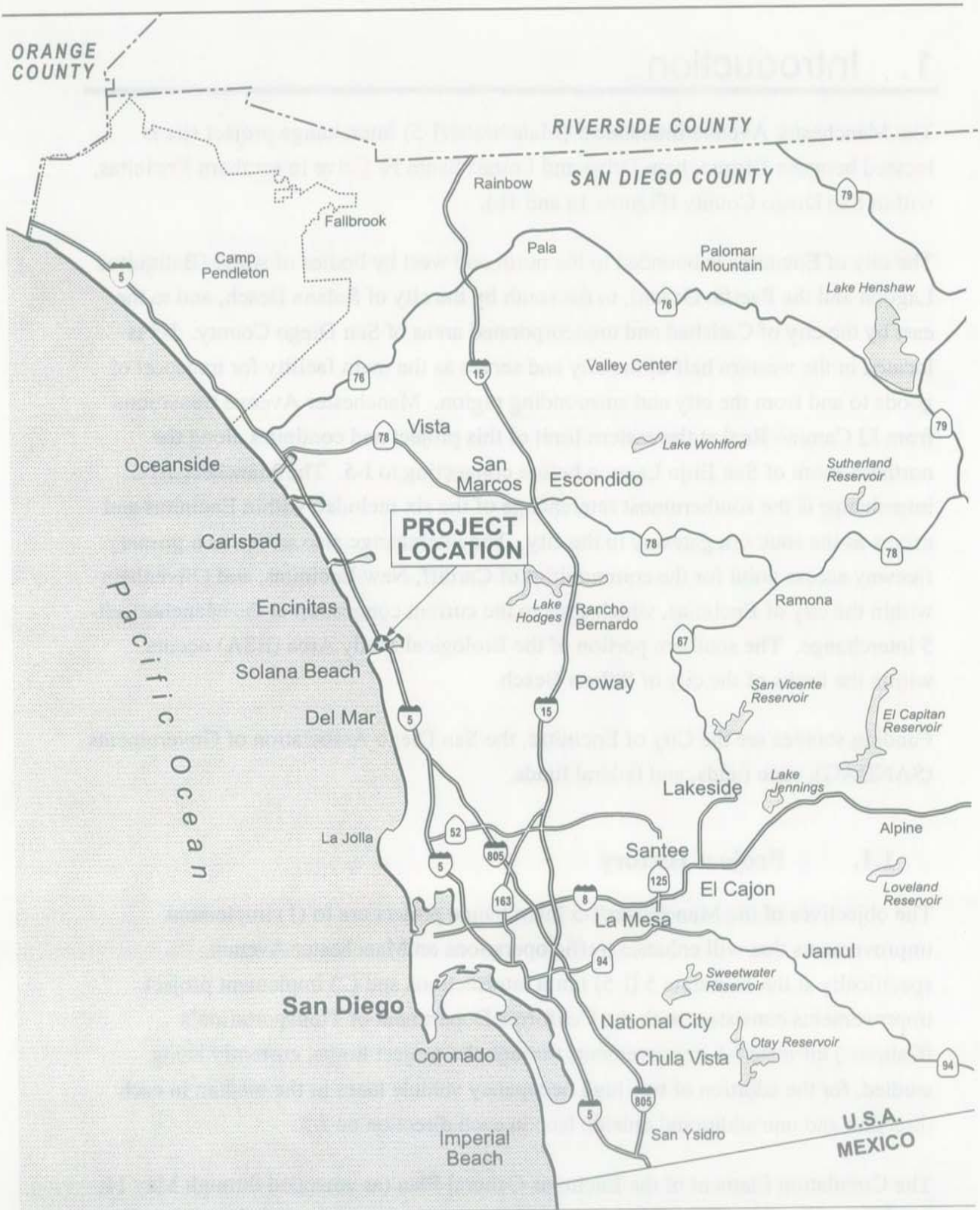

Figure 1a
Locality Map

NORTH

No Scale

SOURCE: Thomas Guide Digital Edition 2003/4 State of California

2000 0 2000 Feet

Scale: 1" = 2,000'

NORTH

Biological Study Area

Figure 1b
Vicinity Map

currently varies in cross-sectional width through the project limits but is primarily a four-lane roadway east of I-5, reducing to a two-lane road west of I-5. Right- and left-turn lanes provide connections to the I-5 ramps. Manchester Avenue connects to San Elijo Avenue to the west and El Camino Real to the east. The Manchester/I-5 interchange is currently configured as a flopped-partial cloverleaf with all ramps located on the north side.

1.2. Project Description

The proposed project site extends along I-5 from Birmingham Avenue south to Lomas Santa Fe Drive and along Manchester Avenue. The proposed project would include modifications to the on- and off-ramps to the Manchester/I-5 interchange and would include one I-5 northbound auxiliary lane from Birmingham Drive to Manchester Avenue and I-5 northbound and southbound auxiliary lanes from Manchester Avenue to Lomas Santa Fe Drive. In addition, the I-5 bridge over San Elijo Lagoon would be widened to be consistent with Caltrans ultimate I-5 improvements.

The Manchester/I-5 interchange and I-5 north of the southern limits of San Elijo Lagoon are located in the city of Encinitas. Encinitas is bounded by the city of Carlsbad on the north, an unincorporated area of San Diego County on the east, the city of Solana Beach on the south, and the Pacific Ocean on the west. The portion of the I-5 corridor located south of San Elijo Lagoon is within the city of Solana Beach.

One feasible alternative was chosen for further analysis, following an extensive review of 12 candidate alternatives by the Project Development Team. The alternative under consideration is Minimum Build (Build Alternative). Build Alternative is a lower-cost design providing traffic circulation improvements by widening the existing ramps while maintaining the existing geometric configuration. A conceptual drawing shows the proposed plan view layout for the feasible alternative in Figure 2.

The following elements are considered in the alternative:

- signalize the southbound ramp intersection,
- widen the southbound on-ramp from two lanes to three lanes,

Source: Dokken, 2002; AirPhotoUSA, February, 2001

NORTH

800 0 800 1600 Feet

Scale: 1" = 800'

Figure 2
Build Alternative Alignment

widen the northbound off-ramp to two left-turn lanes and a single right-turn lane,

- widen the Manchester Avenue undercrossing to accommodate ramp widening,
- maintain the current alignment of Manchester Avenue between I-5 and Mira Costa College,
- retain the north abutment of both I-5 bridge structures to allow for four traffic lanes (three westbound and one eastbound) beneath I-5,
- widen I-5 on the east and west sides between Lomas Santa Fe Drive and Manchester Avenue to provide northbound and southbound auxiliary lanes,
- widen the east side between Manchester Avenue and Birmingham Drive to provide a northbound auxiliary lane,
- widen the I-5 bridge structure overcrossing of San Elijo Lagoon and Manchester Avenue on the east and west sides, and
- install proposed sidewalks and bike facilities to improve safety and operational service of the interchange.

Traffic operations on the freeway are not anticipated to decline as a result of the project.

Minimum Build (Build Alternative)

The Build Alternative is a lower-cost design providing traffic circulation improvements by widening the existing ramps while maintaining the same geometric configuration. The objective of this alternative is to increase capacity and provide adequate operational service by widening each ramp while minimizing environmental impacts.

No Build Alternative

Under the No Build Alternative, the Manchester/I-5 interchange would remain in its current configuration. There would be no improvements. The bridge would not be widened, and the roadway would not be realigned.

Based on the anticipated growth within the region, traffic volume through the Manchester/I-5 interchange is expected to increase. According to traffic studies, implementation of the Manchester/I-5 Interchange project will allow the roadway to operate at a future Level of Service (LOS) B (stable flow) on the northbound on-ramp in the morning, and LOS C (stable flow restricted by high volume) in the evening. Without the project, estimated service would be at LOS C for the on-ramp in the

morning, and LOS D (approaching unstable) in the evening. Additionally, the northbound off-ramp would operate at a postconstruction LOS C (morning) and LOS D (evening), improved from the anticipated LOS D (morning) and LOS F (evening). The southbound on-ramp is expected to operate at LOS D (morning and evening), improved from LOS E (morning) and LOS F (forced flow) in the evening. The southbound off-ramp would allow an LOS C for both the morning and evening following construction, which would be an improvement from the anticipated LOS D (morning) and LOS E (unstable) in the evening. Because of the important location and connectivity of the Manchester/I-5 interchange, a No Build Alternative is not considered viable and therefore was dropped from further study.

2. Study Methods

There is a potential for several federally and state-listed threatened or endangered species, or candidate species, to be onsite based on existing regional data. The initial study methodology consisted of conducting general habitat reconnaissance surveys of the site based on the species information known for the vicinity of the project site.

2.1. Studies Required

The California Natural Diversity Data Base (CNDDB), California Native Plant Society (CNPS) Electronic Inventory, *California's Wildlife Volumes I-III*, the CalFlora database, and the Multiple Habitat Conservation Plan (MHCP) were used to determine the sensitive species known from the region surrounding the project area. A letter was transmitted to the U.S. Fish and Wildlife Service (USFWS) to confirm those federally listed species that may be present. Technical tools such as CNDDB and CalFlora databases were used to search for regional sensitive species, confirm previous site locations, and describe habitat requirements. Biological assessments regarding plant and wildlife were determined based on the information obtained from these resources and the quality of the proposed biological study area. The results of the data query were refined through site visits involving habitat assessments for these species. If a habitat was not present onsite for a particular sensitive species, it was dropped from further consideration for focused project studies.

Based on initial habitat reconnaissance surveys of the site, as well as review of environmental documents prepared for nearby projects, it was determined that focused surveys were necessary for the following species:

- coastal California gnatcatcher (*Polioptila californica californica*)
- Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)
- western snowy plover (*Charadrius alexandrinus nivosus*)
- California least tern (*Sterna antillarum browni*)
- light-footed clapper rail (*Rallus longirostris levipes*)
- southwestern willow flycatcher (*Empidonax traillii extimus*)
- least Bell's vireo (*Vireo belli pusillus*)

Surveys for all of these species were completed either by EDAW or the San Elijo Lagoon Conservancy (SELC).

Survey Methodologies

The focused surveys for the coastal California gnatcatcher were conducted according to industry standard methodology. The coastal California gnatcatcher surveys followed the current USFWS protocol guidance, revised July 28, 1997 (USFWS 1997). Focused coastal California gnatcatcher surveys consisted of walking meandering transects through appropriate habitat for the species within the BSA, including all coastal sage scrub associations, as well as upland and wetland habitats adjacent to areas of coastal sage scrub. Focused least Bell's vireo surveys followed the current USFWS protocol (USFWS 2001). Survey data for the southwestern willow flycatcher, Belding's savannah sparrow, light-footed clapper rail, western snowy plover, and California least tern, and supplemental least Bell's vireo data, were obtained from the SELC. Supplemental surveys for the Belding's savannah sparrow, western snowy plover, and California least tern were conducted by EDAW. These surveys were conducted by walking established trails adjacent to suitable habitats within the BSA and making passive observations over suitable habitats with binoculars and spotting scopes. The BSA consists of the area 46 m (150 ft) to either side of all alternatives considered under the planning process, and extending 46 m (150 ft) to the north and south of the project extent along the existing roadways. Therefore, the BSA encompasses a relatively larger area than the one development alternative discussed in this Natural Environment Study Report (NESR).

The methodology for the sensitive plant surveys followed the accepted guidelines for rare, threatened, and endangered plants and plant communities. Focused meandering surveys were conducted once during the late summer. As such, many spring-blooming ephemeral species would not have been observable during the survey. Surveys were conducted throughout most of the BSA, with the exception of developed areas, areas of ornamental plantings, and agricultural areas, as sensitive plants are not anticipated to occur in these areas because of the lack of appropriate habitat and or frequent disturbances. In addition, surveys of the southern coastal salt marsh were conducted via trails or disturbed areas. Given the sensitivity of this habitat to disturbances, surveys avoided hiking through these areas to avoid disturbing the habitat or the species that occur within this sensitive resource.

General wildlife and plant surveys and habitat assessments were conducted by walking meandering transects across the BSA, noting all wildlife and plant species observed or detected. Habitat assessments for the sensitive species of concern for the project were conducted by noting the presence or absence of habitat features required by, or associated with, these species. Lists of the wildlife and plant species

encountered while conducting the biological studies for the proposed project are provided in Appendices A and B.

Vegetation communities were classified and mapped in the field from strategic vantage points. Habitats were classified based on the dominant and characteristic plant species, plant physiognomy, and soils in accordance with Holland's description of natural communities (Holland 1986). The initial vegetation mapping was done directly on a 1:1200 scale (1 inch equals 100 feet) topographic aerial photograph of the study area. Acreages of each habitat type (delineated as a habitat polygon on the compiled vegetation maps) were calculated using a geographic information system.

EDAW wetland ecologist Mark Tucker conducted routine wetland delineations along San Elijo Lagoon. The delineations of U.S. Army Corps of Engineers (Corps) jurisdictional wetlands were conducted in accordance with Section D, Routine Determinations, Subsection 2, Areas Equal To or Less Than Five Acres in Size, in the online, annotated version of the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987, <www.wes.army.mil/el/wetlands/pdfs/wlman87.pdf>). The determination of Corps jurisdictional wetlands is based on three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. Under normal circumstances, and with the exception of some atypical situations, the 1987 Corps delineation manual requires the presence of indicators for each criterion for an area to be delineated as a wetland. This involves identifying vegetation communities, establishing sample points in each community, and making jurisdictional determinations based on the results of the data collected on vegetation, soils, and hydrology.

Vegetation types were mapped in the field, and data on vegetation, soils, and hydrology were collected as necessary at each sample point. Data on soils were not collected in plant communities (1) in which all dominant plant species were obligate wetland species (OBL), or (2) in plant communities in which all dominant plant species were OBL and/or facultative wetland (FACW) species, and the wetland/upland boundary was abrupt (please see page 48, Part IV Methods in the online version of the 1987 Manual). Hydrology and soils can be assumed if either condition (1) or (2) above is met and there is no evidence of recent hydrologic alteration. In addition, plant communities dominated by typical saltwater or freshwater wetland species (e.g., brackish marsh, coastal salt marsh) occurring lagoonward of the plant community and used to determine the wetland boundary

were considered to be jurisdictional wetlands. These areas were not intensively sampled to avoid disturbing sensitive plants and wildlife.

An area was determined to support hydrophytic vegetation if more than 50 percent of the dominant species, as determined by the 50/20 rule using methods outlined in the 1989 Federal Interagency Manual (see Tiner 1999 for an excellent explanation and example of the 50/20 rule), are listed as OBL, FACW, or facultative on the USFWS *National List of Plant Species that Occur in Wetlands: 1988 California (Region 0)* (Reed 1988). All data points, with the exceptions described above, were surveyed for the presence of primary and, if necessary, secondary field indicators of wetland hydrology.

At most sample points with hydrophytic vegetation, with the exceptions described above, soil pits were dug to determine the presence of hydric soil field indicators such as reducing conditions, gleyed or low-chroma colors, organic streaking, and others (Environmental Laboratory 1987; United States Department of Agriculture, Natural Resource Conservation Service 1998). The determination that a soil was hydric was based on the presence of field indicators and from information regarding the mapped soil series of the site from the *Soil Survey of the San Diego Area, California* (Bowman 1973). The mapped soil series were then referenced to the *Field Office Official List of Hydric Soil Map Units for the San Diego Area, California* (Soil Conservation Service 1992) to determine whether any of the soils are considered hydric or are identified as having hydric inclusions.

Corps jurisdiction was considered to extend to the boundary of areas that exhibited the requisite field indicators for each of the three criteria, and/or where ordinary high water mark (OHWM) indicators were clearly evident. If there was evidence that a vegetation community had one or more hydroregimes (i.e., clear evidence of a hydraulic gradient), then additional data points were established to determine the boundary of Corps defined wetlands. Because the Regional Water Quality Control Board (RWQCB) typically uses the delineation verified by the Corps as the basis for determining impacts to "waters of the U.S.," this report assumes that all impacts to Corps jurisdiction are also within the jurisdiction of RWCQB.

California Department of Fish and Game (CDFG) jurisdiction was extended to the outer limits of the canopy of hydrophytic vegetation within or adjacent to the stream; or to the top of the stream bank (i.e., usually above the OHWM) for those instances

where either vegetation was absent, or the stream bank extended beyond the limits of the riparian vegetation.

Estimates of the boundary between Corps wetlands, CDFG wetlands, and nonregulated uplands were based on observed changes in vegetation, soils, topography, and hydrology between sample points. The extent of all Corps, CDFG, and RWQCB jurisdictional areas was mapped onto 1"=200' scale ortho-topographic maps in the field.

The vegetation and wetland boundaries from the field maps were digitized, geo-referenced, and saved as shape files. Jurisdictional boundaries and vegetation types were mapped, and impacts were calculated using standard geographic information system and computer-aided design techniques.

2.2. Personnel and Survey Dates

General biological reconnaissance surveys and focused surveys for rare plants, the coastal California gnatcatcher, Belding's savannah sparrow, western snowy plover, California least tern, light-footed clapper rail, least Bell's vireo, and southwestern willow flycatcher have been conducted for the project. Table 1 lists the survey personnel and dates of activity.

Table 1: Survey Information

Survey Personnel	Date	Survey Activity
Lyndon Quon	March 28, 2002	General wildlife reconnaissance
Eric Bailey	June 6, 2002	General wildlife reconnaissance and focused coastal California gnatcatcher survey
Eric Bailey	June 7, 2002	General wildlife reconnaissance and focused coastal California gnatcatcher survey
Eric Bailey	June 13, 2002	General wildlife reconnaissance and focused coastal California gnatcatcher survey
Eric Bailey	June 14, 2002	General wildlife reconnaissance and focused coastal California gnatcatcher survey
Eric Bailey	June 20, 2002	General wildlife reconnaissance and focused coastal California gnatcatcher survey
Eric Bailey	June 21, 2002	General wildlife reconnaissance and focused coastal California gnatcatcher survey
Eric Bailey	June 28, 2002	General wildlife reconnaissance and focused coastal California gnatcatcher survey
SELC	March 11, 2002	Focused light-footed clapper rail survey
SELC	April 29, 2002	Focused light-footed clapper rail survey
SELC	May 13, 2002	Focused light-footed clapper rail survey
SELC	June 10, 2002	Focused light-footed clapper rail survey
SELC	July 8, 2002	Focused light-footed clapper rail survey

Table 1: Continued

Survey Personnel	Date	Survey Activity
SELC	August 12, 2002	Focused light-footed clapper rail survey
SELC	May 13, 2002	Focused Belding's savannah sparrow survey
SELC	May 20, 2002	Focused Belding's savannah sparrow survey
SELC	May 27, 2002	Focused Belding's savannah sparrow survey
SELC	April 9, 2002	Focused southwestern willow flycatcher and least Bell's vireo surveys
SELC	April 28, 2002	Focused southwestern willow flycatcher and least Bell's vireo surveys
SELC	May 13, 2002	Focused southwestern willow flycatcher and least Bell's vireo surveys
SELC	June 10, 2002	Focused southwestern willow flycatcher and least Bell's vireo surveys
SELC	July 8, 2002	Focused southwestern willow flycatcher and least Bell's vireo surveys
Mark Tucker	April 22, 2002	Wetland delineation
Mark Tucker	April 25, 2002	Wetland delineation
Mark Tucker	May 4, 2002	Wetland delineation
Mark Tucker	July 23 2002	Supplemental California least tern, western snowy plover, and Belding's savannah sparrow survey
Mark Tucker	August 2, 2002	Supplemental California least tern, western snowy plover, and Belding's savannah sparrow survey
Mark Tucker	August 14, 2002	Supplemental California least tern, western snowy plover, and Belding's savannah sparrow survey
John Messina	September 4, 2002	General botanical reconnaissance, vegetation mapping, and focused rare plant survey
John Messina	September 5, 2002	General botanical reconnaissance, vegetation mapping, and focused rare plant survey
John Messina	September 12, 2002	General botanical reconnaissance, vegetation mapping, and focused rare plant survey
John Messina	September 13, 2002	General botanical reconnaissance, vegetation mapping, and focused rare plant survey
John Messina	September 16, 2002	General botanical reconnaissance, vegetation mapping, and focused rare plant survey
John Messina	April 3, 2003	Focused rare plant surveys
John Messina	April 4, 2003	Focused rare plant surveys
John Messina	April 18, 2003	Focused rare plant surveys
John Messina	April 22, 2003	Focused rare plant surveys
John Messina	May 14, 2003	Focused rare plant surveys
John Messina	May 15, 2003	Focused rare plant surveys
John Messina	May 20, 2003	Focused rare plant surveys
John Messina	May 22, 2003	Focused rare plant surveys
John Messina	May 23, 2003	Focused rare plant surveys
John Messina	May 24, 2003	Focused rare plant surveys
Danielle Tannourji	September 4, 2002	General botanical reconnaissance, vegetation mapping, and focused rare plant survey
Danielle Tannourji	September 5, 2002	General botanical reconnaissance, vegetation mapping, and focused rare plant survey

Table 1: Continued

Survey Personnel	Date	Survey Activity
Danielle Tannourji	September 12, 2002	General botanical reconnaissance, vegetation mapping, and focused rare plant survey
Danielle Tannourji	September 13, 2002	General botanical reconnaissance, vegetation mapping, and focused rare plant survey
Danielle Tannourji	September 16, 2002	General botanical reconnaissance, vegetation mapping, and focused rare plant survey
Danielle Tannourji	May 20, 2003	Focused rare plant surveys
Marc Doalson	September 4, 2002	General botanical reconnaissance, vegetation mapping, and focused rare plant survey
Marc Doalson	September 5, 2002	General botanical reconnaissance, vegetation mapping, and focused rare plant survey
Lyndon Quon Melissa Wilson	April 10, 2003	Focused least Bell's vireo surveys
Lyndon Quon	April 22, 2003	Focused least Bell's vireo surveys
Lyndon Quon Melissa Wilson	May 1, 2003	Focused least Bell's vireo surveys
Lyndon Quon Melissa Wilson	May 12, 2003	Focused least Bell's vireo surveys
Lyndon Quon Melissa Wilson	May 22, 2003	Focused least Bell's vireo surveys
Lyndon Quon Melissa Wilson	June 2, 2003	Focused least Bell's vireo surveys
Lyndon Quon Melissa Wilson	June 13, 2003	Focused least Bell's vireo surveys
Lyndon Quon Melissa Wilson	June 24, 2003	Focused least Bell's vireo surveys

Lyndon Quon has 12 years of experience in various upland and wetland ecosystems throughout San Diego County. He received a Bachelor of Arts degree in ecology and animal behavior from the University of California at San Diego in 1989. Mr. Quon is qualified to conduct surveys for the coastal California gnatcatcher, least Bell's vireo, and fairy shrimp (*Branchinecta* spp. and *Streptocephalus* spp.) and has extensive experience in conducting habitat assessments for federally and state-listed threatened and endangered species. Mr. Quon holds a valid Federal Endangered Species Act (FESA) Section 10(a)(1)(A) survey permit (TE-820658).

Eric Bailey has 12 years of biological survey experience in southern California. He obtained a Bachelor of Arts degree in biological sciences in 1984. He possesses a FESA Section 10(a)(1)(A) survey permit for the coastal California gnatcatcher (TE-820658).

Danielle Tannourji has 5 years of botanical experience in southern California. She obtained a Bachelor of Science degree in ecology from the University of California at Santa Barbara in 2000.

John Messina has 12 years of botanical experience conducting rare plant surveys and botanical inventories in San Diego County. He received a Bachelor of Science degree in conservation and resource studies from the University of California at Berkeley in 1985 and a Master of Science degree in ecology from the University of California at Davis in 1990.

Marc Doalson has 6 years of botanical experience in California, spending the last 2 years conducting rare plant surveys and botanical inventories in San Diego County. He received a Bachelor of Arts degree in biology from the University of North Carolina, Wilmington in 1994 and a Masters of Science degree in botany from California State University at Chico in 1999.

Mark Tucker has over 8 years of experience in wetland science, wildlife biology, threatened and endangered species monitoring, habitat restoration, and environmental policy. He has worked as a project manager with the Regulatory Branch of the Corps, and as a field biologist for Pacific Estuarine Research Laboratory, the National Biological Service, and the Department of Biology at San Diego State University. Mr. Tucker received a Bachelor of Science degree in biology from San Diego State University in 1997. He is currently completing a Master's degree in geography with an emphasis on wetland ecosystems and the functional assessment of compensatory mitigation projects. His thesis work involves an in-depth functional assessment of 32 riparian mitigation sites in San Diego County.

The principal field ornithologist for the SELC is Robert Patton. Mr. Patton monitors the bird populations within San Elijo Lagoon on a monthly basis. He is also a member of the SELC board and is recognized as an expert on the California least tern and western snowy plover.

2.3. Agency Coordination and Professional Contacts

Coordination with the SELC was conducted to obtain the annual threatened and endangered bird survey data for portions of the lagoon that have the potential to be affected by the proposed project. SELC ornithologist Robert Patton provided data for the locations of the Belding's savannah sparrow, western snowy plover, California

least tern, light-footed clapper rail, southwestern willow flycatcher, and least Bell's vireo observed or detected in wetland and riparian habitats within the lagoon.

Most of these sensitive biological resources are covered under the draft San Diego MHCP, submitted for public comment in June 2001. The comment period closed in April 2002, and it is expected that the MHCP will be approved by the end of 2002. However, since the MHCP has not yet been finalized, the State of California's Natural Community Conservation Planning (NCCP) program 4(d) Interim Habitat Loss Permit process for impacts to coastal sage scrub habitat is still in effect within the jurisdictional boundaries of the City of Encinitas. As such, project impacts to coastal sage scrub habitat within the MHCP planning area would be counted against the City's 5 percent cap on allowable loss of sage scrub within their jurisdiction. However, it is anticipated that by the time the Manchester/I-5 Interchange project construction is initiated, the 5 percent allowance will be exhausted. Therefore, if the MHCP and the subarea plan are not approved before the proposed project goes forward, impacts to federally and state-listed threatened and endangered species would require consultation with the respective resource agencies for impacts to sensitive biological resources within the entire Manchester/I-5 Interchange project area, and not just for impacts within the Caltrans right-of-way.

Only one listed plant species, the federal- and state-endangered Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*) is known from the BSA, based on the surveys of September 2002. There are 11 other listed species that are known from the region, the federal-threatened and state-endangered San Diego thorn-mint (*Acanthomintha ilicifolia*), the federal-endangered San Diego ambrosia (*Ambrosia pumila*), the federal- and state-endangered coastal dunes milk-vetch (*Astragalus tener* var. *titi*), the federal-threatened and state-endangered Encinitas baccharis (*Baccharis vanessae*), the federal-threatened and state-endangered thread-leaved brodiaea (*Brodiaea filifolia*), the federal- and state-endangered Orcutt's spineflower (*Chorizanthe orcuttiana*), the state-endangered short-leaved dudleya (*Dudleya brevifolia*), the federal- and state-endangered San Diego button celery (*Eryngium aristulatum* var. *parishii*), the federal-threatened spreading navarretia (*Navarretia fossalis*), the federal- and state-endangered California Orcutt grass (*Orcuttia californica*), and the federal- and state-endangered San Diego mesa mint (*Pogogyne abramsii*). Impacts to federally listed species would require a Section 7 consultation with the USFWS. Impacts to state-listed species would require coordination with the CDFG under Sections 2080 and 2085 of the California Fish and Game Code.

Because of the presence of the coastal California gnatcatcher (federally listed threatened), Belding's savannah sparrow (state-listed endangered), western snowy plover (federally listed threatened), California least tern (federally and state-listed endangered), light-footed clapper rail (federally and state-listed endangered), southwestern willow flycatcher (federally listed endangered), and least Bell's vireo (federally and state-listed endangered) during surveys conducted in 2002, and the historical presence of California black rail (state-listed threatened), agency coordination will need to be initiated with the USFWS and CDFG. Coordination with the USFWS is required pursuant to Section 7 of the FESA. Coordination with the CDFG is required under the state Fish and Game Code Sections 2080 through 2085.

There are 10 other sensitive animal species that have the potential to occur within the region that are either federally or state-listed as threatened or endangered. However, the BSA does not support habitat for the San Diego fairy shrimp (*Branchinecta sandiegonensis*), Riverside fairy shrimp (*Streptocephalus woottoni*), Quino checkerspot butterfly (*Euphydryas editha quino*), arroyo toad (*Bufo californicus*), Pacific pocket mouse (*Perognathus longimembris pacificus*), and Stephens' kangaroo rat (*Dipodomys stephensi*). Other listed species, such as the California brown pelican (*Pelecanus occidentalis californicus*), bald eagle (*Haliaeetus leucocephalus*), American peregrine falcon (*Falco peregrinus anatum*), and bank swallow (*Riparia riparia*) have been recorded historically within the vicinity of San Elijo Lagoon, although they are not expected to breed within the local region. Therefore, minimal or no coordination with the resource agencies is anticipated for these species.

In addition to these federally and state-listed species, there are sensitive habitats and several lower-status sensitive species that are known or have the potential to occur within the BSA. These species would be covered under the MHCP once it is approved. In areas not covered by the MHCP, however, discussions with the CDFG would be required to address impacts to these species.

2.4. Limitations That May Influence Results

Botanical surveys were conducted in September 2002. Though a number of sensitive plant species were observed during these surveys, any ephemeral, spring or early summer species would not have been detectable at the time of the September surveys. Though much of the Area of Effect (AE) is disturbed enough to preclude the potential occurrence of many of these species, there is enough higher-quality, suitable habitat

within the BSA adjacent to the AE that could support some of these species. Therefore it is recommended that spring and early summer focused rare plant surveys be conducted for the AE and a reasonable portion of the BSA that may be indirectly impacted from the project, to determine the presence or absence of these species.

The majority of the wildlife studies conducted for the proposed project conformed to standard protocols. However, the surveys conducted by the SELC for the least Bell's vireo and southwestern willow flycatcher were conducted following a modified protocol. As such, additional surveys may be required for these species.

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3. Results: Environmental Setting

The Manchester/I-5 Interchange project area occurs along the I-5 corridor between Birmingham Drive and Lomas Santa Fe Drive, in the southern portion of Encinitas, San Diego County. The project area extends generally along the existing Manchester Avenue for approximately 366 m (1,200 ft) to the west and 976 m (3,200 ft) to the east.

3.1. Description of the Existing Biological and Physical Conditions

The majority of the project area consists of urban development, agricultural fields, and native upland and wetland habitats. The dominant soils within the BSA are comprised of loamy sands of the Corralitos series. There are also minor pockets of fine sandy loams (Gaviota and Chesterton series), loamy alluvial land (Huerhuero complex), and terrace escarpments within the study area.

EDAW conducted a site reconnaissance on September 14, 2001, to assess the biological conditions of the study area. There are 12 vegetation communities within the BSA, and 8 of them would be affected by the project, 6 of which are native vegetation communities. The native vegetation communities are freshwater marsh, saltwater marsh, brackish water marsh, coastal sage scrub, chaparral (including a subcommunity of disturbed chaparral), and southern willow scrub, which will be discussed in the following subsections. Two vegetation communities onsite, eucalyptus woodland and ruderal, are dominated by nonnative plants.

3.1.1. Study Area

The BSA can be characterized as the area encompassing all of the different alternatives (in addition to the one alternative addressed in terms of impacts for this NESR) addressed during the planning phases of the project, plus a 46-m (150-ft) survey buffer on each side. The northern and southern regions of the BSA consist of upland vegetation, including Diegan coastal sage scrub, nonnative grassland, ruderal vegetation, and developed areas (including roads, houses, and a service station). The central portion of the BSA consists of a portion of Manchester Avenue along the edge of San Elijo Lagoon, which supports a variety of aquatic and riparian habitats, including freshwater and brackish marsh, southern willow scrub, and mudflats. The

AE, defined as the area within which all proposed permanent and temporary construction activities would be restricted, is wholly encompassed by the BSA (Figure 3). The AE can be characterized as the Minimum Build (Build Alternative) plus a 46-m (150-ft) buffer on each side. The BSA encompasses numerous assessor parcels. A summary of the land ownership of each parcel is included as Table 2. An aerial photograph depicting the distribution of the parcels is provided as Figure 4. A view of the site, looking north from a location on the south side of San Elijo Lagoon, is shown in Figure 5.

3.1.2. Physical Conditions

The project area encompasses a marine terrace on the north side of San Elijo Lagoon, as well as the lagoon itself where I-5 is to be widened across the lagoon. Elevations within the project area range from roughly sea level on the San Elijo Lagoon surface, to roughly 30 m (100 ft) above mean sea level (amsl) at the northern end of the project area. A topographical map of the project area is provided as Figure 6.

San Diego County's largest coastal wetland is San Elijo Lagoon, which is located within the city of Encinitas and extends east to Rancho Santa Fe and south to the Solana Beach city boundary. The lagoon is a 214-hectare (530-acre) shallow water estuary that is divided into three basins by Highway 101, Santa Fe Railway, and I-5, all of which run in a north/south direction through the lagoon. Manchester Avenue runs along the northern boundary of the lagoon.

3.1.3. Biological Conditions in the Biological Study Area

The biological resources that occur within and adjacent to the Manchester/I-5 Interchange project site are depicted on an aerial image of the project area (see Figures 7a-7e).

3.1.3.1. Vegetation Communities

Vegetation types or communities are assemblages of plant species that usually coexist in the same area. The classifications of vegetation communities in this document correspond with Holland (1986) and Oberbauer (1996) and are based upon the life form of the dominant species within each community and the associated flora.

Vegetation types within the BSA consist primarily of wetland/riparian communities and upland scrub communities. Six upland communities border the wetlands within the BSA including Diegan coastal sage scrub, southern maritime chaparral, coastal

Source: AirPhotoUSA, 1 meter resolution, February 2001; Dokken, 2002

1000 0 1000 2000 FEET

Scale: 1 : 12,000; 1 inch = 1,000 feet

Figure 3
Manchester/I-5 Avenue Interchange
Biological Study Area

Table 2: Land Ownership

Assessor Parcel Number	Property Ownership	Property Status	Lot Size (hectares/acres)
2603241700	L.A.A.C.O. LTD	Private	0.0560/0.1384
2605710200	Jimenez Family Trust	Private	0.0040/0.0100
2605710300	Cockle Rodger C. & Breeden Pamela	Private	0.0132/0.0327
2605710400	Gurney Dennis Fund	Private	0.0190/0.0469
2605710500	Stewart Lorraine Fund	Private	0.0199/0.0492
2605710600	Castellanos Ricardo & Oralia	Private	0.0210/0.0520
2605710700	Swinnea Billy M.	Private	0.0322/0.0795
2611503900	Jevremov Stevan Trust	Private	1.2437/3.0731
2611504800	Piedmont Construction Co.	Private	5.1486/12.7219
2611506500	Piedmont Construction Co.	Private	0.8992/2.2218
2610101301	San Elijo Joint Powers Authority	Private	0.0013/0.0033
2612323100	Reusch/Timpson Family Trust	Private	0.0567/0.1402
2612323200	Chueh Richard & Ivy Family Trust	Private	0.0771/0.1905
2612323300	Garris Helen M Tr.	Private	0.0366/0.0904
2612323400	Heller Nelson B. & Pamela W.	Private	0.0127/0.0315
2612323500	Kuan Family Trust	Private	0.0132/0.0326
2612323600	Poynor Carl & Evelyn E. Trs.	Private	0.0076/0.0189
2612323700	Ward Family Trust	Private	0.0072/0.0179
2612323800	Koehler Agnes Trust	Private	0.0180/0.0446
2611505900	Mira Costa Community College	Public	2.0254/5.0048
2611506000	Mira Costa Community College	Public	0.61513/1.51997
2612552900	Piedmont Construction Co.	Private	0.0333/0.0823
2611505800	County of San Diego	Public	1.9184/4.7403
2612542100	Mcintyre Yolanda Trust	Private	<0.0001/0.0001
2612542200	Sangalis Nicholas T. & Eveyln J.	Private	0.0203/0.0502
2612544600	Sandy Point Homeowners Assn.	Private	0.1578/0.3899
2612544500	Arjona Oscar S.	Private	0.0370/0.0915
2612544400	Hook Stanely & Annette Living Trust	Private	0.0222/0.0548
2612544300	Stiven Family Trust	Private	0.0139/0.0343
2612545000	Petras Joeseph & Laureen	Private	0.0100/0.0246
2612544900	Carr Clyde J. & Cynthia K. Revocabl	Private	0.0214/0.0528
2612544000	Gillard Griselda L.	Private	0.0300/0.0742
2612543900	Kosty Family Trust	Private	0.0335/0.0829
2612905600	Seaside Cardiff Homeowners Assn.	Private	0.5438/1.3437
2612543800	Rodenberger Susan N Trust	Private	0.0288/0.0712
2612543700	Kolodny Survivors Trust	Private	0.0238/0.0588
2612543600	Low Ian S. Family Trust	Private	0.0189/0.0466
2612552700	Parker Doris Thurston Family Trust	Private	0.0101/0.0249
2612543500	Patton Family Trust	Private	0.0132/0.0327
2612543400	Pincay Laffit A Jr.	Private	0.0279/0.0689
2612002100	Henry Rowen Trust	Private	0.6381/1.5766
2612101600	Gim Tom Trust	Private	2.4277/5.9987
2612102000	Gim Tom Trust	Private	6.7222/16.6103
2612101700	County of San Diego	Public	8.0953/20.0033
2612101200	Yasuda Family Partnership	Private	0.4716/1.1652
2612100100	Yasuda Family Partnership	Private	7.3167/18.0793
2612002500	San Dieguito Water District	Public	0.4903/1.2114
2612002800	County of San Diego	Public	0.0575/0.1420
2612914800	Seaside Cardiff Homeowners Assn.	Private	0.0194/0.0480
2612002300	Petersen Ralph and Ursula Trust	Private	0.0270/0.0668

Table 2: Land Ownership (Continued)

Assessor Parcel Number	Property Ownership	Property Status	Lot Size (hectares/acres)
2612000300	Rowen Henry Trust	Private	1.0984/2.7142
2612914000	Palmer Laurelle H. Trust	Private	0.0142/0.0351
2612101300	State of California	Public	3.9449/9.7478
2612101900	Pacific Bell Wireless	Public	0.0068/0.0168
2612101400	Gim Tom Trust	Private	0.3468/0.8569
2612102100	Nextel of California	Public	0.0072/0.0178
2612001100	Marandino Guiseppe & Angelina Trust	Private	0.2419/0.5977
2612001300	Marandino Guiseppe & Angelina Trust	Private	0.1993/0.4924
2612003200	Cappiello Frank & Carla Trust	Private	0.2608/0.6444
2612003300	Gould Family Trust	Private	0.2622/0.6480
2632804300	State of California	Public	0.7682/1.8982
2632806000	County of San Diego	Public	0.0333/0.0824
2635200100	Harris Steven & Tina	Private	0.0248/0.0612
2635200200	Hartley Joel & Jeann	Private	0.0443/0.1094
2635200300	Haecherl Madeline A.	Private	0.0293/0.0725
2635200400	Irvine Family Trust	Private	0.0376/0.0930
2635200600	Davis Edward H & Margaret L.	Private	0.0207/0.0512
2635200700	Kotnik Edward A. & Shannon	Private	0.0369/0.0911
2635200800	Marquardt Judson B	Private	0.0189/0.0467
2632804000	County of San Diego	Public	0.4956/1.2246
2635200900	Marcolivio Joeseph A & Suzanne L	Private	0.0144/0.0357
2635201000	Dray Allison	Private	0.0104/0.0258
2635201100	Roshala Jennifer S	Private	0.0079/0.0195
2635201200	Simokat Terrence C & Rose M	Private	0.0085/0.0209
2635201300	Gallo Family Trust	Private	0.0141/0.0348
2635201400	Fuess William C & Marie G	Private	0.0185/0.0457
2635300100	Stoll Colleen V Living Trust	Private	0.0215/0.0531
2635300200	Moffat Janann H	Private	0.0288/0.0712
2635300300	Nguyen Moc Van & Phuc Pham	Private	0.0311/0.0769
2635300400	Vartanian Nubar L & Mary	Private	0.0330/0.0816
2635300500	Trusso Todd & Amy E	Private	0.0333/0.0824
2635300600	Denzin Mark E.	Private	0.0358/0.0885
2632804100	County of San Diego	Public	0.0960/0.2371
2635300700	Schmiedeberg Thomas M & Kathryn	Private	0.0075/0.0185
2634700200	Sims Paul A Trust	Private	0.1271/0.0314
2634402000	McDaniel Michael D	Private	0.0903/0.2231
2634402100	Stolzenberg Ruth A	Private	0.0587/0.1451

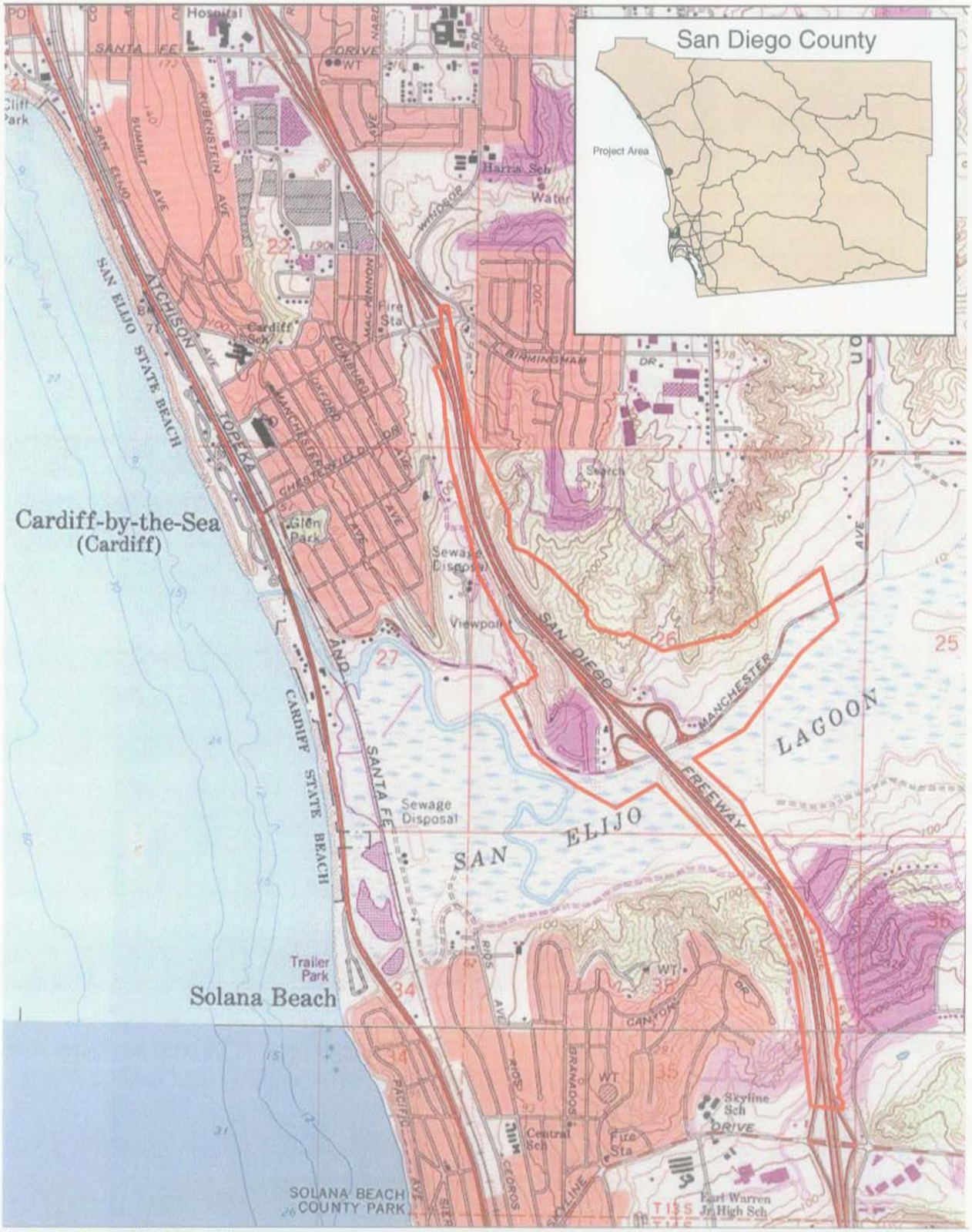
Source: Airphoto USA, 1 meter resolution, February 2001; SanGIS, 2002; Dokken, 2002

900 0 900 1800 Feet

Scale: 1 : 10800; 1inch = 900 feet

Figure 4
Survey Area Land Ownership

Figure 5
Project Site Photograph



Source: SureMaps!, 2002; Dokken, 2002

Figure 6
Topographical Map of Project Area

NORTH

0 500 1,000 2,000 3,000 4,000 Feet

Scale: 1 : 24,000; 1 inch = 2,000 feet

Project Boundary

Source: AirPhotoUSA, 1 meter resolution, February 2001; San Elijo Lagoon Conservancy, 2002

NORTH

300 0 300 600 FEET

1 : 3600; 1 inch = 300 feet

Figure 7a
Vegetation - Map 1

Source: AirPhotoUSA, 1 meter resolution, February 2001; San Elijo Lagoon Conservancy, 2002

300 0 300 600 FEET

1 : 3600; 1 inch = 300 feet

Figure 7b
Vegetation - Map 2

Source: AirPhotoUSA, 1 meter resolution, February 2001; San Elijo Lagoon Conservancy, 2002

Figure 7c
Vegetation - Map 3

Source: AirPhotoUSA, 1 meter resolution, February 2001; San Elijo Lagoon Conservancy, 2002

NORTH

300 0 300 600 FEET

1 : 3600; 1 inch = 300 feet

Figure 7d
Vegetation - Map 4

Source: AirPhotoUSA, 1 meter resolution, February 2001; San Elijo Lagoon Conservancy, 2002

Figure 7e
Vegetation - Map 5

bluff scrub, nonnative grassland, nonnative woodland, and ruderal habitat (Table 3). Six wetland/riparian vegetation communities were found in the BSA including southern willow scrub, southern coastal salt marsh, coastal brackish marsh, freshwater marsh, southern arroyo willow scrub, and mulefat scrub (Table 3). In addition, there is one aquatic community, open water, that is technically not a vegetation community. The remaining areas within the BSA are disturbed habitat (bare of vegetation), developed areas, agricultural fields, and/or ornamental landscaping (Figures 7a through 7e).

Table 3: Vegetation Communities within the Biological Study Area and the Area of Effect

Vegetation Community	Within Biological Study Area hectares *(acres)*	
Diegan Coastal Sage Scrub	7.53	*(18.62)*
Disturbed Diegan Coastal Sage Scrub	13.39	*(33.12)*
Southern Maritime Chaparral	4.40	*(10.88)*
Disturbed Southern Maritime Chaparral	1.19	*(2.94)*
Coastal Bluff Scrub	0.39	*(0.97)*
Nonnative Grassland	6.29	*(15.55)*
Southern Coastal Salt Marsh	9.39	*(23.21)*
Coastal Brackish Marsh	3.87	*(9.57)*
Disturbed Coastal Brackish Marsh	0.11	*(0.26)*
Freshwater Marsh	0.01	*(0.03)*
Disturbed Freshwater Marsh	0.21	*(0.51)*
Southern Arroyo Willow Woodland	0.65	*(1.61)*
Southern Willow Scrub	0.79	*(1.96)*
Disturbed Southern Willow Scrub	0.18	*(0.44)*
Mulefat Scrub	0.03	*(0.09)*
Open Water	0.55	*(1.34)*
Nonnative Woodland	0.26	*(0.64)*
Ruderal	7.69	*(19.00)*
Disturbed Habitat	1.66	*(4.10)*
Ornamental	5.48	*(13.55)*
Agricultural Fields	10.29	*(25.42)*
Developed	36.25	*(89.58)*

Native Communities – Upland Resources

Diegan Coastal Sage Scrub

Coastal sage scrub is one of the major shrub dominated (scrub) communities within California. This community occurs on xeric sites with shallow soils. Sage scrub species are typically drought deciduous plants with shallow root systems. Both of these adaptations allow for the occurrence of sage scrub species on these xeric sites.

There are four floristic associations within the coastal sage scrub formation, all occurring within distinct geographical ranges along the California coast. The Diegan association occurs from Orange County to northwestern coastal Baja, California (O'Leary 1990). Oberbauer (1992) recognizes coastal and inland forms of this association.

Diegan coastal sage scrub may be dominated by a variety of different species depending upon site-specific topographic, geographic, and edaphic conditions. Within San Diego County, there are several recognized subassociations of Diegan coastal sage scrub based upon the dominant species.

As one of the more common native upland communities within the BSA, Diegan coastal sage scrub occurs along the hills north of Manchester Avenue and on some of the manufactured slopes along I-5. In total, there is approximately 7.53 hectares (18.62 acres) of Diegan coastal sage scrub and 13.39 hectares (33.12 acres) of disturbed coastal sage scrub spread within the BSA.

Dominant Plant Species

California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*), laurel sumac (*Malosma laurina*), lemonade-berry (*Rhus integrifolia*), and black sage (*Salvia mellifera*) were the most common shrub species within this community.

Certain areas within the BSA are classified as disturbed Diegan coastal sage scrub. Some of the manufactured slopes of I-5 support this community. On these slopes, sage scrub species have become established over time, and there is enough cover to warrant their classification as sage scrub habitat. Other areas within the BSA have been previously disturbed and have experienced some recovery over the interim. These areas are dominated by early seral species such as coyote bush (*Baccharis pilularis*), California buckwheat, and deer weed (*Lotus scoparius* var. *scoparius*). There is also a conspicuous component of later climax species such as California sagebrush and black sage. Some of these later areas may have historically supported southern maritime chaparral, but the disturbances were such that the soil structure was altered (from coarse to fine texture) to the condition that sage scrub habitat is likely the climax community (known as a disclimax).

Invasive Plant Species

Within some of the slopes of I-5 high cover occurs of invasive exotic species such as veldt grass (*Ehrharta calycina*), natal grass (*Rhynchelytrum repens*), ripgut grass

(*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), Bermuda grass (*Cynodon dactylon*) and ice plant (*Carpobrotus edulis*). Australian saltbush (*Atriplex semibaccata*), filaree (*Erodium* sp.), and tocalote (*Centaurea melitensis*) are also present within this community.

Common Animal Species

Diegan coastal sage scrub supports a wide variety of animal species. The most common reptile species observed in the Diegan coastal sage scrub habitat within the BSA is the side-blotched lizard (*Uta stansburiana*). Birds frequently observed in this habitat include California towhee (*Pipilo crissalis*), bushtit (*Psaltriparus minimus*), Anna's hummingbird (*Calypte anna*), house finch (*Carpodacus mexicanus*), and the federally listed threatened coastal California gnatcatcher. The California ground squirrel (*Spermophilus beecheyi*) and the desert cottontail (*Sylvilagus audubonii*) were commonly observed mammal species in the Diegan coastal sage scrub habitat within the BSA.

Coastal Bluff Scrub

Coastal bluff scrub typically occurs along the coastline of San Diego County and northern Baja California. Similar to Diegan coastal sage scrub, it generally is characteristic of xeric environments occurring on north- and west-facing slopes. The main distinction of coastal bluff scrub is the dominant presence of California encelia (*Encelia californica*), as well as the presence of other species characteristic of this community such as sea dahlia (*Coreopsis maritima*), seaside calandrinia (*Calandrinia maritima*), southcoast scalebush (*Atriplex pacifica*), and cliff spurge (*Euphorbia miseri*).

Coastal bluff scrub occurs in two areas of the BSA: the slopes to the northwest of the Mira Costa Community College (the San Elijo campus) and the slopes northwest of the Manchester/I-5 Avenue interchange. Approximately 0.39 hectare (0.97 acre) of this habitat occurs within the BSA.

Dominant Plant Species

California encelia, black sage, California sagebrush, laurel sumac, sea dahlia, and several cacti species (Opuntia spp.) are the dominant species within this community.

Invasive Plant Species

Some portions of the native coastal bluff scrub community do have invasive, exotic plant species present such as ice plant, tocalote, filaree, tread-lightly (*Cardionema*

ramosissimum), sand-spurry (*Spergularia* sp.), and perennial mustard (*Hirschfeldia incana*).

Common Animal Species

Typical animal species observed in the coastal bluff scrub habitat within the BSA include western fence lizard (*Sceloporus occidentalis*), side-blotched lizard, Anna's hummingbird, and wrentit (*Chamaea fasciata*).

Southern Maritime Chaparral

Southern maritime chaparral is a low, relatively open chaparral that is restricted to Eocene sandstone formations that occur within the coastal fog belt. Many of the species that characterize this community, such as the Del Mar manzanita, are restricted to this community in coastal locations. Geographically, southern maritime chaparral extends from Point Loma north to Oceanside, and a few other scattered nearby localities.

Within the BSA, southern maritime chaparral is restricted to the sandstone formations east of I-5 and north of Manchester Avenue, and west of I-5 and north of Lomas Santa Fe Avenue. Approximately 4.40 hectares (10.88 acres) occurs within the BSA with another 1.19 hectares (2.94 acres) of disturbed habitat.

Dominant Plant Species

Chamise (*Adenostoma fasciculatum*) and Del Mar manzanita are the dominant species within this habitat. Lemonade-berry, laurel sumac, wart-stemmed ceanothus (*Ceanothus verrucosus*), and Nutall's scrub oak (*Quercus dumosa*) are also present.

Invasive Plant Species

Some portions of this community have been classified as disturbed because of the noticeable presence of invasive exotic species, primarily ice plant, veldt grass, and natal grass, which have encroached into this community, altering community composition and interactions. Australian saltbush, filaree, crystalline iceplant (*Mesembryanthemum crystallinum*), slender-leaved iceplant (*Mesembryanthemum nodiflorum*), tread-lightly, and sand-spurry are also present within this community.

Common Animal Species

Southern maritime chaparral habitat supports a large assemblage of bird species, including Anna's hummingbird, mourning dove (*Zenaida macroura*), Bewick's wren (*Thryomanes bewickii*), scrub jay (*Aphelocoma coerulescens*), northern mockingbird

(*Mimus polyglottos*), and house finch. This habitat also supports the western fence lizard and the California ground squirrel.

Native Communities – Wetland and Riparian Resources

Southern Coastal Salt Marsh

Southern coastal salt marsh is a highly productive community, consisting of both herbaceous and suffrutescent (slightly woody), salt tolerant hydrophytes (plants existing in an aquatic environment) (Holland 1986). Coastal salt marsh plants are distributed along distinct zones depending upon such environmental factors as frequency and length of tidal inundation, salinity levels, and nutrient status (MacDonald 1977). Approximately 9.39 hectares (23.21 acres) of this habitat occurs within the BSA.

Dominant Plant Species

Southern coastal salt marsh is the most common habitat within San Elijo Lagoon. Pickleweed (*Salicornia virginica*), alkali heath (*Frankenia salina*), and salt grass (*Distichlis spicata*) are the most common species within this community in the BSA. Western marsh-rosemary (*Limonium californicum*), salty Susan (*Jaumea carnosa*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), and salt marsh fleabane (*Pluchea odorata*) are also present.

Invasive Plant Species

Portions of the southern coastal salt marsh community along Manchester Avenue consist of invasive, exotic species such as ice plant, myoporum (*Myoporum laetum*), Bremuda grass, and natal grass. These species are encroaching into the wetland habitat generally along the wetland/upland ecotone, resulting in a decrease of native plant composition that directly affects the native wildlife composition and indirectly affects the entire ecosystem.

Common Animal Species

Wetland habitats provide a valuable resource to a variety of animal species. Southern coastal salt marsh habitat within the BSA commonly supports the semipalmated sandpiper (*Calidris pusilla*), western sandpiper (*Calidris mauri*), killdeer (*Charadrius vociferus*), the federally and state-listed endangered light-footed clapper rail, and the state-listed endangered Belding's savannah sparrow.

Coastal Brackish Marsh

Coastal brackish marsh is similar to coastal salt marshes, but salinity may vary considerably because of tides and/or freshwater runoff. This community is usually found at the interior edge of coastal bays and estuaries or in lagoons. Coastal brackish marsh is a highly productive community; consisting of both herbaceous and suffrutescent, salt tolerant hydrophytes (Holland 1986). Coastal brackish marsh occurs in areas within San Elijo Lagoon where there is a permanent water source.

Dominant Plant Species

Bulrush (*Scirpus* sp.) and cattails (*Typha latifolia*) are the two most common species within the coastal brackish marsh. Southwestern spiny rush is present in the more elevated portions of this habitat. Coastal brackish marsh lines the edges of the open water channels within the lagoon.

Invasive Plant Species

Some portions of this community have been classified as disturbed because of the noticeable presence of invasive, exotic species, such as ice plant, Brazilian pepper tree (*Schinus terebinthifolius*), eucalyptus (*Eucalyptus* spp.), acacia (*Acacia* spp.), and myoporum, which have encroached into this community, altering community composition and interactions. Approximately 3.87 hectares (9.57 acres) of this habitat occurs within the BSA.

Common Animal Species

Coastal brackish marsh within the BSA commonly supports species such as the yellow warbler (*Dendroica petechia*) and the western sandpiper.

Freshwater Marsh

Coastal and freshwater marsh is a community dominated by perennial, emergent monocots that are typically 1.3 to 2.0 m (4.3 to 6.6 ft) tall. Uniform stands of bulrushes or cattails often characterize this community. Freshwater marsh occurs in wetlands that are permanently flooded by standing freshwater (Holland 1986). Examples of this community occur around several of the larger bodies of open water as well as around many of the smaller lakes, ponds, creeks, and reservoirs in the region. Freshwater marsh occurs within the portions of drainages and brow ditches that occur alongside both Manchester Avenue and the on- and off-ramps at the Manchester/I-5 interchange, and also alongside the shoulder of I-5, north of Manchester Avenue. Approximately 0.01 hectare (0.03 acre) of this habitat occurs within the BSA, and 0.21 hectare (0.51 acre) has been classified as disturbed.

Dominant Plant Species

Freshwater marsh onsite is dominated by southern cattail and bulrush. The species composition is similar to the coastal brackish marsh; cattails are the most common species; however, freshwater marsh is not influenced by tidal action. Other species present within this community include southwestern spiny rush and yerba mansa (*Anemopsis californica*).

Invasive Plant Species

Some portions of this community have been classified as disturbed because of the noticeable presence of invasive exotic species, such as ice plant, Brazilian pepper tree, eucalyptus, acacia, and myoporum, which have encroached into this community, altering community composition and interactions.

Common Animal Species

Freshwater marsh vegetation within the BSA supports a variety of animal species. Common animals observed in freshwater marsh habitat include the red-winged blackbird (*Agelaius phoeniceus*), marsh wren (*Cistothorus palustris*), and yellow warbler.

Southern Arroyo Willow Woodland

Similar to the southern willow scrub habitats, southern arroyo willow woodland is a tall streamside community located where there are influxes of freshwater. Southern arroyo willow woodland occurs along the upper elevations of the lagoon. Approximately 0.65 hectare (1.61 acres) of this habitat occurs within the BSA.

Dominant Plant Species

The species compositions are similar to those of the southern willow scrub habitats. The primary difference between the two communities is structural; the willow woodland is composed of much larger arroyo willows than the scrub habitat. Understory species such as mulefat (*Baccharis salicifolia*), desert wild grape (*Vitus girdiana*), and goldenbush (*Isocoma menziesii* var. *vernonioides*) are common associates as well.

Invasive Plant Species

Within the southern arroyo willow woodland habitat along Manchester Avenue, invasive exotic, species such as the date palm (*Phoenix dactylifera*) and ice plant are conspicuously present. However, these species do not dominate the landscape, making up a small percentage of the plants within the southern arroyo willow woodland community found within the BSA.

Common Animal Species

Southern arroyo willow woodland provides a valuable biological resource to wildlife species due to its plant species and structural diversity. Common animal species associated with this habitat within the BSA include ash-throated flycatcher (*Myiarchus cinerascens*), common yellowthroat (*Geothlypis trichas*), yellow warbler, and yellow-breasted chat (*Icteria virens*).

Southern Willow Scrub

Southern willow scrub is a dense, broad-leaved, winter deciduous riparian thicket dominated by several species of willows (*Salix* sp.) in association with mulefat. This is an early seral community that requires periodic flooding for its maintenance. Willow-dominated scrub is generally found on loose, sandy, or fine gravelly alluvium deposited near stream channels during floods, and most stands are too dense to allow much understory to develop (Holland 1986).

Southern willow scrub occurs along the margins of San Elijo Lagoon, generally at the confluences of tributary streams and drainage culverts. These areas receive inputs of freshwater but are not as inundated as the areas supporting marsh habitats. The willow scrub habitats are generally at the periphery of the marsh habitats on higher elevated areas. Approximately 0.79 hectare (1.96 acres) of this habitat occurs within the BSA as well as 0.18 hectare (0.44 acre) of disturbed willow scrub.

Dominant Plant Species

Arroyo willow (*Salix lasiolepis*) is the primary dominant within this community. Mulefat, desert wild grape, goldenbush, and cattails are also present within this community.

Invasive Plant Species

Some portions of this community are classified as disturbed because of the noticeable presence of invasive species such as ice plant, Brazilian pepper tree, eucalyptus, acacia, and myoporum. These exotic species occur at a high rate within the southern willow scrub, encroaching into the community, and decreasing the native plant composition.

Common Animal Species

Southern willow scrub provides habitat for a variety of bird species such as the ash-throated flycatcher, common yellowthroat, and the yellow-breasted chat.

Mulefat Scrub

Mulefat scrub is a riparian scrub dominated by mulefat. This habitat often occurs along intermittent streams with a fairly coarse substrate and a moderately deep water table. Understory vegetation can be composed of nonnative weedy species or be lacking altogether.

Mulefat scrub occurs along the upper edges of the lagoon, adjacent to the marsh and southern willow scrub habitats. Approximately 0.03 hectare (0.09 acre) of this habitat occurs within the BSA.

Dominant Plant Species

Mulefat is the lone dominant within this community, and the patches of this community within the BSA are generally very small. Most of these patches exist as transition areas between the marsh habitats and the southern willow scrub habitats. As such, some pickleweed and an occasional arroyo willow are present within the mulefat scrub.

Invasive Plant Species

Portions of the mule fat scrub community have invasive species such as ice plant, Bremuda grass, Brazilian pepper tree, eucalyptus, acacia, and myoporum present in the BSA. These exotic species occur at a low rate within the habitat and do not dominate the landscape. However, this community is at risk of having an altered community composition due to the presence of these invasive species.

Common Animal Species

Mulefat scrub is often found at the edge of wetland or riparian vegetation in the transitional zone with upland habitats. As such, mulefat scrub is able to support a variety of animal species typically associated with either riparian or upland vegetation. Within the BSA, species commonly observed within mulefat scrub habitat include mourning dove, Anna's hummingbird, ash-throated flycatcher, northern mockingbird, spotted towhee (*Pipilo erythrophthalmus*), song sparrow (*Melospiza melodia*), and bushtit.

Nonnative Communities – Upland Resources

Nonnative Grassland

Exotic annual grasses of Mediterranean origin dominate most of the grasslands within the coastal and foothill areas of San Diego County. The factors that contributed to

the replacement of native grasslands by nonnative grasslands are many, including exotic species introductions, overgrazing, and extended droughts (Jackson 1985).

Nonnative grasslands primarily occur on the manufactured slopes of I-5. Approximately 6.29 hectares (15.55 acres) of this habitat occurs within the BSA.

Dominant Plant Species

Natal grass and veldt grass are the primary dominant species in this habitat, with foxtail chess, perennial mustard, and ice plant also present. Some sage scrub species such as California buckwheat, deerweed, laurel sumac, and California sagebrush may also be widely scattered within this community.

Invasive Plant Species

The invasive, exotic species within the nonnative grassland community are mentioned above in the dominant plant species section.

Common Animal Species

Nonnative grassland habitat provides forage and protective cover for several types of animals. Species commonly associated with this habitat within the BSA include the western fence lizard, red-tailed hawk (*Buteo jamaicensis*), song sparrow, mourning dove, and house finch.

Nonnative Woodland

Nonnative woodland is characterized by the presence of nonnative naturalized trees that have been introduced through human influence. The canopy can be open or closed. Approximately 0.26 hectare (0.64 acre) of this habitat occurs within the BSA.

Dominant Plant Species

Nonnative woodland refers to the area south of the lagoon and on the west side of I-5 where there is an extensive stand of established eucalyptus and acacia. Certain sage scrub species such as California buckwheat and coyote bush are present within the understory of this community.

Invasive Plant Species

The common invasive, exotic species within the nonnative woodland community are mentioned above in the dominant plant species section. Other invasive plants found in the nonnative woodland community are ice plant, foxtail chess, tocalote, natal grass, and myoporum.

Common Animal Species

Animal species commonly associated with the nonnative woodland habitat within the BSA include western fence lizard, Anna's hummingbird, Nuttall's woodpecker (*Picoides nuttallii*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), and house finch.

Ruderal

Ruderal communities are areas of high disturbance that are dominated by nonnative weedy forbs (herbaceous, nongrass species) that are adapted to a regime of frequent disturbances. Many of the species characteristic of ruderal areas are also indicator species of nonnative grasslands. Ruderal habitats occur throughout the BSA and are areas that support nonnative weedy vegetation. Approximately 7.69 hectares (19.00 acres) of this habitat occurs within the BSA.

Dominant Plant Species

Mustard and tocalote are the two most common species observed in the nonnative weedy vegetation.

Invasive Plant Species

The common exotic species within the ruderal community are mentioned above in the dominant plant species section. Other invasive, exotic plant species found in the ruderal habitats are perennial mustard, natal grass, and ice plant. Other species such as tree tobacco (*Nicotiana glauca*), Russian thistle (*Salsola tragus*), and castor bean (*Ricinus communis*) are locally common at the ecotones between ruderal areas and native upland communities.

Common Animal Species

Ruderal habitat tends to support animal species that are relatively better adapted to urbanization or disturbance. Within the BSA, animal species associated with ruderal habitat include western fence lizard, house finch, and California ground squirrel.

Ornamental

Ornamental areas can be characterized as sites that are dominated by exotic species, most of which were planted for aesthetic purposes. Ornamentals have been planted within the BSA for a variety of reasons, such as aesthetic or landscaping purposes, or to provide visual screens. Approximately 5.48 hectares (13.55 acres) of this habitat occurs within the BSA.

Dominant Plant Species

Ice plant, eucalyptus, myoporum, and acacia are the most common ornamental/exotic species within the ornamental areas.

Invasive Plant Species

The invasive, exotic species within the ornamental community are mentioned above in the dominant plant species section.

Common Animal Species

Ornamental plantings typically support animal species that are relatively better adapted to urbanization or disturbance. Within the BSA, animal species associated with ornamental plantings include mourning dove, Anna's hummingbird, northern mockingbird, and house finch.

Agricultural Fields

Agricultural fields include those fields actively farmed as well as fields that were fallow during the time of the surveys. Within the BSA, agricultural fields occur north of Manchester Avenue, between I-5 and Mira Costa Community College. Approximately 10.29 hectares (25.42 acres) of this habitat occurs within the BSA.

Dominant Plant Species

There are no native plant species in the agricultural fields. The fields support cultivated row crops.

Invasive Plant Species

Dominant plant species that are farmed in these areas are species of the Brassicaceae family. Typically, agricultural fields are not surveyed for rare or common native vegetation. Other species such as tobacco tree, Russian thistle, and castor bean are locally common at the ecotones between the agricultural fields and native upland communities.

Common Animal Species

Agricultural fields typically have low animal species diversity relative to native habitats due to the monotypic nature of the plant species and the vegetation structure. Animal species common to agricultural fields within the BSA include western fence lizard, house finch, and northern mockingbird.

Developed

Developed areas include roadways, residences, businesses, and ornamental landscaping associated with these facilities. Approximately 36.25 hectares (89.58 acres) of this habitat occurs within the BSA.

Dominant Plant Species

There are no native plant species in developed areas. The developed community has dominant invasive species such as Brazilian pepper tree, eucalyptus, acacia, and myoporum. These ornamental nonnatives serve aesthetic purposes to beautify the landscape of the industrial properties.

Invasive Plant Species

Common invasive plant species that occur in these areas are ice plant and tocolate.

Common Animal Species

Developed areas have an extremely low resource value to animal species due to the lack of vegetation or exposed soils. Developed areas typically provide roosts for urban-adapted bird species in transit between patches of vegetation, or as protective cover or basking areas for reptile species. Within the BSA, animal species most commonly associated with developed areas include the western fence lizard, common raven, American crow, and house finch.

Disturbed Habitat

Disturbed habitats refer to areas that are so frequently disturbed that they do not support any vegetation. Such areas include dirt trails and cleared areas. Approximately 1.66 hectares (4.10 acres) of this habitat occurs within the BSA.

Dominant Plant Species

There are no native plant species in the disturbed areas. These areas are so disturbed that they lack vegetation.

Invasive Plant Species

There are no invasive plant species in the disturbed areas. These areas are so disturbed that they lack vegetation.

Common Animal Species

The lack of vegetation in disturbed areas severely limits the value of this habitat to animal species. Within the BSA, disturbed habitat provides roosting locations for common raven and American crow.

3.1.3.2. Aquatic Resources

Open Water

Open water habitats occur as channels within San Elijo Lagoon. These areas lack vegetative cover, as they are usually inundated. These channels convey freshwater from rainfall events and urban runoff but are also subjected to tidal influences. As such, they play an important role in the functioning of the lagoon. Within the BSA, open water habitats occur parallel to Manchester Avenue. Approximately 0.55 hectare (1.34 acres) of this habitat occurs within the BSA. Because this habitat supports such species as the northern anchovy (*Engraulis mordax*) and the deepbody anchovy (*Anchoa compressa*), the open water habitat within the lagoon has been designated as Essential Fish Habitat (EFH). EFH will be discussed further in Chapter 5.

Dominant Plant Species

Open water habitats describe channels of water that lack vegetation. Therefore, there are no dominant plant species.

Invasive Plant Species

Open water habitats describe channels of water that lack vegetation. Therefore, there are no invasive plant species.

Common Animal Species

Although by definition open water habitat does not support any vegetation, this resource is able to provide both aquatic and terrestrial wildlife habitat. Many marine and freshwater species have been detected within the lagoon, including various species of mollusks, crustaceans, and fish. Several bird species were observed using the open water within the BSA as a foraging substrate or a resting area. These species include the lesser yellowlegs (*Tringa flavipes*), short-billed dowitcher (*Limnodromus griseus*), snowy egret (*Egretta thula*), mallard (*Anas platyrhynchos*), and cinnamon teal (*Anas cyanoptera*).

3.1.3.3. Migration Corridors

In an urban context, a wildlife migration corridor can be defined as a linear landscape feature of sufficient width and buffer to allow animal movement between two patches of comparatively undisturbed habitat, or between a patch of habitat and some vital resources. Regional corridors are defined as those linking two or more large areas of natural open space, and local corridors are defined as those allowing resident animals

to access critical resources (food, cover, and water) in a smaller area that might otherwise be isolated by urban development.

Wildlife migration corridors are essential in geographically diverse settings, and especially in urban settings, for the sustenance of healthy and genetically diverse animal communities. At a minimum, they promote colonization of habitat and genetic variability by connecting fragments of like habitat and help sustain individual species distributed in and among habitat fragments. Habitat fragments, by definition, are separated by otherwise foreign or inhospitable habitats, such as urban/suburban tracts. Isolation of populations can have many harmful effects and may contribute significantly to local species extinction.

A viable wildlife migration corridor consists of more than a path between habitat areas. To provide food and cover for transient species as well as resident populations of less mobile animals, a wildlife migration corridor must also include pockets of vegetation.

The BSA currently acts as a wildlife migration corridor for a variety of animal species. San Elijo Lagoon is one of several coastal lagoons in San Diego County that are located along the Pacific Flyway, where migrating birds either temporarily stop to rest and forage, or they use San Elijo Lagoon as their breeding grounds. The lagoon is also a part of a much larger network of wildlife movement corridors and habitat linkages throughout the county. The California Wilderness Coalition's *Missing Linkages: Restoring Connectivity to the California Landscape* (2001) identifies wildlife corridor connections between the San Dieguito River and the three coastal lagoons in northern San Diego County (San Elijo, Batiquitos, and Agua Hedionda Lagoons). The San Dieguito River corridor is also connected to additional eastern and southern corridors. Therefore the BSA helps to provide connectivity between the coast and inland areas. The BSA is primarily part of an avian wildlife migration corridor, but it can also foster the movements of reptiles such as the orange-throated whiptail, or mammals like the coyote (*Canis latrans*) up and down Escondido Creek, or across other tracts of open space.

3.2. Regional Context

The proposed project site is located within the cities of Encinitas and Solana Beach in San Diego County. Encinitas is a relatively small jurisdiction, with limited developable open space areas within its boundaries. However, there are both public

and private lands within the region where biological resources are currently being managed by resource agencies and/or conservation groups. San Elijo Lagoon is managed by the resource agencies as an ecological reserve. The areas under management support several sensitive species within the region.

Encinitas and Solana Beach are also participants in the MHCP, a subregional plan for northwestern San Diego County, which includes the cities of Encinitas, Carlsbad, Escondido, Oceanside, San Marcos, Solana Beach, and Vista. However, the MHCP does not include the Caltrans right-of-way. A draft of this planning effort is currently under review and should be finalized by the end of 2002. Once it is implemented, the MHCP would cover several sensitive species including, but not limited to, the coastal California gnatcatcher, Belding's savannah sparrow, and light-footed clapper rail. Following implementation of the MHCP, impacts within the planning area to species covered under the plan would be mitigated through habitat-based mitigation, except in cases where a project would affect narrow endemic species. Narrow endemics are defined as species found in areas associated with specific rare or unique climatic or soil-based conditions, such as vernal pools or volcanic soils.

Since the MHCP is not yet final, there is an interim process in place to minimize impacts to coastal sage scrub habitat and the coastal California gnatcatcher. Under the NCCP 4(d) Interim Habitat Loss Permit process currently in effect, impacts are capped at 5 percent of the total amount of coastal sage scrub habitat within the jurisdictional boundaries of the City of Encinitas at the time of the City's initial participation in the NCCP process. As such, project impacts to coastal sage scrub habitat would be counted against the City's 5 percent cap on allowable loss of sage scrub within their jurisdiction. However, it is anticipated that by the time the Manchester/I-5 Interchange project construction is initiated, the 5 percent allowance will be exhausted. Therefore, if the MHCP and the subarea plan are not approved before the proposed project goes forward, impacts to federally and state-listed threatened and endangered species would require consultation with the respective resource agencies for the entire project area, and not just for the impacts that occur within the Caltrans right-of-way.

Caltrans, however, is not a signatory to the MHCP. Thus, any impacts within the AE to federally sensitive species would require a Section 7 consultation with the USFWS. If impacts to state-listed species are also expected, a 2080.1 or 2081 analysis by the CDFG may also be required.

A summary of the regulatory status, presence, or absence of the species or its habitat, and a brief discussion of their potential for occurrence within the BSA is presented in Table 4.

Table 4: Regional Sensitive Species

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Plants					
Acanthomintha ilicifolia	San Diego thorn-mint	FT, SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	In openings within chaparral, coastal sage scrub, valley and foothill grasslands, and vernal pools, in distinctive crumbly, cracked heavy clay soils. Blooms April-June.	Present	Low to high probability to occur within BSA. Suitable habitat type, and closest known population is 1,200 m (3,397 ft) north of the study area in Lux Canyon. Not detected during April and May surveys, which coincided with this species' traditional flowering period.
Adolphia californica	California adolphia	CNPS: 2	Chaparral, coastal sage scrub, valley and foothill grasslands, and clay soils. Blooms December-May.	Present	Present within BSA. Approximately 281 individuals were observed within sage scrub habitats in the northern portion of the BSA.
Agave shawii	Shaw's agave	CNPS: 2	Coastal sage scrub, maritime succulent scrub, and southern coastal bluff scrub. Blooms September-May.	Present	Low probability to occur within BSA. Suitable habitat was observed within the BSA but no individuals were detected within the BSA. Several individuals were observed immediately adjacent to the BSA east of I-5 and south of San Elijo Lagoon, but these individuals were transplanted into this area and do not represent a natural occurrence.
Ambrosia pumila	San Diego ambrosia	FE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Clay soils in disturbed areas. Chaparral, coastal sage scrub, valley and foothill grasslands, vernal pools, dry creek beds, and floodplains. Blooms May-September.	Present	Low probability to occur within BSA. Low amount of appropriate habitat within the BSA and no known populations within the vicinity of the BSA. This species was not detected during surveys, which coincided with this species' traditional flowering period.
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	FE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Open sandy maritime chaparral with eroding sandstone. Blooms December-April.	Present	Present within BSA. Approximately 31 individuals were observed within the southern maritime chaparral in the northeast portion of the BSA. Additional individuals were observed immediately outside of the BSA in this area and also immediately outside of the BSA in the southwestern portion of the BSA.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Astragalus tener var. *titi*	Coastal dunes milk-vetch	FE, SE, MHCP: Covered CNPS: 1B	Sandy coastal bluff scrub, coastal prairie, and coastal sand dunes. Blooms March-May	Present	Low probability to occur within BSA. Low amount of appropriate habitat within the BSA and no known populations within the vicinity of the BSA. This species was not detected during surveys, which coincided with this species' traditional flowering period.
Atriplex pacifica	South coast saltscale	CNPS: 1B	Coastal bluff scrub, playas, coastal sage scrub, and coastal sand dunes. Blooms March-October.	Present	Approximately 100 individuals of this species were observed within the BSA, northwest of the Manchester/I-5 interchange along a dirt road.
Baccharis vanessae	Encinitas baccharis	FT, SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Low-growing southern maritime chaparral. Blooms August-November.	Present	Low to moderate probability to occur within BSA. Appropriate habitat within the BSA. Closest known population is Lux Canyon 1,200 m (3,397 ft) to the north of the BSA. Not observed during surveys, which coincided with this species' traditional flowering period.
Bergerocactus emoryi	Golden-spined cereus	CNPS: 2	Sandy soils of coastal sage scrub and chaparral. Blooms May-June.	Present	Not expected to occur within BSA. Appropriate habitat within the BSA. Not observed during September survey, which would have detected this species if present.
Brodiaea filifolia	Thread-leaved brodiaea	FT, SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Open chaparral, coastal sage scrub, valley and foothill grasslands, vernal pools, playas, and clay soils. Blooms March-June.	Present	Low probability to occur within BSA. No known populations in the immediate vicinity of the BSA. Appropriate habitat present within the BSA. Not detected during surveys, which coincided with this species' traditional flowering period.
Brodiaea orcuttii	Orcutt's brodiaea	CNPS: 1B	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows, seeps, valley and foothill grasslands, and vernal pools. Blooms May-July.	Absent	Not expected to occur within BSA. Appropriate habitat (ephemeral swales, vernal pools, mesic grasslands) does not occur within the BSA. Not detected during surveys, which coincided with this species' traditional flowering period.
Ceanothus verrucosus	Wart-swtemmed ceanothus	MHCP: Covered CNPS: 2	Coastal chaparral intermixed with chamise and mission manzanita. Blooms December-April.	Present	Present within BSA. Approximately 343 individuals were observed in the southern maritime chaparral in the northeast and southwest portions of the BSA.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Centromadia parryi ssp. *australis*	Southern tarplant	CNPS: 1B	Margins of marshes and swamps, valley and foothill grasslands, and vernal pools. Blooms May-November.	Present	Low probability to occur within BSA. Closest known population is within San Dieguito Lagoon. Appropriate habitat occurs within the BSA. Not observed during surveys, which coincided with this species' traditional flowering period.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	CNPS List 1B	Coastal bluff scrub (sandy), coastal dunes. Blooms January-August.	Present	Present within BSA. Approximately 4,700 individuals were observed within the BSA. Orcutt's pincushion was the most common sensitive plant observed within the BSA. Populations were observed in undisturbed habitats as well as disturbed areas such as along the cut/fill slopes of I-5 and alongside trails in the scrub and chaparral habitats.
Chorizanthe orcuttiana	Orcutt's spineflower	FE, SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Sandy soils of maritime chaparral, coastal sage scrub, closed-cone coniferous forest. Blooms March-May.	Present	Low probability to occur within BSA. Historical populations not known from the BSA. Closest known and historical populations are from Encinitas Blvd., several miles to the north of the BSA. Potential habitat occurs in the southern maritime chaparral in the northeast and southwest portions of the BSA. However most of this habitat, though in relatively good condition, may be too disturbed for this species, which seems to be very sensitive to minor disturbances. Not observed during surveys, which coincided with this species' traditional flowering period.
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	CNPS: 1B	Coastal sage scrub, chaparral, meadows, seeps, valley and foothill grasslands. Blooms April-July.	Present	Moderate probability to occur within BSA. Potential habitat occurs in the southern maritime chaparral in the northeast and southwest portions of the BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Comarostaphylis diversifolia ssp. *diversifolia*	Summer holly	MHCP: Covered CNPS: 1B	Mesic north-facing slopes in southern maritime chaparral and steep drainages. Blooms April-June.	Present	Present within BSA. Two individuals were observed within the southern maritime chaparral in the southwestern portion of the BSA during the surveys. Additional individuals were observed immediately adjacent to the southwestern portion of the BSA.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Coreopsis maritima	Sea dahlia	CNPS: 2	Coastal sage scrub and sandstone cliffs of coastal bluff scrub. Blooms March-May.	Present	Approximately 389 individuals of this species were observed within the coastal bluff scrub and coastal sage scrub habitats within the BSA.
Dudleya brevifolia	Short-leaved dudleya	SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Open areas of chamise chaparral or Torrey pine forest on Torrey sandstone formations. Blooms from April-June.	Present	Low probability to occur within the BSA. Though appropriate habitat for this species occurs within the BSA (southern maritime chaparral), this species is only known from several locations in and around Torrey Pines State Reserve. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Dudleya variegata	Variegated dudleya	MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Isolated rocky substrates in valley and foothill grasslands. Openings in chaparral, coastal sage scrub, and vernal pools.	Present	Not expected to occur within BSA. No known populations of this species are within the immediate vicinity of the BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Dudleya viscida	Sticky dudleya	MHCP: Covered CNPS: 1B	Steep, north-facing slopes in chaparral and coastal sage scrub usually on exposed gabbroic rock. Blooms May-June.	Absent	Not expected to occur within BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period, and appropriate habitat does not occur within the BSA.
Eryngium aristulatum var. *parishii*	San Diego button celery	FE, SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Redding gravelly loams of vernal pools. Blooms April-June.	Absent	Not expected to occur within BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period, and appropriate habitat does not occur within the BSA.
Euphorbia misera	Cliff spurge	MHCP: Covered CNPS: 2	Rocky soils of coastal sage scrub and coastal bluff scrub. Blooms December-August.	Present	Moderate probability to occur within BSA. Appropriate habitat occurs within the BSA within the sage scrub and coastal bluff scrub habitats. No individuals of this species were observed in the BSA. However, several individuals of cliff spurge were observed immediately adjacent to the BSA.
Ferocactus viridescens	San Diego barrel cactus	MHCP: Covered CNPS: 2	Coastal sage scrub, chaparral, valley and foothill grasslands, and vernal pools. Blooms May-June.	Present	Present within BSA. Approximately 117 individuals were observed within the BSA. Several individuals were also observed immediately adjacent to the BSA.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Hazardia orcuttii	Orcutt's hazardia	MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Clay soils of chaparral and coastal sage scrub. Blooms August-October.	Present	Low probability to occur within BSA. Only one U.S. population reported, located approximately 2,500 m (8,202 ft) northeast of the project area in Encinitas. Not detected during surveys, which coincided with this species' traditional blooming period.
Isocoma menziesii var. *decumbens*	Decumbent goldenbush	CNPS: 1B	Disturbed sandy or clay soils in coastal sage scrub, chaparral, and grasslands. Blooms April-November.	Present	Low probability to occur within BSA. Appropriate habitat occurs within the BSA. This species was not observed during the surveys.
Iva hayesiana	San Diego marsh-elder	MHCP: Covered CNPS: 2	Creeks or intermittent streambeds, playas, marshes, and swamps. Blooms April-September.	Present	Low probability to occur within BSA. This species potentially could occur within the wetland habitats of the BSA. This species was not observed during the surveys.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	CNPS: 1B	Coastal salt marshes and swamps, playas, and vernal pools. Blooms February-June.	Present	Moderate probability to occur within BSA. Appropriate habitat occurs within the BSA, but this species is not known from the vicinity of the BSA. Not detected onsite during surveys, which coincided with this species' traditional flowering period.
Lessingia filaginifolia var. *incana*	San Diego sand aster	CNPS: 1B	Sandy opening in chaparral, coastal sage scrub, and coastal bluff scrub. Blooms June-September.	Present	Low probability to occur within BSA. Though appropriate habitat occurs within the BSA, this species range is generally south of the BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Lessingia filaginifolia var. *linifolia*	Del Mar Mesa sand aster	MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Sandy open areas of maritime chaparral, coastal sage scrub, and coastal bluff scrub. Blooms May-September.	Present	Present within BSA. Approximately 1,462 individuals of this species were observed during the surveys. This species was observed throughout the upland areas of the BSA. Del Mar Mesa sand aster appears to be a disturbance mediated species as evidenced by the largest populations within the BSA occurring on the cut slopes of I-5 and within other disturbed areas in the BSA.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Lotus nuttallianus	Nuttall's lotus	MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Sandy soils of coastal dunes and coastal sage scrub. Blooms March-June.	Present	Low probability to occur within BSA. Appropriate habitat occurs along the sandy areas of sage scrub immediately adjacent to San Elijo Lagoon. However, these areas are too disturbed to support the species. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Muilla clevelandii	San Diego goldenstar	CNPS: 1B	Open chaparral, coastal sage scrub, valley and foothill grasslands, vernal pools, and clay soils. Blooms in May.	Present	Low probability to occur within BSA. Small amounts of appropriate habitat occur within the BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Myosurus minimus	Little mousetail	MHCP: Covered MHCP: Narrow Endemic CNPS: 3	Alkali soils of valley and foothill grasslands, and vernal pools. Blooms March-June.	Absent	Not expected to occur within BSA. This species was not observed during the surveys, which coincided with this species' traditional flowering period. No appropriate habitat for this species occurs within the BSA.
Navarretia fossalis	Spreading navarretia	FT, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Vernal pools. Blooms April-June.	Absent	Not expected to occur within BSA. This species was not observed during the surveys, which coincided with this species' traditional flowering period. No appropriate habitat for this species occurs within the BSA.
Nemacaulis denudata var. *denudata*	Coast woolly-heads	CNPS: 1B	Coastal sand dunes. Blooms April-September.	Present	Low to moderate probability to occur within BSA. Historical population known from San Elijo Lagoon. This species has the potential for occurrence in sandy areas adjacent to San Elijo Lagoon but these areas are well disturbed. This species was not observed during surveys, which coincided with this species' traditional flowering period.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Orcuttia californica	California orcutt grass	FE, SE, MHCP: Covered MHCP: Narrow Endemic CNPS: List 1B	Vernal pools. Blooms April-August.	Absent	Not expected to occur within BSA. This species was not observed during the surveys, which coincided with this species' traditional flowering period. No suitable habitat for this species occurs within the BSA.
Pinus torreyana ssp. *torreyana*	Torrey pine	MHCP: Covered CNPS: 1B	Chaparral and closed cone forests on sandstone.	Present	Present within BSA. A total of three individuals were observed within the BSA. Several individuals of this species have been planted along I-5 as ornamentals. These individuals are not considered sensitive because they do not represent a natural population or exist in a natural community. A few juvenile individuals have become established within the southern maritime chaparral, one of its natural habitats; however, these individuals are assumed to have arisen from the seed of the landscaped individuals. For purposes of this report though, all the Torrey pines are included on the sensitive species maps.
Pogogyne abramsii	San Diego mesa mint	FE, SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Redding cobbly loams of vernal pools. Blooms April-July.	Absent	Not expected to occur within BSA. This species was not observed during the surveys, which coincided with this species' traditional flowering period. No appropriate habitat for this species occurs within the BSA.
Quercus dumosa	Nuttall's scrub oak	MHCP: Covered CNPS: 1B	Sandy clay loam of closed-cone coniferous forest, chaparral, and coastal sage scrub. Blooms February-April.	Present	Present within BSA. Approximately 24 individuals were observed within the southern maritime chaparral in the northeastern and southwestern portions of the BSA. Additional individuals were observed immediately outside of the BSA.
Animals					
Branchinecta sandiegonensis	San Diego fairy shrimp	FE, MHCP	Restricted to vernal pools.	Absent	Species does not occur within BSA due to lack of vernal pool habitat.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Streptocephalus woottoni	Riverside fairy shrimp	FE, MHCP	Restricted to deep vernal pools with long periods of inundation.	Absent	Species does not occur within BSA due to lack of vernal pool habitat.
Panoquina errans	Salt marsh skipper butterfly	MHCP	Restricted to coastal salt marshes and coastal estuaries.	Present	High probability to occur within BSA. The MHCP states that salt marsh and salt pan habitats are occupied within Encinitas and that the species is associated with nearly all coastal lagoons in San Diego County.
Euphyes vestris harbisoni	Harbison's dun skipper butterfly	MHCP	Restricted to riparian areas, intermittent streams, and oak woodlands. Requires sedge (*Carex spissa*) as a larval host plant.	Absent	Not expected to occur within BSA. Host plant not detected within BSA. Current limit of species range is approximately 16 kilometers (10 miles) inland of the project site.
Lycaena hermes	Hermes copper butterfly	MHCP	Restricted to coastal sage scrub and southern mixed chaparral where its larval host plant, redberry (*Rhamnus crocea*), accounts for at least 15 percent of the vegetation cover.	Absent	Not expected to occur within BSA due to insufficient cover of the species' larval host plant.
Euphydryas editha quino	Quino checkerspot butterfly	FE, MHCP	Restricted to open grassland and sunny openings within shrubland habits of Riverside and San Diego Counties, where its distribution is defined primarily by that of its larval host plants, *Plantago erecta* and *Castilleja exserta*.	Absent	Not expected to occur within BSA due to insufficient cover of the species' larval host plant.
Scaphiopus hammondii	Western spadefoot toad	SSC, MHCP	Prefers sandy or gravelly soil in grasslands, open chaparral, and pine-oak woodlands. Breeds in vernal pools and ephemeral ponds.	Absent	Not expected to occur within BSA due to lack of breeding habitat.
Bufo californicus	Arroyo toad	FE, SSC, SP, MHCP	Prefers sandy or gravelly soil in grasslands, open chaparral, and pine-oak woodlands. Breeds in quiet streams with gravel or cobble substrate.	Absent	Not expected to occur within BSA due to lack of breeding habitat, and distance of upland wintering habitats relative to known breeding locations.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Clemmys marmorata pallida	Southwestern pond turtle	SSC, MHCP	Inhabits permanent or nearly permanent bodies of water and requires basking sites such as partially submerged logs, vegetation mats, or open mud banks.	Present	Low probability to occur within BSA due to limited specific habitat requirements and historical location data for the region.
Phrynosoma coronatum blainvillei	San Diego horned lizard	SSC	Prefers friable, rocky, or shallow sandy soils in coastal sage scrub, and chaparral in arid and semiarid climates.	Present	Moderate probability to occur within BSA. Although no individuals were detected during initial assessment or general wildlife surveys, suitable habitat is present within BSA.
Eumeces skiltonianus interparietalis	Coronado Island skink	SSC	Prefers mesic pockets within habitats including coastal sage scrub, chaparral, oak woodlands, pinon-juniper, and riparian woodlands.	Present	Low probability to occur within BSA because habitat features within suitable vegetation communities in the survey area are limited (e.g., leaf litter, logs, cobbles, small boulders, etc).
Cnemidophorus hyperythrus	Orange-throated whiptail	SSC, MHCP, SP	Prefers washes and other sandy areas with patches of brush and rocks for cover. Habitats include low-elevation coastal sage scrub, chaparral, and valley-foothill hardwood forests.	Present	Present within BSA. Observed during general wildlife surveys.
Anniella pulchra pulchra	Silvery legless lizard	SSC	Prefers beaches, chaparral, and pine-oak woodland, and near sycamores, cottonwoods, and oaks that grow on stream terraces. Requires moderately deep sand for protective cover.	Present	Low probability to occur within BSA due to a lack of deep, sandy soils required to support this species.
Salvadora hexalepis virgultea	Coast patch-nosed snake	SSC	Found in a variety of habitats including coastal sage scrub, chaparral, riparian areas, grasslands, and agricultural fields, from sea level to 2,134 meters (7,000 feet).	Present	Low probability to occur within the BSA because suitable habitat is limited.
Thamnophis hammondii	Two-striped garter snake	SSC	Occurs in or near permanent fresh water, usually along streams with rocky beds bordered by willow and other riparian vegetation.	Present	Low probability to occur within BSA because suitable habitat is limited.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Crotalus ruber ruber	Northern red diamond rattlesnake	SSC	Found in chaparral, coastal sage scrub, along creek banks, and in rock outcrops or piles of debris. This subspecies prefers dense vegetation in rocky areas with a supply of burrowing rodents for prey.	Present	Low probability to occur within BSA based on historical location data from the region and limited suitable habitat within the survey area.
Gavia immer	Common loon	SSC	Prefers shallow, marshy areas along the banks of freshwater rivers and lakes, and also near estuaries and lagoons.	Present	Low to moderate probability to occur within BSA during winter based on historical data from the region.
Oceanodroma furcata	Fork-tailed storm-petrel	SSC	Highly pelagic. Nests on islands and on grassy slopes up to a mile inland. Uses burrows dug by other avian species, excavates its own burrows, or uses natural rock or cliff cavities for nesting.	Absent	Not expected to occur within the BSA because of its highly pelagic nature.
Oceanodroma melania	Black storm-petrel	SSC	Highly pelagic. Nests in burrows and rock crevices on small coastal islands.	Absent	Not expected to occur within the BSA because of its highly pelagic nature.
Pelecanus erythrorhynchos	American white pelican	SSC	Inhabits lakes, ponds, and coastal waters.	Present	Moderate to high probability to occur within the BSA during winter based on historical location data and presence of suitable habitat.
Pelecanus occidentalis californicus	California brown pelican	FE, SE, SFP, MHCP	Nests on offshore islands. Occurs on coastal saltwater and on the open ocean, particularly within a few kilometers of shore.	Present	Moderate probability to occur within BSA because of presence of suitable habitat and historical location data from the region.
Phalacrocorax auritus	Double-crested cormorant	SSC	Found near fresh and saltwater near coastline, inshore waters, beaches, inland rivers, and lakes.	Present	Moderate probability to occur within BSA because of availability of suitable habitat.
Ixobrychus exilis	Least bittern	SSC	Inhabits fresh and brackish water marshes, usually near open water sources, and desert riparian habitats.	Present	High probability to occur within BSA because species observed adjacent to survey area by SELC during focused 2002 wildlife surveys.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Ardea herodias	Great blue heron	SSC	Found in fresh and saltwater emergent wetlands and estuaries. Less common along rivers, in croplands, pastures, and foothill ponds.	Present	Moderate to high probability to occur within the BSA due to availability of suitable habitat.
Casmerodius albus	Great egret	SSC	Common to freshwater and saltwater marshes, swampy woods, ponds, lagoons, estuaries, mangroves, streams, lakes, and ponds.	Present	Moderate probability to occur within BSA due to suitable habitat availability and historical location data from the region.
Plegadis chihi	White-faced ibis	SSC, MHCP	Inhabits marsh habitats in the lower river valleys of San Diego County.	Present	Moderate to high probability to occur within the BSA because species observed adjacent to survey area by SELC during focused 2002 wildlife surveys.
Mycteria americana	Wood stork	SSC	Inhabits wet meadows, coastal swamps and marshes, and shallow water in canals and ditches.	Present	Low probability to occur within BSA because of habitat limitations.
Dendrocygna bicolor	Fulvous whistling-duck	SSC	Found in broad, open freshwater marshes, rice fields, flooded agricultural fields, and cultivated land.	Present	Low probability to occur within BSA because native populations are thought to be extirpated from region. Most or all recent observations involve escapees from captivity.
Pandion haliaetus	Osprey	SSC, MHCP	Prefers the coast and lakes in the coastal lowlands and rarely lakes in the foothills and mountain areas.	Present	Moderate probability to occur within BSA. Although considered an uncommon wintering species and relatively rare during the breeding season, the species has been recorded within San Elijo Lagoon and there is suitable habitat present within the BSA.
Elanus leucurus majusculus	White-tailed kite	SFP	Inhabits riparian or oak woodland adjacent to grassland or open fields where it hunts rodents.	Present	High probability to occur within BSA because of presence of suitable habitat and historical location data for the region.
Haliaeetus leucocephalus	Bald eagle	FT, SE, BEPA	Inhabits lakes, rivers, marshes, and seacoasts.	Present	Not expected to occur within the BSA due to limited amount of suitable habitat.
Circus cyaneus	Northern harrier	SSC, MHCP	Occurs throughout San Diego County in grasslands and agricultural fields during migration and in winter.	Present	Moderate to high probability to occur within BSA during winter, based on presence of suitable wintering habitat.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Accipiter striatus	Sharp-shinned hawk	SSC	Occupies woodlands and a variety of habitats surrounding those wooded areas, and requires a certain amount of dense cover.	Present	Low probability to occur within BSA due to very limited availability of suitable habitat.
Accipiter cooperii	Cooper's hawk	SSC, MHCP	Uncommon migrant and winter visitor to woodlands, parks, and residential areas.	Present	Low probability to occur within BSA due to very limited availability of suitable habitat.
Buteo regalis	Ferruginous hawk	SSC	Open tracts of grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats with elevated structures for nesting.	Present	Low probability to occur within BSA based on historical data from the region and limited habitat availability within the survey area.
Aquila chrysaetos	Golden eagle	BEPA, SSC, MHCP	Uncommon resident forages over grassland and broken chaparral or sage scrub.	Present	Low probability to occur within BSA because suitable habitat is very limited.
Falco columbarius	Merlin	SSC	Inhabits grasslands and agricultural fields.	Present	Moderate probability to occur within BSA during winter because suitable habitat is present.
Falco peregrinus anatum	American peregrine falcon	SE, SFP, MHCP	Often observed along or near the coast, especially around mudflats, shores, or ponds where large numbers of water birds congregate. Occasionally seen further inland on the coastal slopes.	Present	High potential to occur within BSA during the winter based on the presence of suitable habitat and historical location data for the region.
Falco mexicanus	Prairie falcon	SSC	Often observed in open scrub and grassland habitats in open, arid regions with plains for foraging and cliffs for nesting.	Present	Low probability to occur within BSA due to limited amount of suitable habitat.
Laterallus jamaicensis coturniculus	California black rail	ST, SFP	Resident of salt, brackish, and freshwater emergent wetlands.	Present	Low probability to occur within BSA based on historical location data.
Rallus longirostris levipes	Light-footed clapper rail	FE, SE, SFP, MHCP	Occurs in salt marshes traversed by tidal sloughs where *Spartina foliosa* and pickleweed are dominant vegetation. Requires dense vegetation for nesting and/or escape cover.	Present	Present within BSA. Observed in and adjacent to BSA during surveys conducted by SELC.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Grus canadensis tabida	Greater sandhill crane	ST, SFP	Roosts along river channels, on alluvial islands of braided rivers, and in natural basin wetlands, often feeding and resting in fields and agricultural lands. Breeds in open grasslands, marshes, marshy edges of lakes, and ponds, and along river banks where it nests on open tundra or in the shallow waters of large marshes, bogs, fens, or wet forest meadows.	Present	Not expected to occur within BSA because there have been very few observations in San Diego County within the last hundred years.
Charadrius alexandrinus nivosus	Western snowy plover	FT, SSC, MHCP	Can be found on sandy beaches on marine and estuarine shores, salt pond levees, and the shores of large alkali lakes. Requires sandy or gravelly soils for nesting.	Present	Low probability to occur within BSA based on limited habitat availability and historical location data for the region.
Numenius americanus	Long-billed curlew	SSC, MHCP	Can be found on sandy beaches on marine and estuarine shores, salt pond levees, and the shores of large alkali lakes. Requires sandy or gravelly soils for nesting.	Present	High probability to occur within BSA during winter based on historical location data from the region and presence of suitable habitat.
Larus atricilla	Laughing gull	SSC	Ranges along seacoasts, bays, and estuaries from the Gulf of California south along the Pacific Coast of Mexico, along the Gulf of Mexico from Mexico to Florida, and along the Atlantic Coast from Florida north to Nova Scotia.	Present	Not expected to occur within the BSA based on historical occurrence data for San Diego County.
Larus californicus	California gull	SSC	Inhabits coasts, estuaries, lakes, and rivers where it uses shorelines and islands to roost.	Present	Moderate to high probability to occur within BSA during migration or during the winter because suitable habitat is present and historical location data show this species to be abundant during these periods.
Sterna nilotica	Gull-billed tern	SSC	Occurs in salt marshes, wetlands, outer beaches, estuaries, coastal bays, and fields and is rare inland.	Present	Low probability to occur within BSA based on historical data that indicate it is extremely rare to observe this species in southern California, except in the vicinity of the Salton Sea.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Sterna elegans	Elegant tern	SSC, MHCP	Habitats include estuarine and intertidal zones, beaches, mudflats, and lagoon shorelines.	Present	Moderate to high potential to occur within BSA during the winter due to historical location data for this region and presence of suitable wintering habitat.
Sterna antillarum browni	California least tern	FE, SE, SFP, MHCP	Breeds on bare or sparsely vegetated flat sandy beaches, alkali flats, land fills, or paved areas.	Present	High probability to occur within BSA because observed adjacent to BSA by EDAW during focused 2002 wildlife surveys.
Rynchops niger	Black skimmer	SSC	Inhabits beaches, coastal lagoons, marshes, and estuaries.	Present	Moderate to high probability to occur within BSA because suitable habitat is present and because it is a common resident in San Diego County.
Cerorhinca monocerata	Rhinoceros auklet	SSC	Predominantly pelagic. Occasionally observed along rocky seacoasts. Nests mainly on grassy or shrubby sea-facing slopes or level areas near the edge of islands, occasionally in caves.	Absent	Not expected to occur within the BSA because of its highly pelagic nature.
Speotyto cunicularia	Burrowing owl	SSC	Occurs in open, dry annual or perennial grasslands, and deserts and scrublands with low-growing vegetation. Utilizes the burrows of other fossorial animals.	Absent	Not expected to occur within BSA because area lacks suitable burrow habitat and large areas of foraging habitat required by this species.
Asio otus	Long-eared owl	SSC	Inhabits open woodlands, forest edges, riparian strips along rivers, hedgerows, juniper thickets, woodlots, and wooded ravines and gullies.	Present	Not expected to occur within BSA due to limited amount of suitable habitat.
Asio flammeus	Short-eared owl	SSC	Inhabits wide, open spaces such as grasslands, prairie, agricultural fields, salt marshes, estuaries, and mountain meadows.	Present	Low probability to occur within BSA based on historical location data from the region.
Cypseloides niger	Black swift	SSC	Nests and roosts behind or adjacent to waterfalls, in seacoast caves, and on rocky cliffs.	Absent	Not expected to occur within BSA because area lacks waterfalls, seacoast caves, and rocky cliffs.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Chaetura vauxi	Vaux's swift	SSC	Found in mature forests but also forages over open country, land, and water. During migration, often roosts in large flocks in hollow trees or chimneys.	Present	Moderate probability to occur within BSA based on presence of suitable habitat and historical location data for the region.
Empidonax traillii extimus	Southwestern willow flycatcher	FE, SE, MHCP	Typically nests in riparian woodlands that are marshy or at water's edge.	Present	Extremely low probability to occur within BSA due to lack of habitat; however, observed immediately outside of the BSA during focused 2002 surveys. May pass through BSA as it migrates to appropriate habitat within San Elijo Lagoon.
Pyrocephalus rubinus	Vermilion flycatcher	SSC	Occurs in dry country near wooded streams and rivers; bottomlands with willow and cottonwood trees, at the edge of wooded ponds, and in open brushy or grassy fields near water.	Present	Low probability to occur within BSA due to lack of observation during 2002 surveys and lack of appropriate habitat; however, may be present in BSA for short periods as it migrates through the BSA to suitable habitats within San Elijo Lagoon.
Eremophila alpestris actia	California horned lark	SSC	Inhabits sandy ocean or bay shores, grasslands, and open scrublands and woodlands with low, sparse vegetation.	Present	Moderate probability to occur within BSA based on presence of suitable habitat and historical location data from the region.
Progne subis	Purple martin	SSC	Occurs in open country, farmlands, towns, agricultural areas, and wetland borders.	Present	Low probability to occur within BSA because species is rare to the region.
Riparia riparia	Bank swallow	ST	Inhabits riverbanks and gravel pits where sandy, vertical bluffs are available for the birds to dig their burrows and nest in colonies.	Absent	Low probability to occur within BSA because species is rare to the region.
Campylorhynchus brunneicapillus couesi	Coastal cactus wren	SSC, MHCP	Occurs in coastal sage scrub with tall opuntia cactus for nesting and roosting.	Absent	Not expected to occur within BSA because it lacks opuntia cactus.
Polioptila californica californica	Coastal California gnatcatcher	FT, SSC, MHCP	A permanent resident of coastal sage scrub in arid washes, mesas, and slopes.	Present	Present within BSA. Observed within and adjacent to the BSA during focused surveys for the species conducted by EDAW.
Sialia mexicana	Western bluebird	MHCP	Breeds in oak woodlands.	Absent	Not expected to occur within the BSA due to lack of oak woodland habitat.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Toxostoma bendirei	Bendire's thrasher	SSC	Occurs in desert scrubland, farmlands, grasslands, dry open country, saltbush flats, and residential areas.	Present	Low probability to occur within BSA because suitable habitat is limited and the species is rare to the region.
Lanius ludovicianus	Loggerhead shrike	FSC, SSC	Inhabits agricultural lands, desert wash, desert scrub, grasslands, and beaches with scattered bushes. Requires open ground for foraging, preferably near scattered bushes and low trees that provide nest sites and perches.	Present	High probability to occur within BSA based on historical location data for the region and presence of suitable habitat within the survey area.
Vireo bellii pusillus	Least Bell's vireo	FE, SE, MHCP	Summer resident of low riparian growth in the vicinity of water or in dry river bottoms. Nests are placed along the margins of bushes, usually *Salix*, *Baccharis*, or *Prosopis*.	Present	Present within BSA as a migrant. Observed within and adjacent to the BSA during focused surveys for the species conducted by SELC. Not detected during focused protocol-level surveys in 2003.
Vermivora virginiae	Virginia's warbler	SSC	Occurs in coniferous forests, scrubby brush, pinyon-juniper woodlands, yellow pines woodlands, ravines covered with scrub oak, and streamside thickets of willow and alder, usually at altitudes between 6,000 and 9,000 feet.	Present	Low probability to occur within BSA because of limited amount of suitable habitat and because species is rare to the region.
Dendroica petechia	Yellow warbler	SSC	Occupies marshes, swamps, streamside groves, willow and alder thickets, open woodlands with thickets, orchards, gardens, and open mangroves.	Present	High probability to occur within the BSA because appropriate habitat is present within the BSA and because historical data for the region show this species to be present adjacent to the BSA.
Icteria virens	Yellow-breasted chat	SSC, MHCP	The breeding population is confined to riparian woodlands in the coastal lowlands.	Present	Moderate to high probability to occur within the BSA because riparian woodland habitat is limited.
Piranga rubra	Summer tanager	SSC	Occurs in pine-oak and oak forests, streamside willows and cottonwood trees, and dry open woodlands.	Present	Low probability to occur within BSA due to suitable habitat limitations.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	SSC, MHCP	Uncommon to fairly common localized resident of sage scrub on steep rocky slopes.	Present	Low probability to occur within BSA due to lack of large sections of suitable sage scrub habitat.
Amphispiza belli belli	Bell's sage sparrow	SSC, MHCP	Coastal sage scrub and open chaparral habitats.	Present	Low to moderate probability to occur within BSA due to lack of dense sage scrub and open chaparral habitats.
Passerculus sandwichensis beldingi	Belding's savannah sparrow	SE, MHCP	Restricted to salt marsh, mudflats, and low coastal strand vegetation.	Present	Present within BSA. Observed within and adjacent to BSA during focused 2002 wildlife surveys conducted by both SELC and EDAW.
Passerculus sandwichensis rostratus	Large-billed savannah sparrow	SSC, MHCP	Inhabits coastal marshes and beaches.	Present	Moderate to high probability to occur within BSA based on historical location data for the area and presence of suitable habitat. San Elijo Lagoon is a critical wintering location for the species.
Ammodramus savannarum	Grasshopper sparrow	MHCP	Restricted to grasslands typically dominated by native grasses and forbs.	Present	Low probability to occur within BSA because species is rare to the region.
Agelaius tricolor	Tricolored blackbird	SSC, MHCP	Localized resident; nests in large, dense colonies in freshwater marsh; forages in agricultural areas, lakeshores and damp lawns.	Present	Moderate probability to occur within BSA due to presence of suitable habitat and based on historical location data.
Corynorhinus townsendii pallescens	Townsend's western big-eared bat	SSC, MHCP	Requires roosts in caves, tree hollows, mines, tunnels, buildings, or other structures.	Absent	Not expected to occur within BSA due to absence of suitable habitat.
Antrozous pallidus	Pallid bat	SSC	Inhabits arid deserts and grasslands, usually near rocky outcroppings and water, and occasionally evergreen and mixed conifer woodland where it roosts most frequently in rock crevices or buildings but also uses caves, tree hollows, and mines as roosts sites.	Absent	Not expected to occur within BSA due to absence of suitable habitat.
Eumops perotis californicus	California mastiff bat	SSC, MHCP	Roosts in high crevices, tall buildings, and dams.	Absent	Not expected to occur within BSA because suitable habitat is not present.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	SSC, MHCP	Habitats include coastal sage scrub, chaparral, and grasslands.	Present	Moderate potential to occur within BSA based on historical location data and presence of suitable habitat.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Perognathus longimembris pacificus	Pacific pocket mouse	FE, SSC, MHCP	Occurs on fine, sandy soils within 4 to 6 kilometers (2 to 4 miles) of the Pacific Ocean.	Absent	Not expected to occur within BSA due to lack of fine, sandy soils.
Perognathus fallax fallax	Northwestern San Diego pocket mouse	SSC, MHCP	Habitats include coastal sage scrub, chaparral, oak woodlands, and annual grasslands.	Present	Low potential to occur within BSA due to limited availability of suitable habitat.
Chaetodipus californicus femoralis	Dulzura California pocket mouse	SSC	Ecological and distribution data for this subspecies are known to be incomplete. However, habitat requirements are assumed to be similar to the California pocket mouse (*Chaetodipus californicus*), which inhabits a variety of habitats, including coastal scrub, chamise-redshank and montane chaparral, sagebrush, annual grassland, valley foothill hardwood, valley foothill hardwood-conifer, and montane hardwood habitats.	Present	Moderate probability to occur within BSA because suitable habitat is present.
Dipodomys stephensi	Stephens' kangaroo rat	FE, ST, MHCP	Native to open grasslands and sparse coastal sage scrub where it burrows and feeds primarily on seeds. Requires soils with low clay content for burrowing.	Absent	Not expected to occur within the BSA. Slopes supporting open coastal sage scrub within the BSA typically have compacted soils that discourage burrowing by small mammals.
Onychomys torridus	Southern grasshopper mouse	SSC	Habitats include coastal sage scrub, chaparral, and grasslands.	Present	Low probability to occur within BSA because suitable habitat is limited.
Neotoma lepida intermedia	San Diego desert woodrat	SSC	Occupies rocky habitats in association with chaparral and coastal sage scrub.	Absent	Not expected to occur within BSA due to lack of suitable rocky habitat.
Felis concolor	Mountain lion	SG, MHCP	Inhabit forests and shrublands distant from heavily populated areas.	Absent	Not expected to occur within BSA because it is adjacent to a heavily populated area.
Odocoileus hemionus fuliginata	Southern mule deer	SG, MHCP	Habitat requirements include large, undisturbed tracts of coastal sage scrub, chaparral, and mixed grassland/scrub vegetation.	Absent	Not expected to occur within BSA due to lack of suitable habitat.

[1]**Sensitivity Status Key**

FE	Federally endangered
FT	Federally threatened
BEPA	Federal Bald Eagle Protection Act
SE	State of California endangered
ST	State of California threatened
SFP	State of California fully protected
SP	State of California protected
SSC	State of California Species of Concern
SG	State of California regulated game species
MHCP	San Diego County Multiple Habitat Conservation Program covered species
CNPS: 1B	California Native Plant Society List 1B species (considered rare, threatened, or endangered in California and elsewhere) (CNPS 2001)
CNPS: 2	California Native Plant Society List 2 species (considered rare, threatened, or endangered in California, but more common elsewhere) (CNPS 2001)
CNPS: 3	Plants about which more information is needed – a review list (CNPS 2001)

[2]**Habitat Present/Absent**

Present	General habitat is present and species may be present
Absent	No further work needed

4. Results: Biological Resources, Discussion of Impacts and Mitigation

4.1. Sensitive Species Potentially in the Project Area

Within the BSA, there are 30 sensitive species that have the potential to occur. Sensitive plant species known or reported to potentially occur in the project area are San Diego thorn-mint (*Acanthomintha ilicifolia*), California adolphia (*Adolphia californica*), Shaw's agave (*Agave shawii*), San Diego ambrosia (*Ambrosia pumila*), Del Mar manzanita (*Arctostaphylos glandulosa* spp. *crassifolia*), coastal dunes milk-vetch (*Astragalus tener* var. *titi*), south coast saltscale (*Atriplex pacifica*), Encinitas baccharis (*Baccharis vanessae*), golden-spined cereus (*Bergerocactus emoryi*), wart-stemmed ceanothus (*Ceanothus verrucosus*), southern tarplant (*Centromadia parryi* ssp. *australis*), Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*), Orcutt's spineflower (*Chorizanthe orcuttiana*), long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), sea dahlia (*Coreopsis maritima*), short-leaved dudleya (*Dudleya brevifolia*), cliff spurge (*Euphorbia misera*), San Diego barrel cactus (*Ferocactus viridescens*), Orcutt's hazardia (*Hazardia orcuttii*), decumbent goldenbush (*Isocoma menziesii* var. *decumbens*), San Diego marsh-elder (*Iva hayesiana*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), San Diego sand aster (*Lessingia filaginifolia* var. *incana*), Del Mar Mesa sand aster (*Lessingia filaginifolia* var. *linifolia*), Nuttall's lotus (*Lotus nuttallianus*), San Diego goldenstar (*Muilla clevelandii*), coast woolly-heads (*Nemacaulis denudata* var. *denudata*), Torrey pine (*Pinus torreyana*), and Nuttall's scrub oak (*Quercus dumosa*).

A summary of the regulatory status, presence or absence of the species or its habitat, and a brief discussion of their potential for occurrence within the BSA are presented in Table 5.

Table 5: Project Study Area Sensitive Species

Scientific Name	Common Name	Status[1]	Specific Habitat Present/Absent[2]	Species Present/Absent	Rationale
Plants					
Acanthomintha ilicifolia	San Diego thorn-mint	FT, SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Present	Absent	Low to high probability to occur within BSA. Suitable habitat type, and closest known population is 1,200 m (3,397 ft) north of the study area in Lux Canyon. Not detected during April and May surveys, which coincided with this species' traditional flowering period.
Adolphia californica	California adolphia	CNPS: 2	Present	Present	Present within BSA. Approximately 281 individuals were observed within sage scrub habitats in the northern portion of the BSA.
Agave shawii	Shaw's agave	CNPS: 2	Present	Absent	Low probability to occur within BSA. Suitable habitat was observed within the BSA but no individuals were detected within the BSA. Several individuals were observed immediately adjacent to the BSA east of I-5 and south of San Elijo Lagoon, but these individuals were transplanted into this area and do not represent a natural occurrence.
Ambrosia pumila	San Diego ambrosia	FE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Present	Absent	Low probability to occur within BSA. Low amount of appropriate habitat within the BSA and no known populations within the vicinity of the BSA. This species was not detected during surveys, which coincided with this species' traditional flowering period.
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	FE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Present	Present	Present within BSA. Approximately 31 individuals were observed within the southern maritime chaparral in the northeast portion of the BSA. Additional individuals were observed immediately outside of the BSA in this area and also immediately outside of the BSA in the southwestern portion of the BSA.

Scientific Name	Common Name	Status[1]	Specific Habitat Present/Absent[2]	Species Present/Absent	Rationale
Astragalus tener var. *titi*	Coastal dunes milk-vetch	FE, SE, MHCP: Covered CNPS: 1B	Present	Absent	Low probability to occur within BSA. Low amount of appropriate habitat within the BSA and no known populations within the vicinity of the BSA. This species was not detected during surveys, which coincided with this species' traditional flowering period.
Atriplex pacifica	South coast saltscale	CNPS: 1B	Present	Present	Approximately 100 individuals of this species were observed within the BSA, northwest of the Manchester/I-5 interchange along a dirt road.
Baccharis vanessae	Encinitas baccharis	FT, SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Present	Absent	Low to moderate probability to occur within BSA. Appropriate habitat within the BSA. Closest known population is Lux Canyon 1,200 m (3,397 ft) to the north of the BSA. Not observed during surveys, which coincided with this species' traditional flowering period.
Bergerocactus emoryi	Golden-spined cereus	CNPS: 2	Present	Absent	Not expected to occur within BSA. Appropriate habitat within the BSA. Not observed during September survey, which would have detected this species if present.
Ceanothus verrucosus	Wart-stemmed ceanothus	MHCP: Covered CNPS: 2	Present	Present	Present within BSA. Approximately 343 individuals were observed in the southern maritime chaparral in the northeast and southwest portions of the BSA.
Centromadia parryi ssp. *australis*	Southern tarplant	CNPS: 1B	Present	Absent	Low probability to occur within BSA. Closest known population is within San Dieguito Lagoon. Appropriate habitat occurs within the BSA. Not observed during surveys, which coincided with this species' traditional flowering period.
Chaenactis glabriuscula var. orcuttiana	Orcutt's pincushion	CNPS List 1B	Present	Present	Present within BSA. Approximately 4,700 individuals were observed within the BSA. Orcutt's pincushion was the most common sensitive plant observed within the BSA. Populations were observed in undisturbed habitats as well as disturbed areas such as along the cut/fill slopes of I-5 and alongside trails in the scrub and chaparral habitats.

Scientific Name	Common Name	Status[1]	Specific Habitat Present/Absent[2]	Species Present/Absent	Rationale
Chorizanthe orcuttiana	Orcutt's spineflower	FE, SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Present	Absent	Low probability to occur within BSA. Historical populations not known from the BSA. Closest known and historical populations are from Encinitas Blvd., several miles to the north of the BSA. Potential habitat occurs in the southern maritime chaparral in the northeast and southwest portions of the BSA. However most of this habitat, though in relatively good condition, may be too disturbed for this species, which seems to be very sensitive to minor disturbances. Not observed during surveys, which coincided with this species' traditional flowering period.
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	CNPS: 1B	Present	Absent	Moderate probability to occur within BSA. Potential habitat occurs in the southern maritime chaparral in the northeast and southwest portions of the BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Comarostaphylis diversifolia ssp. *diversifolia*	Summer holly	MHCP: Covered CNPS: 1B	Present	Present	Present within BSA. Two individuals were observed within the southern maritime chaparral in the southwestern portion of the BSA during the surveys. Additional individuals were observed immediately adjacent to the southwestern portion of the BSA.
Coreopsis maritima	Sea dahlia	CNPS: 2	Present	Present	Approximately 389 individuals of this species were observed within the coastal bluff scrub and coastal sage scrub habitats within the BSA.
Dudleya brevifolia	Short-leaved dudleya	SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Present	Absent	Low probability to occur within the BSA. Though appropriate habitat for this species occurs within the BSA (southern maritime chaparral), this species is only known from several locations in and around Torrey Pines State Reserve. This species was not observed during surveys, which coincided with this species' traditional flowering period.

Scientific Name	Common Name	Status[1]	Specific Habitat Present/Absent[2]	Species Present/Absent	Rationale
Dudleya variegata	Variegated dudleya	MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Present	Absent	Not expected to occur within BSA. No known populations of this species are within the immediate vicinity of the BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Euphorbia misera	Cliff spurge	MHCP: Covered CNPS: 2	Present	Absent	Moderate probability to occur within BSA. Appropriate habitat occurs within the BSA within the sage scrub and coastal bluff scrub habitats. No individuals of this species were observed in the BSA. However, several individuals of cliff spurge were observed immediately adjacent to the BSA.
Ferocactus viridescens	San Diego barrel cactus	MHCP: Covered CNPS: 2	Present	Present	Present within BSA. Approximately 117 individuals were observed within the BSA. Several individuals were also observed immediately adjacent to the BSA.
Hazardia orcuttii	Orcutt's hazardia	MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Present	Absent	Low probability to occur within BSA. Only one U.S. population reported, located approximately 2,500 m (8,202 ft) northeast of the project area in Encinitas. Not detected during surveys, which coincided with this species' traditional flowering period.
Isocoma menziesii var. *decumbens*	Decumbent goldenbush	CNPS: 1B	Present	Absent	Low probability to occur within BSA. Appropriate habitat occurs within the BSA. This species was not observed during the surveys.
Iva hayesiana	San Diego marsh-elder	MHCP: Covered CNPS: 2	Present	Absent	Low probability to occur within BSA. This species potentially could occur within the wetland habitats of the BSA. This species was not observed during the surveys.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	CNPS: 1B	Present	Absent	Moderate probability to occur within BSA. Appropriate habitat occurs within the BSA, but this species is not known from the vicinity of the BSA. Not detected onsite during surveys, which coincided with this species' traditional flowering period.

Scientific Name	Common Name	Status[1]	Specific Habitat Present/Absent[2]	Species Present/Absent	Rationale
Lessingia filaginifolia var. *incana*	San Diego sand aster	CNPS: 1B	Present	Absent	Low probability to occur within BSA. Though appropriate habitat occurs within the BSA, this species range is generally south of the BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Lessingia filaginifolia var. *linifolia*	Del Mar Mesa sand aster	MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Present	Present	Present within BSA. Approximately 1,462 individuals of this species were observed during the surveys. This species was observed throughout the upland areas of the BSA. Del Mar Mesa sand aster appears to be a disturbance mediated species as evidenced by the largest populations within the BSA occurring on the cut slopes of I-5 and within other disturbed areas in the BSA.
Lotus nuttallianus	Nuttall's lotus	MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Present	Absent	Low to probability to occur within BSA. Appropriate habitat occurs along the sandy areas of sage scrub immediately adjacent to San Elijo Lagoon. However, these areas are too disturbed to support the species. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Muilla clevelandii	San Diego goldenstar	CNPS: 1B	Present	Absent	Low probability to occur within BSA. Small amounts of appropriate habitat occur within the BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Nemacaulis denudata var. *denudata*	Coast woolly-heads	CNPS: 1B	Present	Absent	Low to moderate probability to occur within BSA. Historical population known from San Elijo Lagoon. This species has the potential for occurrence in sandy areas adjacent to San Elijo Lagoon but these areas are well disturbed. This species was not observed during surveys, which coincided with this species' traditional flowering period.

Scientific Name	Common Name	Status[1]	Specific Habitat Present/Absent[2]	Species Present/Absent	Rationale
Pinus torreyana	Torrey pine	MHCP: Covered CNPS: 1B	Present	Present	Present within BSA. A total of three individuals were observed within the BSA. Several individuals of this species have been planted along I-5 as ornamentals. These individuals are not considered sensitive because they do not represent a natural population or exist in a natural community. A few juvenile individuals have become established within the southern maritime chaparral, one of its natural habitats; however, these individuals are assumed to have arisen from the seed of the landscaped individuals. For purposes of this report though, all the Torrey pines are included on the sensitive species maps.
Quercus dumosa	Nuttall's scrub oak	MHCP: Covered CNPS: 1B	Present	Present	Present within BSA. Approximately 24 individuals were observed within the southern maritime chaparral in the northeastern and southwestern portions of the BSA. Additional individuals were observed immediately outside of the BSA.
Animals					
Panoquina errans	Salt marsh skipper butterfly	MHCP	Present	Absent	High probability to occur within BSA. The MHCP states that salt marsh and salt pan habitats are occupied within Encinitas and that the species is associated with nearly all coastal lagoons in San Diego County.
Clemmys marmorata pallida	Southwestern pond turtle	SSC, MHCP	Present	Absent	Low probability to occur within BSA due to limited specific habitat requirements and historical location data for the region.
Phrynosoma coronatum blainvillei	San Diego horned lizard	SSC	Present	Absent	Moderate probability to occur within BSA. Although no individuals were detected during initial assessment or general wildlife surveys, suitable habitat is present within BSA.
Eumeces skiltonianus interparietalis	Coronado Island skink	SSC	Present	Absent	Low probability to occur within BSA because habitat features within suitable vegetation communities in the survey area are limited (eg., leaf litter, logs, cobbles, small boulders, etc).
Cnemidophorus hyperythrus	Orange-throated whiptail	SSC, MHCP, SP	Present	Present	Present within BSA. Observed during general wildlife surveys.

Scientific Name	Common Name	Status[1]	Specific Habitat Present/Absent[2]	Species Present/Absent	Rationale
Anniella pulchra pulchra	Silvery legless lizard	SSC	Present	Absent	Low probability to occur within BSA due to a lack of deep, sandy soils required to support this species.
Thamnophis hammondii	Two-striped garter snake	SSC	Present	Absent	Low probability to occur within BSA because suitable habitat is limited.
Gavia immer	Common loon	SSC	Present	Absent	Low to moderate probability to occur within BSA during winter based on historical data from the region.
Pelecanus erythrorhynchos	American white pelican	SSC	Present	Absent	Moderate to high probability to occur within the BSA during winter based on historical location data and presence of suitable habitat.
Pelecanus occidentalis californicus	California brown pelican	FE, SE, SFP, MHCP	Present	Absent	Moderate probability to occur within BSA because of presence of suitable habitat and based on historical location data from the region.
Phalacrocorax auritus	Double-crested cormorant	SSC	Present	Absent	Moderate probability to occur within BSA because of availability of suitable habitat.
Casmerodius albus	Great egret	SSC	Present	Absent	Moderate probability to occur within BSA due to suitable habitat availability and based on historical location data from the region.
Ardea herodias	Great blue heron	SSC	Present	Absent	Moderate to high probability to occur within the BSA due to availability of suitable habitat.
Ixobrychus exilis	Least bittern	SSC	Present	Absent	High probability to occur within BSA because species observed adjacent to survey area by SELC during focused 2002 wildlife surveys.
Plegadis chihi	White-faced ibis	SSC, MHCP	Present	Absent	Moderate to high probability to occur within the BSA because species observed adjacent to survey area by SELC during focused 2002 wildlife surveys.
Mycteria americana	Wood stork	SSC	Present	Absent	Low probability to occur within BSA because of habitat limitations.
Dendrocygna bicolor	Fulvous whistling-duck	SSC	Present	Absent	Low probability to occur within BSA because native populations are thought to be extirpated from region. Most or all recent observations involve escapees from captivity.

Scientific Name	Common Name	Status[1]	Specific Habitat Present/Absent[2]	Species Present/Absent	Rationale
Pandion haliaetus	Osprey	SSC, MHCP	Present	Absent	Moderate probability to occur within BSA. Although considered an uncommon wintering species and relatively rare during the breeding season, the species has been recorded within San Elijo Lagoon and there is suitable habitat present within the BSA.
Elanus leucurus majusculus	White-tailed kite	SFP	Present	Absent	High probability to occur within BSA because of presence of suitable habitat and based on historical location data for the region.
Haliaeetus leucocephalus	Bald eagle	FT, SE, BEPA	Present	Absent	Not expected to occur within the BSA due to lack of suitable habitat.
Circus cyaneus	Northern harrier	SSC, MHCP	Present	Absent	Moderate to high probability to occur within BSA during winter, based on presence of suitable wintering habitat.
Accipiter cooperii	Cooper's hawk	SSC, MHCP	Present	Absent	Low probability to occur within BSA due to very limited availability of suitable habitat.
Accipiter striatus	Sharp-shinned hawk	SSC	Present	Absent	Low probability to occur within BSA due to very limited availability of suitable habitat.
Buteo regalis	Ferruginous hawk	SSC	Present	Absent	Low probability to occur within BSA based on historical data from the region and limited habitat availability within the survey area.
Aquila chrysaetos	Golden eagle	BEPA, SSC, MHCP	Present	Absent	Low probability to occur within BSA because suitable habitat is very limited.
Falco columbarius	Merlin	SSC	Present	Absent	Moderate probability to occur within BSA during winter because suitable habitat is present.
Falco peregrinus anatum	American peregrine falcon	SE, SFP, MHCP	Present	Absent	High potential to occur within BSA during the winter based on the presence of suitable habitat and historical location data for the region.
Falco mexicanus	Prairie falcon	SSC	Present	Absent	Low probability to occur within BSA due to lack of suitable habitat.
Laterallus jamaicensis coturniculus	California black rail	ST, SFP	Present	Absent	Low probability to occur within BSA based on historical location data.
Rallus longirostris levipes	Light-footed clapper rail	FE, SE, SFP, MHCP	Present	Present	Present within BSA. Observed in and adjacent to BSA during surveys conducted by SELC.

Scientific Name	Common Name	Status[1]	Specific Habitat Present/Absent[2]	Species Present/Absent	Rationale
Charadrius alexandrinus nivosus	Western snowy plover	FT, SSC, MHCP	Present	Absent	Low probability to occur within BSA based on limited habitat availability and historical location data for the region.
Numenius americanus	Long-billed curlew	SSC, MHCP	Present	Absent	High probability to occur within BSA during winter based on historical location data from the region and presence of suitable habitat.
Larus californicus	California gull	SSC	Present	Absent	Moderate to high probability to occur within BSA during migration or during the winter because suitable habitat is present and historical location data show this species to be abundant during these periods.
Sterna nilotica	Gull-billed tern	SSC	Present	Absent	Low probability to occur within BSA based on historical data that indicate it is extremely rare to observe this species in southern California, except in the vicinity of the Salton Sea.
Sterna elegans	Elegant tern	SSC, MHCP	Present	Absent	Moderate to high potential to occur within BSA during the winter based on historical location data for this region and presence of suitable wintering habitat.
Sterna antillarum browni	California least tern	FE, SE, SFP, MHCP	Present	Absent	High probability to occur within BSA because observed adjacent to BSA by EDAW during focused 2002 wildlife surveys.
Rynchops niger	Black skimmer	SSC	Present	Absent	Moderate to high probability to occur within BSA because suitable habitat is present and because it is a common resident in San Diego County.
Asio otus	Long-eared owl	SSC	Present	Absent	Not expected to occur within BSA due to lack of suitable habitat.
Asio flammeus	Short-eared owl	SSC	Present	Absent	Low probability to occur within BSA based on historical location data from the region.
Cypseloides niger	Black swift	SSC	Absent	Absent	Not expected to occur within BSA because area lacks waterfalls, seacoast caves, and rocky cliffs.
Empidonax traillii extimus	Southwestern willow flycatcher	FE, SE, MHCP	Present	Absent	Extremely low probability to occur within BSA due to lack of habitat; however, observed immediately outside of the BSA during focused 2002 surveys. May pass through BSA as it migrates to appropriate habitat within San Elijo Lagoon.

Scientific Name	Common Name	Status[1]	Specific Habitat Present/Absent[2]	Species Present/Absent	Rationale
Pyrocephalus rubinus	Vermilion flycatcher	SSC	Present	Absent	Low probability to occur within BSA due to lack of observation during 2002 surveys and lack of appropriate habitat; however, may be present in BSA for short periods as it migrates through the BSA to suitable habitats within San Elijo Lagoon.
Progne subis	Purple martin	SSC	Present	Absent	Low probability to occur within BSA because species is rare to the region.
Polioptila californica californica	Coastal California gnatcatcher	FT, SSC, MHCP	Present	Present	Present within BSA. Observed within and adjacent to the BSA during focused surveys for the species conducted by EDAW.
Toxostoma bendirei	Bendire's thrasher	SSC	Present	Absent	Low probability to occur within BSA because suitable habitat is limited and the species is rare to the region.
Vireo bellii pusillus	Least Bell's vireo	FE, SE, MHCP	Present	Present	Present within BSA as a migrant. Observed within and adjacent to the BSA during focused surveys for the species conducted by SELC. Not detected during focused protocol-level surveys in 2003.
Vermivora virginiae	Virginia's warbler	SSC	Present	Absent	Low probability to occur within BSA because of lack of suitable habitat and because species is rare to the region.
Dendroica petechia	Yellow warbler	SSC	Present	Absent	High probability to occur within the BSA because appropriate habitat is present within the BSA and because historical data for the region show this species to be present adjacent to the BSA.
Icteria virens	Yellow-breasted chat	SSC, MHCP	Present	Present	Moderate to high probability to occur within the BSA because riparian woodland habitat is limited.
Piranga rubra	Summer tanager	SSC	Present	Absent	Low probability to occur within BSA due to suitable habitat limitations.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	SSC, MHCP	Present	Absent	Low probability to occur within BSA due to lack of large sections of suitable sage scrub habitat.
Passerculus sandwichensis beldingi	Belding's savannah sparrow	SE, MHCP	Present	Present	Present within BSA. Observed within and adjacent to BSA during focused 2002 wildlife surveys conducted by both SELC and EDAW.

Scientific Name	Common Name	Status[1]	Specific Habitat Present/Absent[2]	Species Present/Absent	Rationale
Passerculus sandwichensis rostratus	Large-billed savannah sparrow	SSC, MHCP	Present	Absent	Moderate to high probability to occur within BSA based on historical location data for the area and presence of suitable habitat. San Elijo Lagoon is a critical wintering location for the species.
Amphispiza belli belli	Bell's sage sparrow	SSC, MHCP	Present	Absent	Low to moderate probability to occur within BSA due to lack of dense sage scrub and open chaparral habitats.
Ammodramus savannarum	Grasshopper sparrow	MHCP	Present	Absent	Low probability to occur within BSA because species is rare to the region.
Agelaius tricolor	Tricolored blackbird	SSC, MHCP	Present	Absent	Moderate probability to occur within BSA due to presence of suitable habitat and based on historical location data.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	SSC, MHCP	Present	Absent	Moderate potential to occur within BSA based on historical location data and presence of suitable habitat.
Perognathus fallax fallax	Northwestern San Diego pocket mouse	SSC, MHCP	Present	Absent	Low potential to occur within BSA due to limited availability of suitable habitat.
Onychomys torridus	Southern grasshopper mouse	SSC	Present	Absent	Low probability to occur within BSA because suitable habitat is limited.

[1]Status Key

FE	Federally endangered
FT	Federally threatened
BEPA	Federal Bald Eagle Protection Act
SE	State of California endangered
ST	State of California threatened
SFP	State of California fully protected
SP	State of California protected
SSC	State of California Species of Concern
MHCP	San Diego County Multiple Habitat Conservation Program covered species
CNPS: 1B	California Native Plant Society List 1B species (considered rare, threatened, or endangered in California and elsewhere)
CNPS: 2	California Native Plant Society List 2 species (considered rare, threatened, or endangered in California, but more common elsewhere)

[2]Specific Habitat

Present	General habitat is present and species may be present
Absent	No further work needed

There are 89 sensitive animal species known to potentially occur in the region. Sensitive invertebrates include, but are not limited to, the Riverside fairy shrimp (*Streptocephalus woottoni*) and the San Diego fairy shrimp (*Branchinecta sandiegonensis*). Potentially occurring sensitive amphibian and reptile species include the western spadefoot (*Scaphiopus hammondii*), southwestern pond turtle (*Clemmys marmorata pallida*), San Diego horned lizard (*Phrynosoma coronatum blainvillei*), orange-throated whiptail (*Cnemidophorus hyperythrus*), and two-striped garter snake (*Thamnophis hammondii*).

Birds represent the majority of the sensitive species with a potential to occur within the region. These species include the California black rail (*Laterallus jamaicensis coturniculus*), light-footed clapper rail (*Rallus longirostris levipes*), western snowy plover (*Charadrius alexandrinus nivosus*), California least tern (*Sterna antillarum browni*), burrowing owl (*Speotyto cunicularia*), coastal cactus wren (*Campylorhynchus brunneicapillus couesi*), coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*).

Sensitive mammal species potentially occurring within the area include the San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), northwestern San Diego pocket mouse (*Perognathus fallax fallax*), Pacific pocket mouse (*Perognathus longimembris pacificus*), and San Diego desert woodrat (*Neotoma lepida intermedia*). A summary of the regulatory status, and presence or absence of each of the sensitive species or its habitat, and a brief discussion of occurrence potential onsite, are presented in Table 5.

4.2. Natural Communities of Special Concern

Sensitive habitats are those that are considered rare within the region or are considered sensitive under the MHCP (SANDAG 2001) and the CDFG (2002a). Communities listed on the CNDDB as having the highest inventory priorities are also considered sensitive (CDFG 2000), as well as wetland and/or riparian habitat regulated by the Corps under Section 404 of the Clean Water Act and by the CDFG under Section 1600 of the California Fish and Game Code.

Within the BSA, the sensitive communities are Diegan coastal sage scrub, southern maritime chaparral, coastal bluff scrub, southern coastal salt marsh, coastal brackish

marsh, freshwater marsh, southern arroyo willow woodland, southern willow scrub, mulefat scrub, and nonnative grassland. Each community is home to a number of sensitive species and is endemic to the southern California coast. Descriptions of these sensitive communities are provided below.

4.2.1. Discussion of Diegan Coastal Sage Scrub

Diegan coastal sage scrub is considered a sensitive vegetation community by several local and state agencies such as the CDFG (2002a) because it supports a large number of sensitive plant and animal species endemic to the San Diego region. In addition, Diegan coastal sage scrub is considered a sensitive habitat by the MHCP (SANDAG 2001). Oberbauer and Vanderwier (1991) estimate that only about 53,000 hectares (130,000 acres) of sage scrub remains in San Diego County. This represents a 69 percent loss of this community in the county from the pre-European era. These estimates were based on 1988 vegetation coverage estimates and additional losses have accrued since. Loss of sage scrub within California is due primarily to grazing and urbanization.

4.2.1.1. Survey Results

Diegan coastal sage scrub occurs on the slopes north of the Manchester/I-5 interchange. Disturbed Diegan coastal sage scrub occurs in small patches along the cut slopes north of I-5. Approximately 7.53 hectares (18.62 acres) of Diegan coastal sage scrub and 13.39 hectares (33.12 acres) of disturbed Diegan coastal sage scrub were found within the BSA.

4.2.1.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard Best Management Practices (BMPs). Notwithstanding the measures that will be upheld, development would lead to unavoidable permanent and temporary, direct and indirect impacts to the biological resources in the project area.

4.2.1.3. Project Impacts

Permanent road development and construction grading activities (i.e., additional roadways and graded slopes) proposed by the Manchester/I-5 Interchange project would directly impact this sensitive habitat in areas of the proposed AE and indirectly impact habitat that persists adjacent to the AE. The Build Alternative would permanently impact 0.53 hectare (1.31 acres) of Diegan coastal sage scrub and 0.85 hectare (2.10 acres) of disturbed coastal sage scrub.

Temporary construction staging areas proposed by the Manchester/I-5 Interchange project would temporarily impact this sensitive community in areas of the proposed AE and indirectly impact habitat that persists adjacent to the AE. The Build Alternative would temporarily impact approximately 0.09 hectare (0.23 acre) of Diegan coastal sage scrub and 0.93 hectare (2.29 acres) of disturbed Diegan coastal sage scrub habitat.

Indirect impacts to this community, outside of but adjacent to the AE, could arise from unauthorized construction trespass, erosion, sedimentation, and construction-generated fugitive dust.

4.2.1.4. Compensatory Mitigation

Unavoidable permanent and temporary direct and indirect impacts to the Diegan coastal sage scrub would require compensatory mitigation. Because Caltrans is not a participant in the NCCP, a Section 7 formal consultation with the USFWS and consultation with the CDFG under Section 2080 and 2081 (consistency determination) would be required for impacts to federally and state-listed species. Final habitat mitigation requirements will be decided based upon these negotiations with the USFWS and CDFG during these consultations since habitat mitigation is an important component of sensitive species mitigation. The following mitigation measures were formulated based on previous experience and are meant as a guideline.

Mitigation for all direct impacts would take the form of a combination of habitat creation, habitat restoration, habitat revegetation, acquisition of high quality in-kind habitat at an offsite location, and/or the use of mitigation credits at an approved mitigation bank, such as Caltrans' Pilgrim Creek Mitigation Bank.

Standard mitigation ratios for Diegan coastal sage scrub habitats vary depending upon the location of the impacts and the location of the mitigation area. Impacts within an MHCP-designated preserve area require a higher mitigation ratio than

impacts located outside of such an area. Similarly, a higher mitigation ratio is required if the mitigation site is outside of an MHCP-designated preserve area than if the site were located within such an area. Portions of the project area are within the City of Encinitas' Subarea Plan Focused Planning Area (FPA). Mitigation ratios for the MHCP have not been finalized at this time. However, depending upon the aforementioned site factors, Diegan coastal sage scrub mitigation ratios are likely to range from 1:1 to 2:1.

Potential temporary indirect impacts such as unauthorized construction-related trespass and construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan and an approved Storm Water Pollution Prevention Plan (SWPPP).

4.2.1.5. Cumulative Impacts

Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, it is estimated that there will be cumulative permanent and temporary impacts to intact and disturbed forms of Diegan coastal sage scrub. Implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, would contribute to cumulative impacts to this vegetation community through direct, incremental loss of habitat and increasing indirect pressures on remaining sensitive habitats.

4.2.2. Discussion of Coastal Bluff Scrub

Coastal bluff scrub is considered sensitive by the CDFG (2002b) and the MHCP (SANDAG 2001). Coastal bluff scrub is considered sensitive because of the presence of the diverse number of sensitive species associated with this community and because of the loss of this community to recent urban development pressures. It is restricted in distribution because of habitat requirements such as fog, salt, and coastal winds, and minimization of coastline habitat, which is in decline because of urbanization.

4.2.2.1. Survey Results

Two locations of the coastal bluff scrub community were found within the BSA: the slopes northwest of Mira Costa College (San Elijo campus) and the slopes northwest of the Manchester/I-5 interchange. Approximately 0.39 hectare (0.97 acre) of coastal bluff scrub occurs within the BSA.

4.2.2.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs.

4.2.2.3. Project Impacts

Though coastal bluff scrub is present within the BSA, the Build Alternative would not result in permanent impacts to this habitat. However, because of the proximity of this community to project impacts, indirect impacts from construction-generated fugitive dust, unauthorized trespass, and sedimentation and erosion could occur.

4.2.2.4. Compensatory Mitigation

Unavoidable temporary indirect impacts to the coastal bluff scrub would require compensatory mitigation. Potential temporary indirect impacts, such as unauthorized construction-related trespass, and construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan and an approved SWPPP.

4.2.2.5. Cumulative Impacts

Coastal bluff scrub is one of the vegetation communities that will not be directly impacted by this project. However, implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this vegetation community through increasing indirect pressures on the remaining sensitive habitats within the region.

4.2.3. Discussion of Southern Maritime Chaparral

Southern maritime chaparral is considered sensitive by local and state agencies, specifically by the City of Encinitas' Subarea Plan (City of Encinitas 2001) and the CDFG (Holland 1986). Southern maritime chaparral is considered sensitive because of the high number of sensitive species associated with this community and because of the loss of this community to development pressures. Southern maritime chaparral

is a very restricted community, only occurring in Orange and San Diego Counties and northern Baja, California. This community has been heavily impacted by urban and rural development. Approximately 243 hectares (600 acres), of a historical estimate of 364 hectares (900 acres), of this community remains in Orange County (USFWS 1993). Approximately 1,010 hectares (2,500 acres), of a historical estimate of 8,500 hectares (21,000 acres), of southern maritime chaparral remains in San Diego County (Oberbauer and Vanderwier 1991). This represents an 85 percent decline in southern California, largely the result of conversion of this community to agriculture and/or urban development (USFWS 1993).

4.2.3.1. Survey Results

Restricted to sandstone formations, southern maritime chaparral was found northeast of the Manchester/I-5 interchange and northwest of the I-5/Lomas Santa Fe Avenue interchange. Some areas are classified as disturbed because of the apparent presence of nonnative invasive species within the community, such as ice plant, veldt grass, and natal grass. Approximately 4.40 hectares (10.88 acres) of southern maritime chaparral and 1.19 hectares (2.94 acres) of disturbed southern maritime chaparral were found within the BSA.

4.2.3.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs. Notwithstanding the measures that will be upheld, development would lead to unavoidable permanent and temporary, direct and indirect impacts to this resource in the project area.

4.2.3.3. Project Impacts

Permanent road development and grading activities would directly impact this sensitive habitat in areas of the proposed AE and indirectly impact habitat that persists adjacent to the AE. The Build Alternative would permanently impact 0.03 hectare (0.07 acre) of this habitat.

Temporary construction staging areas proposed by the Manchester/I-5 Interchange project would temporarily impact this sensitive community in areas of the proposed AE and indirectly impact habitat that persists adjacent to the AE. The Build Alternative would temporarily impact approximately 0.04 hectare (0.10 acre) of southern maritime chaparral habitat and 0.03 hectare (0.06 acre) of disturbed southern maritime chaparral habitat.

Indirect impacts to this community, outside of but adjacent to the AE, could arise from unauthorized construction trespass, erosion, sedimentation, and construction-generated fugitive dust.

4.2.3.4. Compensatory Mitigation

Unavoidable permanent and temporary direct and indirect impacts to the southern maritime chaparral would require compensatory mitigation. Because Caltrans is not a participant in the NCCP, a Section 7 formal consultation with the USFWS, and a 2080 consultation and a 2081 consistency determination with the CDFG will be required for impacts to federally and state-listed species. Final habitat mitigation requirements will be decided based upon these negotiations with the USFWS and CDFG during these consultations since habitat mitigation is an important component of sensitive species mitigation. The following mitigation measures were formulated based on previous experience and are meant as a guideline.

Mitigation for all direct impacts would take the form of a combination of habitat creation, habitat restoration, habitat revegetation, acquisition of high quality in-kind habitat at an offsite location, and/or the use of mitigation credits at an approved mitigation bank, such as Caltrans' Pilgrim Creek Mitigation Bank.

Standard mitigation ratios for southern maritime chaparral habitats vary depending upon the location of the impacts and the location of the mitigation area. Impacts within an MHCP-designated preserve area require a higher mitigation ratio than impacts located outside of such an area. Similarly, a higher mitigation ratio is required if the mitigation site is outside of an MHCP-designated preserve area than if the site is located within such an area. Portions of the project area are within the City of Encinitas' Subarea Plan FPA. Mitigation ratios for the MHCP have not been finalized at this time. However, depending upon the aforementioned site factors, southern maritime chaparral mitigation ratios are likely to range from 1:1 to 3:1.

Potential temporary indirect impacts such as unauthorized construction-related trespass and construction-generated fugitive dust, erosion, and sedimentation would

be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan and an approved SWPPP.

4.2.3.5. Cumulative Impacts

Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, it is estimated that there will be cumulative permanent and temporary impacts to intact and disturbed forms of southern maritime chaparral. Implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, would contribute to cumulative impacts to this vegetation community through direct, incremental loss of habitat and increasing indirect pressures on remaining sensitive habitats.

4.2.4. Discussion of Nonnative Grassland

Nonnative grassland is considered a sensitive vegetation community by the CDFG because it serves as prime foraging habitat for San Diego's decreasing raptor population. Grasslands have been sensitive because of urban and agricultural encroachment.

4.2.4.1. Survey Results

Nonnative grassland habitat is found on the manufactured slopes within the I-5 right-of-way. These slopes can be described as highly disturbed and poor foraging habitat. Due to the lack of small mammal sightings during the wildlife surveys and the high disturbance level of this habitat, the assumption is that the raptor populations will selectively forage over San Elijo Lagoon where there is a higher degree of resources rather than over the cut slopes along I-5. Approximately 6.29 hectares (15.55 acres) of nonnative grassland was found within the BSA.

4.2.4.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs. Notwithstanding the measures that will be upheld, development would lead to

unavoidable permanent and temporary, direct and indirect impacts to the biological resources in the project area.

4.2.4.3. Project Impacts

Within the BSA, the proposed project design would result in the permanent and temporary loss of nonnative grassland. All road development and construction activities would directly impact this sensitive habitat within the proposed AE and indirectly impact the habitat that persists adjacent to the AE. The Build Alternative would permanently impact approximately 0.33 hectare (0.82 acre) of nonnative grassland.

Temporary construction staging areas proposed by the Manchester/I-5 Interchange project would temporarily impact this sensitive community in areas of the proposed AE and indirectly impact habitat that persists adjacent to the AE. The Build Alternative would temporarily impact approximately 0.31 hectare (0.76 acre) of nonnative grassland habitat.

4.2.4.4. Compensatory Mitigation

Unavoidable permanent and temporary direct and indirect impacts to the nonnative grasslands would require compensatory mitigation. Because Caltrans is not a participant in the NCCP, a Section 7 formal consultation with the USFWS, and a 2080 consultation and a 2081 consistency determination with the CDFG will be required for impacts to federally and state-listed species. Final habitat mitigation requirements will be decided based upon these negotiations with the USFWS and CDFG during these consultations since habitat mitigation is an important component of sensitive species mitigation. The following mitigation measures were formulated based on previous experience and is meant as a guideline.

Mitigation for all direct impacts would take the form of a combination of habitat creation, habitat restoration, habitat revegetation, acquisition of high quality in-kind habitat at an offsite location, and/or the use of mitigation credits at an approved mitigation bank, such as Caltrans' Pilgrim Creek Mitigation Bank.

Standard mitigation ratios for nonnative grassland habitats vary depending upon the location of the impacts and the location of the mitigation area. Impacts within an MHCP-designated preserve area require a higher mitigation ratio than impacts located outside of such an area. Similarly, a higher mitigation ratio is required if the mitigation site is outside of an MHCP-designated preserve area than if the site is located within such an area. Portions of the project area are within the City of

Encinitas' Subarea Plan FPA. Mitigation ratios for the MHCP have not been finalized at this time. However, depending upon the aforementioned site factors, nonnative grassland mitigation ratios are likely to range from 0.5:1 to 1.5:1.

Potential temporary indirect impacts such as unauthorized construction-related trespass, and construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs, such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan and an approved SWPPP.

4.2.4.5. Cumulative Impacts

Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, it is estimated that there will be cumulative permanent and temporary impacts to nonnative grassland. Implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, would contribute to cumulative impacts to this vegetation community through direct, incremental loss of habitat and increasing indirect pressures on remaining sensitive habitats.

4.2.5. Discussion of Southern Coastal Salt Marsh

Southern coastal salt marsh is a wetland community considered sensitive by the CDFG and the MHCP (SANDAG 2001). This community is under jurisdiction of the Corps pursuant to Section 404 of the Clean Water Act and the CDFG under Section 1600 of the California Fish and Game Code. Oberbauer and Vanderwier (1991) report a 68 percent reduction in southern coastal salt marsh and other related marsh communities, which calculates to 328 hectares (810 acres) from an original estimated 8,380 hectares (20,700 acres) in San Diego County since the pre-European era. This wetland habitat provides habitat for a variety of rare and common species as well as corridors for wildlife movement. The loss and degradation of this wetland habitat are the result of a variety of mechanisms including grazing, channelization, increased erosion and sediment transportation, increased urban runoff, contamination by agricultural fertilizer and pesticide use, human recreational activities, and the invasion of exotic species (Bowler 1990; Ferren 1990).

4.2.5.1. Survey Results

Southern coastal salt marsh is the most common community found within San Elijo Lagoon. Some portions of this community have been characterized as disturbed due to the presence of exotic plant species such as ice plant and other nonnative invasive

species. Approximately 9.39 hectares (23.21 acres) of southern coastal salt marsh occurs within the BSA.

4.2.5.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs. Notwithstanding the measures that will be upheld, development would lead to unavoidable indirect impacts to this resource in the project area.

4.2.5.3. Project Impacts

Within the BSA, the proposed project design would result in the permanent and temporary loss of southern coastal salt marsh. All road development and construction activities would directly impact this sensitive habitat within the proposed AE and indirectly impact the habitat that persists adjacent to the AE. The Build Alternative would permanently impact approximately 0.02 hectare (0.04 acre) of southern coastal salt marsh. Indirect permanent shading from the extension of the Manchester/I-5 Bridge would also permanently impact 0.02 hectare (0.05 acre) of salt marsh habitat.

Temporary construction staging areas proposed by the Manchester/I-5 Interchange project would temporarily impact 0.14 hectare (0.35 acre) of this sensitive community in areas of the proposed AE and indirectly impact habitat that persists adjacent to the AE.

Indirect impacts to this community, outside of but adjacent to the AE, could arise from unauthorized construction trespass, erosion, sedimentation, and construction-generated fugitive dust.

4.2.5.4. Compensatory Mitigation

Unavoidable indirect impacts to the southern coastal salt marsh would require compensatory mitigation. Since this habitat is a federally and state-regulated wetland, mitigation will be established through negotiations with the Corps and CDFG, under Section 404 of the Clean Water Act and Section 1600 of the Fish and

Game Code. However, it is anticipated that potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan and an approved SWPPP.

4.2.5.5. Cumulative Impacts

Southern coastal salt marsh is one of the vegetation communities that will not be directly impacted by this project. However, implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this vegetation community through increasing indirect pressures on the remaining sensitive habitats within the region.

4.2.6. Discussion of Coastal Brackish Marsh

Coastal brackish marsh is wetland community that is considered sensitive by the CDFG and MHCP (SANDAG 2001). It is also under jurisdiction of the Corps pursuant to Section 404 of the Clean Water and the CDFG under Section 1600 of the California Fish and Game Code. This wetland habitat provides habitat for a variety of rare and common species as well as corridors for wildlife movement. The loss and degradation of this wetland habitat are the result of a variety of mechanisms including channelization, increased urban runoff, contamination by agricultural fertilizer and pesticide use, and the invasion of exotic species (Bowler 1990; Ferren 1990).

4.2.6.1. Survey Results

Coastal brackish marsh was found in areas where there is a permanent water source within the lagoon. This community typically lines the edges of the open water channels within the lagoon as well. The two most common species found within this community are cattails and bulrushes and, on the elevated portions of this habitat, individuals of southwestern spiny rush are prevalent. Some areas are designated as disturbed coastal brackish marsh due to the invasion of exotic plants such as myoporum, eucalyptus, and Brazilian pepper tree. The altered composition within this community is the common result of urban disturbances such as prior road and trail construction. Approximately 3.87 hectares (9.57 acres) of coastal brackish marsh and 0.11 hectare (0.26 acre) of disturbed coastal brackish marsh were found within the BSA.

4.2.6.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs. Notwithstanding the measures that will be upheld, development would lead to unavoidable permanent and temporary, direct and indirect impacts to this resource in the project area.

4.2.6.3. Project Impacts

Road development and construction activities would directly impact this sensitive habitat within the proposed AE and indirectly impact the adjacent habitat. The Build Alternative would permanently impact approximately 0.01 hectare (0.02 acre) of coastal brackish marsh. Indirect permanent shading from the extension of the Manchester/I-5 Bridge would also permanently impact 0.11 hectare (0.28 acre) of coastal brackish marsh habitat.

Temporary construction staging areas proposed by the Manchester/I-5 Interchange project would temporarily impact 0.21 hectare (0.52 acre) of this sensitive community in areas of the proposed AE and indirectly impact habitat that persists adjacent to the AE.

Indirect impacts to this community, outside of but adjacent to the AE, could arise from unauthorized construction trespass, erosion, sedimentation, and construction-generated fugitive dust.

4.2.6.4. Compensatory Mitigation

Unavoidable permanent and temporary direct and indirect impacts to the coastal brackish marsh would require compensatory mitigation. Mitigation for all direct and permanent indirect impacts (such as shading from the bridge) would take the form of a combination of habitat creation, habitat restoration, habitat revegetation, acquisition of high quality in-kind habitat at an offsite location, and/or the use of mitigation credits at an approved mitigation bank such as Caltrans' Pilgrim Creek Mitigation Bank.

Since this habitat is a federally and state-regulated wetland, mitigation ratios will be established through negotiations with the Corps and CDFG, under Section 404 of the Clean Water Act and Section 1600 of the Fish and Game Code. Standard mitigation ratios for this habitat are at least 3:1. At least 1:1 of the mitigation must be compensated for through habitat creation or the purchase of creation credits from a mitigation bank, to ensure compliance with the federal policy of a "no-net loss" of wetlands. The remainder of the mitigation requirement can be fulfilled through some combination of habitat creation, habitat restoration, habitat revegetation, acquisition of high quality in-kind habitat, and/or the use of mitigation credits. Temporary direct impacts could be fulfilled through the restoration of habitat that was temporarily impacted.

Potential temporary indirect impacts such as unauthorized construction-related trespass, and construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan and an approved SWPPP.

4.2.6.5. Cumulative Impacts

Implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, would contribute to cumulative impacts to this vegetation community through direct habitat loss and increasing indirect pressures on the remaining sensitive habitats within the region.

4.2.7. Discussion of Freshwater Marsh

Freshwater marsh is another wetland community that is considered sensitive by the CDFG and MHCP (SANDAG 2001). This community is also under jurisdiction of the Corps pursuant to Section 404 of the Clean Water Act and by the CDFG pursuant to Section 1600 of the California Fish and Game Code. Oberbauer and Vanderwier (1991) report a 91 percent reduction in freshwater marsh habitat, which calculates to 40.5 hectares (100.0 acres) from an original estimated 445 hectares (1,100 acres) in San Diego County since the pre-European era. The loss and degradation of this wetland habitat are the result of a variety of mechanisms including the filling and draining of this habitat, channelization, water diversion and impoundment projects, increased urban runoff, and the invasion of exotic species (Bowler 1990; Ferren 1990).

4.2.7.1. Survey Results

The freshwater marsh community is found in areas within San Elijo Lagoon where permanent sources of freshwater accumulate, generally from urban runoff. Within the BSA, this community is found alongside Manchester Avenue and near the on- and off-ramps at the Manchester/I-5 interchange. It can also be found north of Manchester Avenue alongside the shoulder of the I-5 freeway. Approximately 0.01 hectare (0.03 acre) of freshwater marsh and 0.21 hectare (0.51 acre) of disturbed marsh habitat were observed within the BSA.

4.2.7.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs. Notwithstanding the measures that will be upheld, development would lead to unavoidable permanent and temporary, direct and indirect impacts to the biological resources in the project area.

4.2.7.3. Project Impacts

Road development and construction activities would directly impact this sensitive habitat within the proposed AE and indirectly impact the habitat that persists adjacent to the AE. The Build Alternative would permanently impact approximately 0.09 hectare (0.21 acre) of disturbed freshwater marsh.

Temporary construction staging areas proposed by the Manchester/I-5 Interchange project would temporarily impact 0.02 hectare (0.05 acre) of this sensitive community in areas of the proposed AE and indirectly impact habitat that persists adjacent to the AE.

Indirect impacts to this community, outside of but adjacent to the AE, could arise from unauthorized construction trespass, erosion, sedimentation, and construction-generated fugitive dust.

4.2.7.4. Compensatory Mitigation

Unavoidable permanent and temporary direct and indirect impacts to the freshwater marsh would require compensatory mitigation. Mitigation for all direct impacts would take the form of a combination of habitat creation, habitat restoration, habitat revegetation, acquisition of high quality in-kind habitat at an offsite location, and/or the use of mitigation credits at an approved mitigation bank such as Caltrans' Pilgrim Creek Mitigation Bank.

Since portions of this habitat are federally regulated wetland (some portions appear to be isolated wetlands) and state-regulated wetland, mitigation ratios will be established through negotiations with the Corps and CDFG, with input from the USFWS and the U.S. Environmental Protection Agency (EPA) under Section 404 of the Clean Water Act and Section 1600 of the Fish and Game Code. Standard mitigation ratios for this habitat are at least 2:1 (but may be higher because they are located within California Coastal Commission's Coastal Zone).

At least 1:1 of the mitigation must be compensated for through habitat creation or the purchase of creation credits from a mitigation bank, to ensure compliance with the federal policy of a "no-net loss" of wetlands. The remainder of the mitigation requirement can be fulfilled through some combination of habitat creation, habitat restoration, habitat revegetation, acquisition of high quality in-kind habitat, and/or the use of mitigation credits. Temporary direct impacts could be fulfilled through the restoration of habitat that was temporarily impacted.

Potential temporary indirect impacts such as unauthorized construction-related trespass, and construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan and an approved SWPPP.

4.2.7.5. Cumulative Impacts

Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, it is estimated that there will be a cumulative permanent impact to disturbed freshwater marsh habitat. Implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, would contribute to cumulative impacts to this vegetation community through direct habitat loss increasing indirect pressures on the remaining sensitive habitats within the region.

4.2.8. Discussion of Southern Arroyo Willow Woodland

Southern arroyo willow woodland is a sensitive riparian community that is under the jurisdiction of the Corps pursuant to Section 404 under the Clean Water Act and by the CDFG pursuant to Section 1600 under the California Fish and Game Code. This community is also considered sensitive by the CDFG (2002a) and MHCP (SANDAG 2001). Approximately 5,506 hectares (13,600 acres) of an original estimate of 14,000 hectares (34,600 acres) (approximately 61 percent) of riparian woodland habitat has been lost in San Diego County since the pre-European era (Bowler 1990; Ferren 1990). This includes southern arroyo willow woodland and southern willow scrub. This community serves as an important niche for a number of rare and common species. Habitat loss is due to grazing, channelization, increased urban runoff, human recreational activities, contamination by agricultural fertilizer and pesticide use, and human development.

4.2.8.1. Survey Results

Southern arroyo willow woodland occurs along the upper edges of San Elijo Lagoon bordering the most eastern and western portions of the BSA on Manchester Avenue. Characteristically, this community is found where there are influxes of fresh water. Approximately 0.65 hectare (1.61 acres) of southern arroyo willow woodland was found within the BSA.

4.2.8.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs. Notwithstanding the measures that will be upheld, development could lead to unavoidable indirect impacts to this resource in the project area.

4.2.8.3. Project Impacts

Though southern arroyo willow woodland is present within the BSA, the Build Alternative would not result in permanent impacts to this habitat. However, because of the proximity of this community to project impacts, indirect impacts from

construction-generated fugitive dust, unauthorized trespass, and sedimentation and erosion could occur.

4.2.8.4. Compensatory Mitigation

Unavoidable indirect impacts to the southern arroyo willow woodland would require compensatory mitigation. Since this habitat is a federally and state-regulated wetland, mitigation will be established through negotiations with the Corps and CDFG, under Section 404 of the Clean Water Act and Section 1600 of the Fish and Game Code. However, it is anticipated that potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan and an approved SWPPP.

4.2.8.5. Cumulative Impacts

Southern arroyo willow woodland is one of the vegetation communities that will not be directly impacted by this project. However, implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this vegetation community through increasing indirect pressures on the remaining sensitive habitats within the region.

4.2.9. Discussion of Southern Willow Scrub

Southern willow scrub is considered sensitive by the CDFG (2002a) and the MHCP (SANDAG 2001). It is also under jurisdiction of the Corps pursuant to Section 404 of the Clean Water Act and by the CDFG pursuant to Section 1600 under the California Fish and Game Code. This sensitive community has suffered greatly due to a variety of human impacts such as filling and draining, channelization, clearing, grazing, and urbanization.

4.2.9.1. Survey Results

Southern willow scrub occurs along the higher elevated peripheries of San Elijo Lagoon adjacent to Manchester Avenue, in areas near confluences of tributary streams, where there is a good source of fresh water. Approximately 0.79 hectare (1.96 acres) of southern willow scrub and 0.18 hectare (0.44 acre) of disturbed willow scrub were found within the BSA.

4.2.9.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs. Notwithstanding the measures that will be upheld, development would lead to unavoidable permanent and temporary, direct and indirect impacts to the biological resources in the project area.

4.2.9.3. Project Impacts

Within the BSA, the proposed project design would result in the permanent and temporary loss of southern willow scrub habitat. Road development and construction activities would directly impact this sensitive habitat within the proposed AE and indirectly impact this habitat adjacent to the AE. The Build Alternative would permanently impact 0.03 hectare (0.08 acre) of disturbed willow scrub habitat.

Temporary construction staging areas proposed by the Manchester/I-5 Interchange project would temporarily impact this sensitive community in areas of the proposed AE and indirectly impact habitat that persists adjacent to the AE. The Build Alternative would temporarily impact approximately 0.01 hectare (0.03 acre) of southern willow scrub and 0.03 hectare (0.06 acre) of disturbed southern willow scrub habitat.

Indirect impacts to this community, outside of but adjacent to the AE, could arise from unauthorized construction trespass, erosion, sedimentation, and construction-generated fugitive dust.

4.2.9.4. Compensatory Mitigation

Unavoidable permanent and temporary direct and indirect impacts to the southern willow scrub would require compensatory mitigation. Mitigation for all direct impacts would take the form of a combination of habitat creation, habitat restoration, habitat revegetation, acquisition of high quality in-kind habitat at an offsite location, and/or the use of mitigation credits at an approved mitigation bank such as Caltrans' Pilgrim Creek Mitigation Bank.

Standard mitigation ratios for this habitat are at least 2:1 (but may be higher because it is located within California Coastal Commission's Coastal Zone). At least 1:1 of the mitigation must be compensated for through habitat creation or the purchase of creation credits from a mitigation bank, to ensure compliance with the federal policy of a "no-net loss" of wetlands. The remainder of the mitigation requirement can be fulfilled through some combination of habitat creation, habitat restoration, habitat revegetation, the acquisition of high quality in-kind habitat, and/or the use of mitigation credits. Temporary direct impacts could be fulfilled through the restoration of habitat that was temporarily impacted.

Potential temporary indirect impacts, such as unauthorized construction-related trespass, and construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan and an approved SWPPP.

4.2.9.5. Cumulative Impacts

Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, it is estimated that there will be cumulative permanent and temporary impacts to intact and disturbed forms of southern willow scrub. Implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, would contribute to cumulative impacts to this vegetation community through direct, incremental loss of habitat and increasing indirect pressures on remaining sensitive habitats.

4.2.10. Discussion of Mulefat Scrub

Mulefat scrub is another wetland community considered sensitive by the MHCP (SANDAG 2001) and CDFG (2000). This community is also under jurisdiction of the Corps pursuant to Section 404 of the Clean Water Act and by the CDFG pursuant to Section 1600 under the California Fish and Game Code. This sensitive wetland habitat serves such functions as flood and sediment control, as it is typically found along stream and drainage courses. Extensive habitat loss is due to grazing, channelization, increased urban runoff, human recreational activities, contamination by agricultural fertilizer and pesticide use, and human development.

4.2.10.1. Survey Results

Mulefat scrub is found on the higher elevated peripheries of San Elijo Lagoon adjacent to Manchester Avenue, usually in areas that are confluences of tributary

streams, where there is a good source of fresh water. Approximately 0.03 hectare (0.09 acre) of mulefat scrub was found within the BSA.

4.2.10.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs. Notwithstanding the measures that will be upheld, development could lead to unavoidable indirect impacts to this resource in the project area.

4.2.10.3. Project Impacts

Though mulefat scrub is present within the BSA, the Build Alternative would not result in permanent impacts to this habitat. However, because of the proximity of this community to project impacts, indirect impacts from construction-generated fugitive dust, unauthorized trespass, and sedimentation and erosion could occur.

4.2.10.4. Compensatory Mitigation

Unavoidable temporary indirect impacts to the mulefat scrub would require compensatory mitigation. Potential temporary indirect impacts, such as unauthorized construction-related trespass, and construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan and an approved SWPPP.

4.2.10.5. Cumulative Impacts

Mulefat scrub is one of the vegetation communities that will not be directly impacted by this project. However, implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this vegetation community through increasing indirect pressures on the remaining sensitive habitats within the region.

4.3. Special Status Plant Species

Sensitive plants include those listed as threatened, endangered, or proposed for listing by the USFWS (1999) and CDFG (2002c, d); considered sensitive by the CNPS (Tibor 2001); or considered covered species or narrow endemics by the MHCP. The CNPS Listing is sanctioned by the CDFG and essentially serves as its list of candidate species for threatened or endangered status. All sensitive plant species detected within the BSA or that have a potential to occur within the BSA based on previously recorded occurrences in the vicinity of the BSA, or the presence of suitable habitat, are listed in Table 5.

The following text discusses impacts to biological resources, including vegetation communities (Table 6) and sensitive species observed onsite during surveys of the BSA (Table 7). A cumulative impacts discussion is also provided, which is based on projects with a high likelihood of occurring within the region (Table 8).

Species that are federally or state-listed are afforded a degree of protection that entails a permitting process, including specific mitigation measures to compensate for impacts to the species. Species that are proposed to be listed by the USFWS are treated similarly to listed species by that agency. Recommendations of the USFWS, however, are advisory rather than mandatory in the case of proposed species. Plant species that are considered sensitive by the CNPS have a lesser degree of protection under the California Environmental Quality Act (CEQA). Under CEQA, avoidance of impacts to these species or implementation of measures could be required to reduce impacts.

There are 32 sensitive plant species with the potential to occur within the region. Fourteen special status plants were found within the BSA: the federal endangered Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*); six CNPS List 1B species, Del Mar Mesa sand aster (*Lessingia filaginifolia* var. *linifolia*), south coast saltscale (*Atriplex pacifica*), Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*), Torrey pine (*Pinus torreyana* ssp. *torreyana*), Nuttall's scrub oak (*Quercus dumosa*), and summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*); and four CNPS List 2 species, wart-stemmed ceanothus (*Ceanothus verrucosus*), San Diego barrel cactus (*Ferocactus viridescens*), sea dahlia (*Coreopsis maritima*) and California adolphia (*Adolphia californica*). Two other CNPS List 2 species, Shaw's agave (*Agave shawii*) and cliff spurge (*Euphorbia miseri*), were observed immediately adjacent to the BSA (Figures 8a through 8e). Figure 9 shows the BSA with the permanent impact footprint for the Build Alternative.

4.3.1. Discussion of San Diego Thorn-Mint

The San Diego thorn-mint is listed by the USFWS as a threatened species; is listed as an endangered species by the CDFG; and is an MHCP covered species, an MHCP narrow endemic, and a CNPS List 1B species. Habitat requirements for this spiny annual can be described by distinct crumbly and cracked clay soils in grassy openings in chaparral, valley and foothill grasslands, or coastal sage scrub. It is also found on gabbro soils and dry mesas. Populations of the San Diego thorn-mint are typically small and are known to range from San Diego County to Baja California. One-third of the historical locations have been extirpated and the remaining locations are threatened by development, road construction, and grazing. Most extant locations are reported from Mission Trails Park, Alpine, Chula Vista, and Poway. The closest population known to the BSA is approximately 1.2 kilometers (km) (0.75 mile) east in Lux Canyon (SANDAG 2001).

The San Diego thorn-mint was not observed within the BSA during the field surveys. The surveys were conducted at a time (April and May) when this plant would have been observable. San Diego thorn-mint occurs on heavy clay soils within a variety of habitats including sage scrub, chaparral, grassland, and vernal pool complexes.

Several areas of heavy clay soils that supported other clay edaphic species that are consistently present with the San Diego thorn-mint at other localities, such as California adolphia and tocalote, were observed within the BSA. The closest known population of San Diego thorn-mint is approximately 1.2 km (0.75 mile) to the east of the BSA within Lux Canyon. There is a low potential for the occurrence of this species within the BSA since this species was not observed during its traditional blooming period, but it is not expected within the AE due to the disturbed conditions present. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.3.2. Discussion of California Adolphia

The California adolphia is considered a List 2 species in California by the CNPS. This sensitive species ranges in distribution from San Diego County to Baja California, Mexico. Populations can be found intermixed within Diegan coastal sage scrub and sometimes along hillsides near creeks in adjacent chaparral. This short spiny shrub from the buckthorn family can be found in a number of coastal locations in San Diego County, but impacts from urbanization have greatly decreased population size and distribution. One of the largest local populations occurs along

Table 6: Habitat Impact Matrix (*hectares[acres]*)

Vegetation Community	Build Alternative		
	Permanent Impacts	Temporary Impacts	Total Impacts
Diegan coastal sage scrub	0.53 *(1.31)*	0.09 *(0.23)*	0.62 *(1.54)*
Disturbed coastal sage scrub	0.85 *(2.10)*	0.93 *(2.29)*	1.78 *(4.39)*
Southern maritime chaparral	0.03 *(0.07)*	0.04 *(0.10)*	0.07 *(0.17)*
Disturbed southern maritime chaparral	N/A	0.03 *(0.06)*	0.03 *(0.06)*
Nonnative grassland	0.33 *(0.82)*	0.31 *(0.76)*	0.64 *(1.58)*
Southern willow scrub	N/A	0.01 *(0.03)*	0.01 *(0.03)*
Disturbed southern willow scrub	0.03 *(0.08)*	0.03 *(0.06)*	0.06 *(0.14)*
Coastal brackish marsh	0.01 *(0.02)*	0.21 *(0.52)*	0.22 *(0.54)*
Coastal brackish marsh (Shading)	0.11 *(0.28)*	N/A	0.11 *(0.28)*
Disturbed freshwater marsh	0.09 *(0.21)*	0.02 *(0.05)*	0.11 *(0.26)*
Southern coastal salt marsh	0.02 *(0.04)*	0.14 *(0.35)*	0.16 *(0.39)*
Southern coastal salt marsh (Shading)	0.02 *(0.05)*	N/A	0.02 *(0.05)*
Open water	N/A	0.13 *(0.32)*	0.13 *(0.32)*
Open Water (Shading)	0.08 *(0.21)*	N/A	0.08 *(0.21)*
Agricultural fields	0.05 *(0.11)*	0.05 *(0.12)*	0.10 *(0.23)*
Ornamental	1.16 *(2.86)*	0.38 *(0.93)*	1.54 *(3.79)*
Developed	0.47 *(1.16)*	N/A	0.47 *(1.16)*
Ruderal	1.98 *(4.88)*	0.51 *(1.25)*	2.48 *(6.14)*
Disturbed habitat	0.13 *(0.32)*	0.08 *(0.20)*	0.21 *(0.52)*
TOTAL	5.88 *(14.52)*	2.94 *(7.27)*	8.84 *(21.80)*

N/A = not applicable

Note: With the exception of shading effects from the bridge expansion, which are included within the permanent impacts, indirect impacts are not quantified because there are no established standards to determine the extent of impacts from the point source (dust, sediment, lighting, runoff, illegal trespass, etc.).
Cumulative impacts cannot be determined at this time.

Table 7: Recommended Compensatory Mitigation for Impacts to Sensitive Species within the Area of Effect

Species	Population Size Observed within BSA	Suitable Habitat within Bld. Alt. AE	Impacted within Bld. Alt. AE	Potential Compensatory Mitigation Ratio or Rate	Maximum Compensatory Mitigation Amount or Area
Del Mar manzanita	31 individuals	0.06 hectare (0.13 acre)	No direct or indirect impacts	There would not be any direct impacts to Del Mar manzanita. Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	N/A
Del Mar Mesa sand aster	1,462 individuals	2.67 hectares (6.56 acres)	229 individuals directly impacted; additional individuals indirectly impacted	Compensatory mitigation measures for direct impacts to Del Mar Mesa sand aster would, in part, be habitat based. Securing comparable habitat at the required mitigation ratio will mitigate for the direct impacts to most species. Since this species is a narrow endemic, additional species-specific measures would likely be required in addition to habitat compensation. Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	To be determined through discussions with the resource agencies
Sea dahlia	389	1.87 hectares (4.59 acres)	No direct impacts, several individuals potentially indirectly impacted	Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, and erosion would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	N/A

Species	Population Size Observed within BSA	Suitable Habitat within Bld. Alt. AE	Impacted within Bld. Alt. AE	Potential Compensatory Mitigation Ratio or Rate	Maximum Compensatory Mitigation Amount or Area
South coast saltscale	100	0	No direct or indirect impacts	Since there would not be any direct or indirect impacts to south coast saltscale, no compensatory mitigation measures would be required.	N/A
Orcutt's pincushion	4,700	3.93 hectares (9.67 acres)	52 individuals directly impacted; additional individuals indirectly impacted.	Direct impacts would be mitigated through habitat-based mitigation. Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, and erosion would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	To be determined through discussions with the resource agencies
California adolphia	281 individuals	1.82 hectares (4.48 acres)	No direct or indirect impacts	Since there would not be any direct or indirect impacts to California adolphia, no compensatory mitigation measures would be required.	N/A
Wart-stemmed ceanothus	343 individuals	0.06 hectare (0.13 acre)	No direct impacts, potential indirect impacts	Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	N/A
Summer holly	2 individuals	0.06 hectare (0.13 acre)	No direct or indirect impacts	Since there would not be any direct or indirect impacts to summer holly, no compensatory mitigation measures would be required.	N/A

Species	Population Size Observed within BSA	Suitable Habitat within Bld. Alt. AE	Impacted within Bld. Alt. AE	Potential Compensatory Mitigation Ratio or Rate	Maximum Compensatory Mitigation Amount or Area
San Diego barrel cactus	117 individuals	1.88 hectares (4.61 acres)	No direct impacts; potential indirect impacts	Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, and erosion would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	N/A
Nuttall's scrub oak	24 individuals	0.06 hectare (0.13 acre)	No direct impacts; potential indirect impacts	Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.	N/A
Torrey pine	3 individuals but all are from ornamental plantings and are not natural populations	0	No direct or indirect impact to natural individuals; two "planted" individuals impacted	Since there would not be any direct or indirect impacts to natural populations of Torrey pine, no compensatory mitigation measures would be required.	N/A
Orange-throated whiptail	1 individual	2.50 hectares (6.20 acres)	No direct or indirect impact to known population	Under the MHCP, mitigation would occur through acquisition of coastal sage scrub habitat (or an equivalent monetary contribution into a management fund) at a ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, additional mitigation may be required for impacts to the orange-throated whiptail, as determined through discussions with the CDFG.	To be determined through discussions with the resource agencies

Species	Population Size Observed within BSA	Suitable Habitat within Bld. Alt. AE	Impacted within Bld. Alt. AE	Potential Compensatory Mitigation Ratio or Rate	Maximum Compensatory Mitigation Amount or Area
Light-footed clapper rail	1 individual	0.16 hectare (0.39 acre)	No direct impact to known population; potential indirect noise impacts	Under the MHCP, mitigation would occur through acquisition of salt marsh habitat (or an equivalent monetary contribution into a management fund) at a ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, additional mitigation may be required for impacts to the light-footed clapper rail, as determined through consultation with the USFWS and CDFG.	To be determined through discussions with the resource agencies
Yellow-breasted chat	1 individual	0.07 hectare (0.17 acre)	No direct impact to known population; potential indirect noise impacts	Under the MHCP, mitigation would occur through acquisition of riparian habitat (or an equivalent monetary contribution into a management fund) at a ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, additional mitigation may be required for impacts to the yellow-breasted chat, as determined through discussions with the USFWS and CDFG.	To be determined through discussions with the resource agencies
Coastal California gnatcatcher	21 individuals (9 pairs, 1 unpaired male, and 2 juveniles)	2.40 hectares (5.93 acres)	Potential direct and indirect impacts to 6 pairs and 2 individuals	Under the MHCP, mitigation would occur through acquisition of coastal sage scrub habitat (or an equivalent monetary contribution into a management fund) at a ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, additional mitigation may be required for impacts to the coastal California gnatcatcher, as determined through consultation with the USFWS.	To be determined through discussions with the resource agencies

Species	Population Size Observed within BSA	Suitable Habitat within Bld. Alt. AE	Impacted within Bld. Alt. AE	Potential Compensatory Mitigation Ratio or Rate	Maximum Compensatory Mitigation Amount or Area
Belding's savannah sparrow	16 individuals (8 pairs)	0.16 hectare (0.39 acre)	No direct impact to known population; potential indirect noise impacts	Under the MHCP, mitigation would occur through acquisition of salt marsh habitat (or an equivalent monetary contribution into a management fund) at a ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, additional mitigation may be required for impacts to the Belding's savannah sparrow, as determined through consultation with the CDFG.	To be determined through discussions with the resource agencies

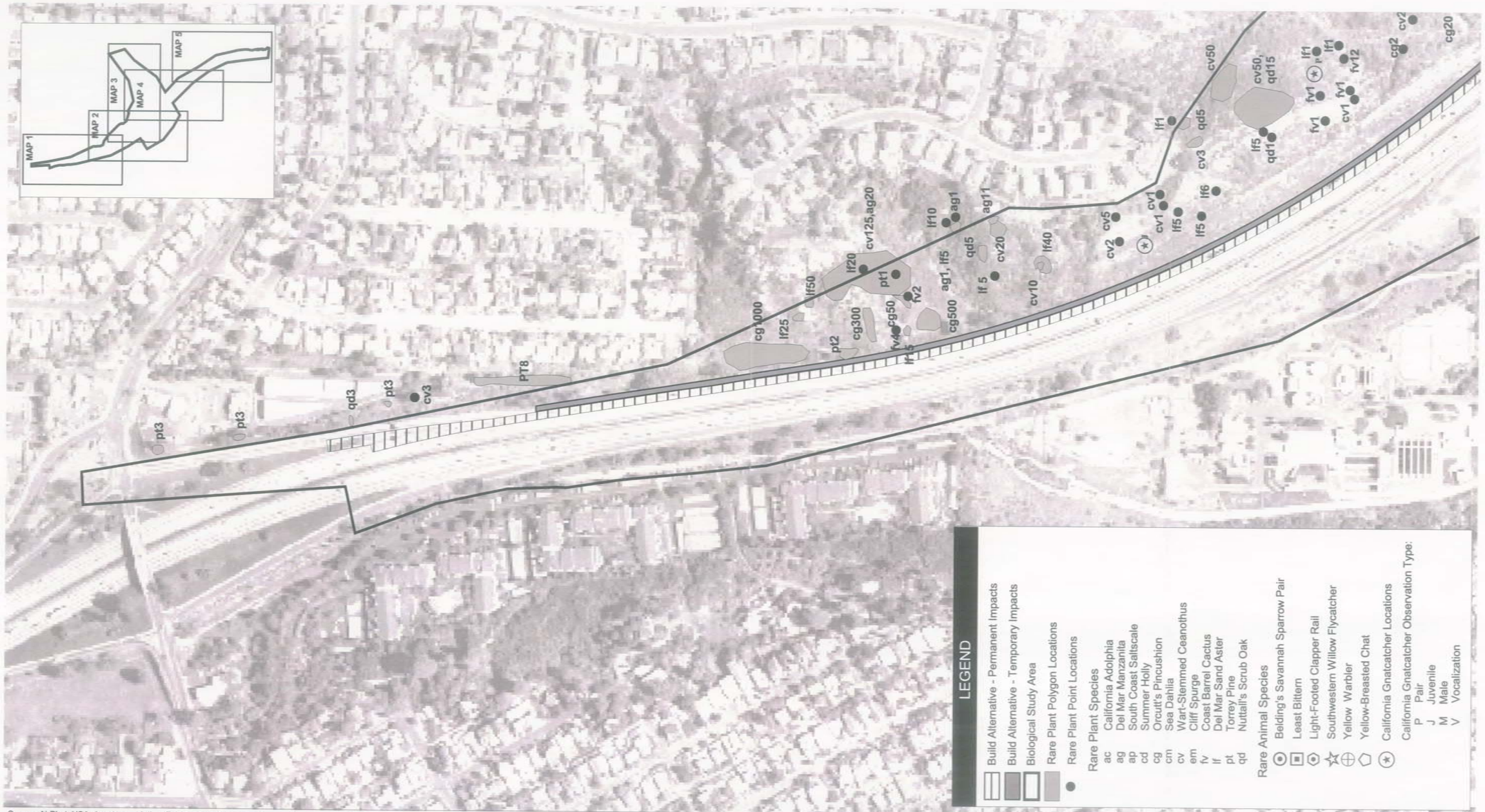
Table 8: Development Activity Summary

Project Name	Description	Status
City of Encinitas		
Manchester Estates	Tentative Map/Design Review Permit/Coastal Development Permit to subdivide 9.0 hectares (22.3 acres) into single-family lots.	UR
Planned Residential Development on Requeza Dr.	37 single-family units	P
Escondido Sewer Outfall	Improvements to the existing sewer outfall system to prevent corrosion.	UR
City of Solana Beach		
American Assets	A 10.2-square-meter (110-square-foot) office building at the intersection of Stevens Avenue and Academy Drive.	UR
Santa Fe Christian School Expansion	Expand existing school from 750 to 1,200 students.	UR
North Cedros	A 25-unit residential project near Lomas Santa Fe Drive and Highway 101.	UR
Coastal Rail Trail	A multiuse recreational pathway from the city of Oceanside to the city of San Diego.	UR
Fletcher Cove Master Plan	A Master Plan to proved long-term improvements to the city's beach park located at the western terminus of Plaza Street.	UR
I-5/Lomas Santa Fe Interchange	On- and off-ramp improvements to both north and southbound I-5.	UR
Jurisdictional Urban Runoff Management Program (JURMP)	A comprehensive management program to address the urban water runoff under the city's jurisdiction.	UR
Inn Suites/Megellan Property	Triangular-shaped parcel at the north end of town bounded by Highway 101, San Elijo Lagoon, and the railroad tracks. Previously proposed 115-room hotel and 19-unit residential project under redesign.	UR
San Elijo Sewer Pipe Replacement	Replacement of 126 lineal feet of an existing 10-inch vitrified clay sewer pipe with a 10-inch polyvinyl chloride sewer pipe and replacement of two manholes. Located south of the lagoon between Rios Avenue north terminus and existing railroad right-of-way.	UR
County of San Diego		
Emergency Water Storage Project	San Diego County Water Authority is proposing to supplement emergency water supply and distribution capacity available to the greater San Diego County. In addition, a wetlands creation Mitigation and Monitoring Plan is being proposed as part of this project. One potential wetland mitigation area is located along Manchester Avenue, just east of Mira Costa Community College.	UR
La Jolla Country Day School	An elementary school is proposed east of Manchester Avenue.	UR
San Dieguito Groundwater Recharge and Recovery	Development of a water injection and recovery system in the San Dieguito Groundwater Basin at the Morgan Run Golf Course and Resort.	UR
Subdivision	An 8-lot subdivision located at the eastern end of La Crescenta, 13 hectares (33 acres) total.	A

A=Approved
P=Planned
UR=Under Review

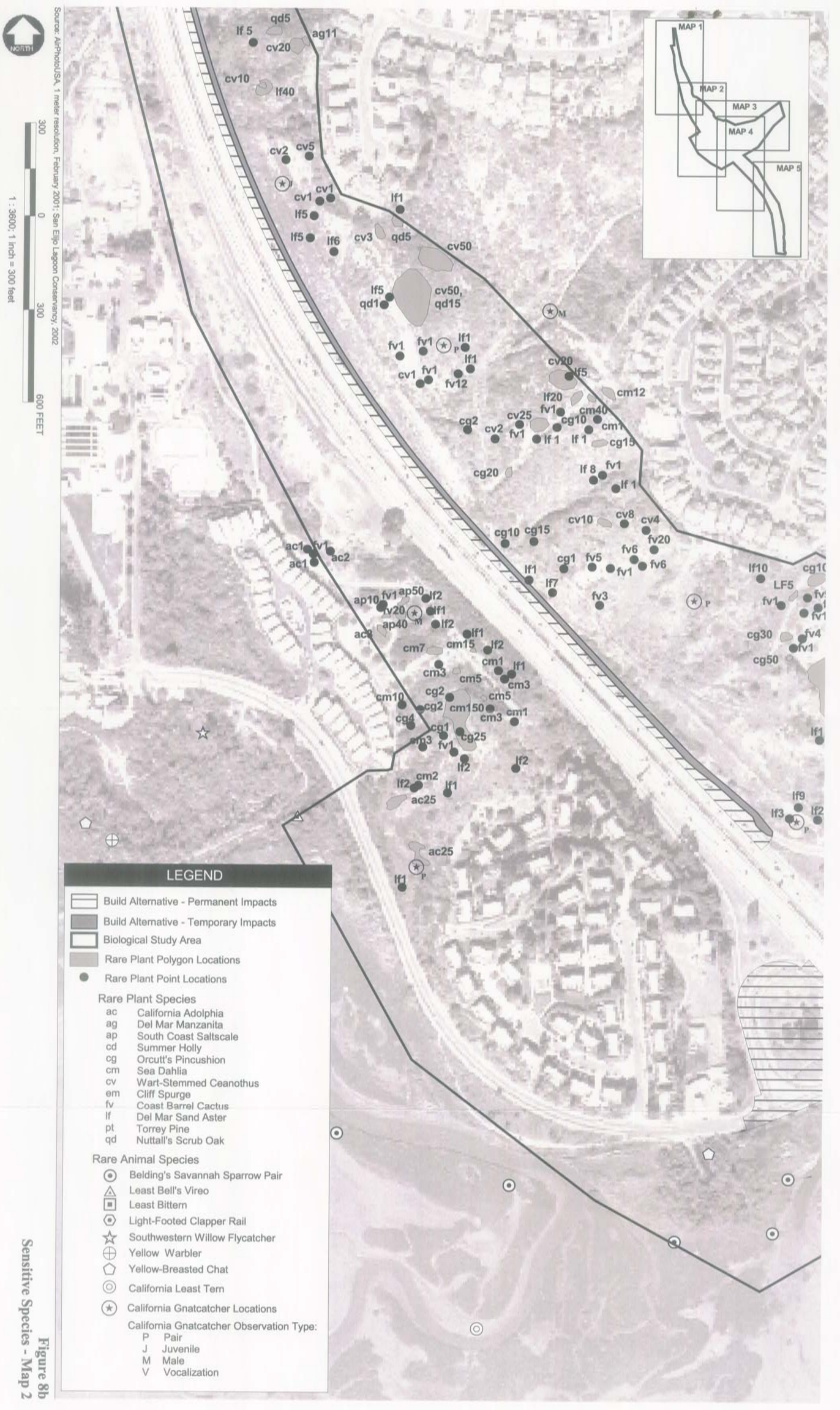
Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Coreopsis maritima	Sea dahlia	CNPS: 2	Coastal sage scrub and sandstone cliffs of coastal bluff scrub. Blooms March-May.	Present	Approximately 389 individuals of this species were observed within the coastal bluff scrub and coastal sage scrub habitats within the BSA.
Dudleya brevifolia	Short-leaved dudleya	SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Open areas of chamise chaparral or Torrey pine forest on Torrey sandstone formations. Blooms from April-June.	Present	Low probability to occur within the BSA. Though appropriate habitat for this species occurs within the BSA (southern maritime chaparral), this species is only known from several locations in and around Torrey Pines State Reserve. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Dudleya variegata	Variegated dudleya	MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Isolated rocky substrates in valley and foothill grasslands. Openings in chaparral, coastal sage scrub, and vernal pools.	Present	Not expected to occur within BSA. No known populations of this species are within the immediate vicinity of the BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Dudleya viscida	Sticky dudleya	MHCP: Covered CNPS: 1B	Steep, north-facing slopes in chaparral and coastal sage scrub usually on exposed gabbroic rock. Blooms May-June.	Absent	Not expected to occur within BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period, and appropriate habitat does not occur within the BSA.
Eryngium aristulatum var. *parishii*	San Diego button celery	FE, SE, MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Redding gravelly loams of vernal pools. Blooms April-June.	Absent	Not expected to occur within BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period, and appropriate habitat does not occur within the BSA.
Euphorbia misera	Cliff spurge	MHCP: Covered CNPS: 2	Rocky soils of coastal sage scrub and coastal bluff scrub. Blooms December-August.	Present	Moderate probability to occur within BSA. Appropriate habitat occurs within the BSA within the sage scrub and coastal bluff scrub habitats. No individuals of this species were observed in the BSA. However, several individuals of cliff spurge were observed immediately adjacent to the BSA.
Ferocactus viridescens	San Diego barrel cactus	MHCP: Covered CNPS: 2	Coastal sage scrub, chaparral, valley and foothill grasslands, and vernal pools. Blooms May-June.	Present	Present within BSA. Approximately 117 individuals were observed within the BSA. Several individuals were also observed immediately adjacent to the BSA.

Scientific Name	Common Name	Status[1]	General Habitat Description	Habitat Present/Absent within BSA[2]	Rationale
Hazardia orcuttii	Orcutt's hazardia	MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Clay soils of chaparral and coastal sage scrub. Blooms August-October.	Present	Low probability to occur within BSA. Only one U.S. population reported, located approximately 2,500 m (8,202 ft) northeast of the project area in Encinitas. Not detected during surveys, which coincided with this species' traditional blooming period.
Isocoma menziesii var. *decumbens*	Decumbent goldenbush	CNPS: 1B	Disturbed sandy or clay soils in coastal sage scrub, chaparral, and grasslands. Blooms April-November.	Present	Low probability to occur within BSA. Appropriate habitat occurs within the BSA. This species was not observed during the surveys.
Iva hayesiana	San Diego marsh-elder	MHCP: Covered CNPS: 2	Creeks or intermittent streambeds, playas, marshes, and swamps. Blooms April-September.	Present	Low probability to occur within BSA. This species potentially could occur within the wetland habitats of the BSA. This species was not observed during the surveys.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	CNPS: 1B	Coastal salt marshes and swamps, playas, and vernal pools. Blooms February-June.	Present	Moderate probability to occur within BSA. Appropriate habitat occurs within the BSA, but this species is not known from the vicinity of the BSA. Not detected onsite during surveys, which coincided with this species' traditional flowering period.
Lessingia filaginifolia var. *incana*	San Diego sand aster	CNPS: 1B	Sandy opening in chaparral, coastal sage scrub, and coastal bluff scrub. Blooms June-September.	Present	Low probability to occur within BSA. Though appropriate habitat occurs within the BSA, this species range is generally south of the BSA. This species was not observed during surveys, which coincided with this species' traditional flowering period.
Lessingia filaginifolia var. *linifolia*	Del Mar Mesa sand aster	MHCP: Covered MHCP: Narrow Endemic CNPS: 1B	Sandy open areas of maritime chaparral, coastal sage scrub, and coastal bluff scrub. Blooms May-September.	Present	Present within BSA. Approximately 1,462 individuals of this species were observed during the surveys. This species was observed throughout the upland areas of the BSA. Del Mar Mesa sand aster appears to be a disturbance mediated species as evidenced by the largest populations within the BSA occurring on the cut slopes of I-5 and within other disturbed areas in the BSA.



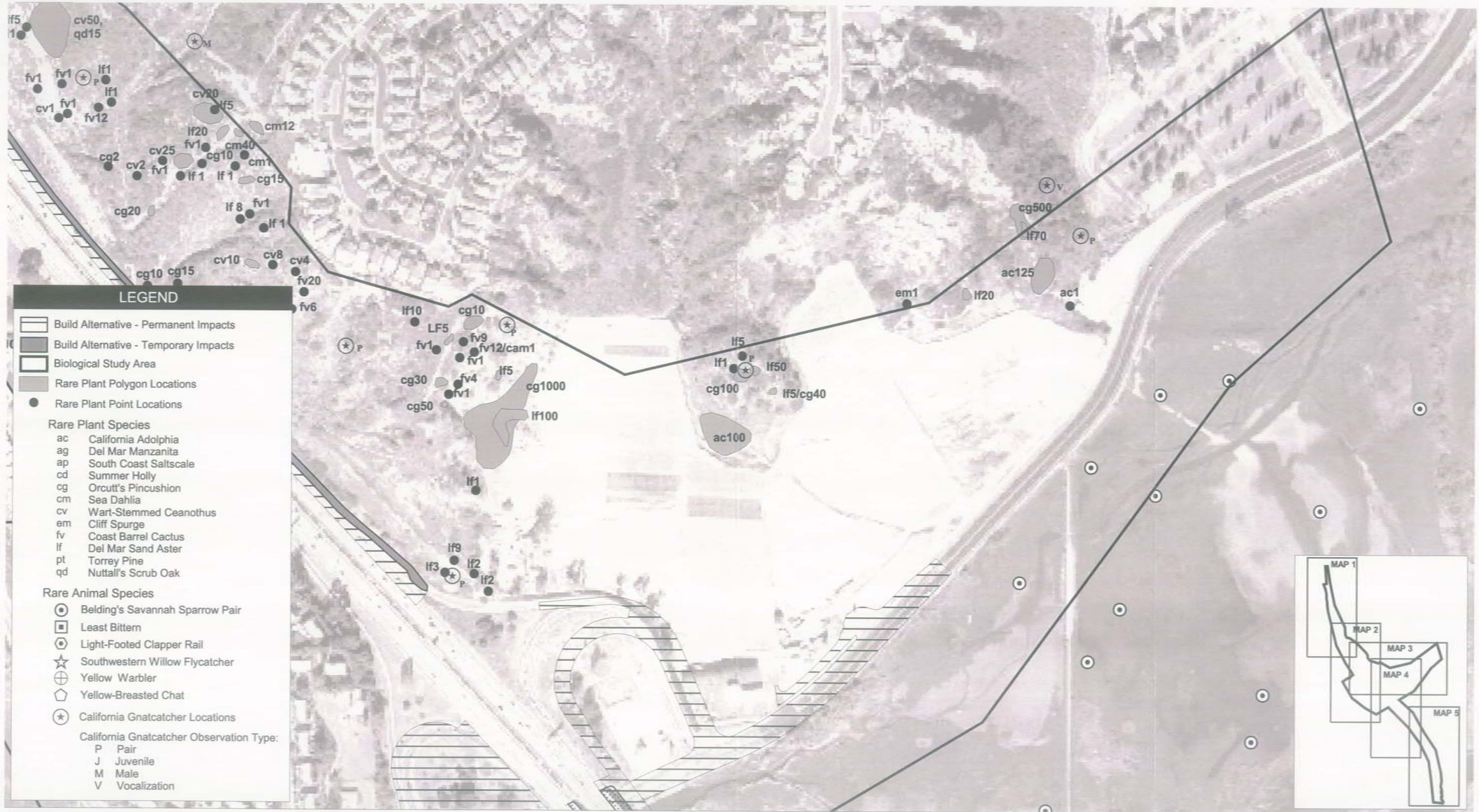
Source: AirPhotoUSA, 1 meter resolution, February 2001; San Elijo Lagoon Conservancy, 2002

Figure 8a
Sensitive Species - Map 1



Manchester/I-5 Interchange Project NESR
1K145/GIS/ARR/AI2_edits_1230/jan04_sen_species_all_bw.apr SP83/ Z6 (P. Moreno) 1/22/04

Figure 8b
Sensitive Species - Map 2

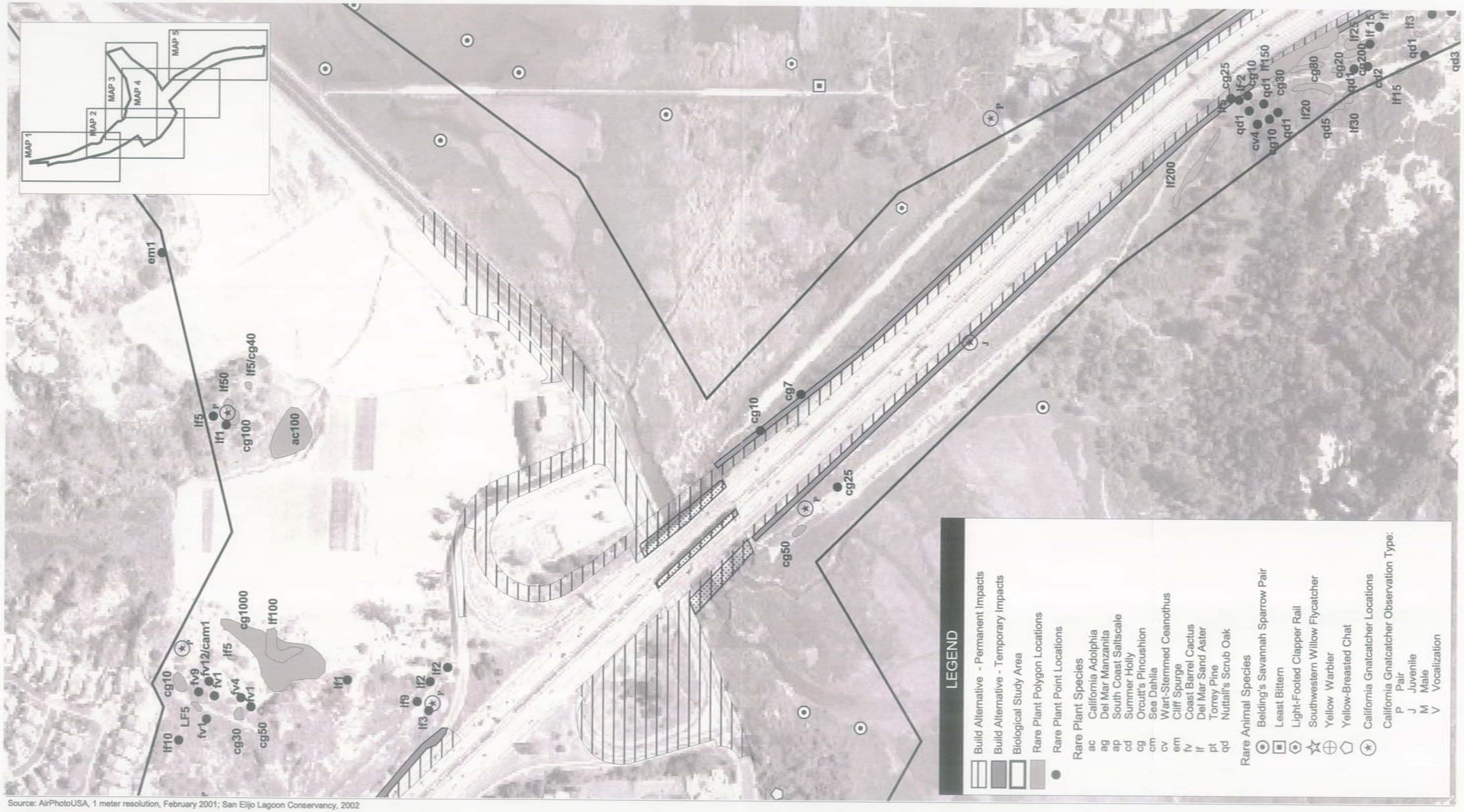


Source: AirPhotoUSA, 1 meter resolution, February 2001; San Elijo Lagoon Conservancy, 2002

400 0 400 800 Feet

scale: 1 : 4800; 1 inch = 800 feet

Figure 8c
Sensitive Species - Map 3

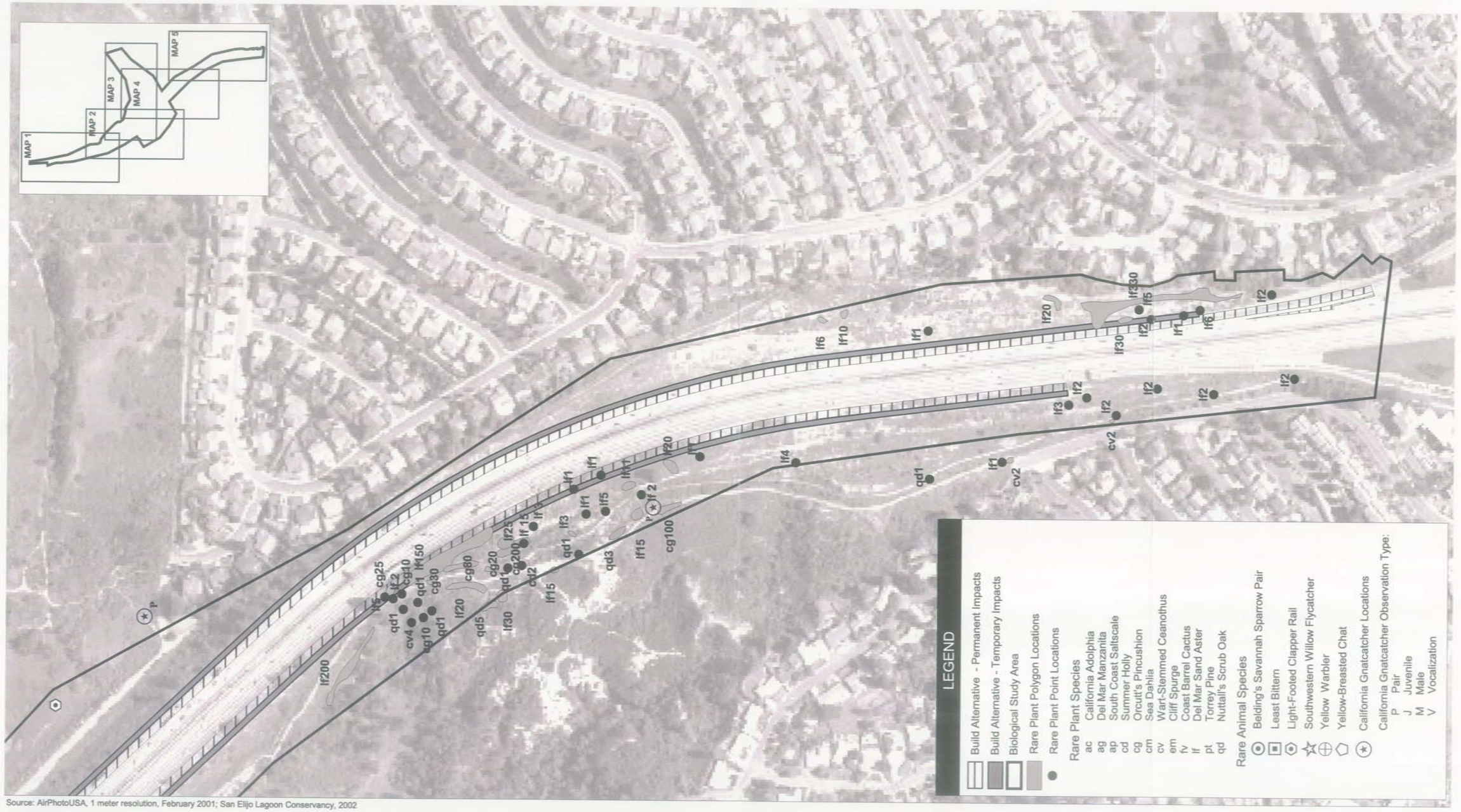


Source: AirPhotoUSA, 1 meter resolution, February 2001; San Elijo Lagoon Conservancy, 2002

300 0 300 600 FEET

1 : 3600; 1 inch = 300 feet

Figure 8d
Sensitive Species - Map 4



Source: AirPhotoUSA, 1 meter resolution, February 2001; San Elijo Lagoon Conservancy, 2002

300 0 300 600 FEET

1 : 3600; 1 inch = 300 feet

Figure 8e
Sensitive Species - Map 5

Source: Dokken, 2002

1200 0 1200 2400 FEET

Scale: 1 : 12,000; 1 inch = 1,000 feet

Figure 9
Permanent Impacts

Sweetwater Reservoir. Other sites are located near San Marcos Creek, Escondido Creek, and Lake Hodges. Additional populations of this species are known from Lux Canyon to the west of Mira Costa Community College, San Elijo Campus, and from the hills north of Manchester Avenue and east of El Camino Real.

4.3.2.1. Survey Results

Approximately 281 individuals of California adolphia were observed within the sage scrub and coastal bluff scrub habitats within the BSA north of Manchester Avenue. This shrub species is detectable all through the year. This species is a good indicator of clay and clay loam soils and generally occurs in sage scrub, grassland, and chaparral habitats.

4.3.2.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs.

4.3.2.3. Project Impacts

Though present within the BSA, this species would not be directly impacted by the Build Alternative. Populations within the BSA are far enough removed from the AE that indirect impacts are not expected to occur.

4.3.2.4. Compensatory Mitigation

Since there would not be any direct or indirect impacts to California adolphia, no compensatory mitigation measures would be required.

4.3.2.5. Cumulative Impacts

The Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this sensitive species through direct, incremental loss of populations and its habitat and increasing indirect pressures on remaining sensitive populations. However, since this species would not be directly impacted by the project, the Manchester/I-5 interchange project would not contribute to cumulative direct impacts to this species.

4.3.3. Discussion of San Diego Ambrosia

The San Diego ambrosia is listed as endangered by the USFWS and is an MHCP covered species, an MHCP narrow endemic, and a CNPS List 1B species. This low-growing perennial from the aster family is found in the sandy alluvium of creek beds, seasonally dry drainages, and floodplains found on the periphery of willow woodlands. It ranges from western Riverside County and extends south through San Diego County to Baja California, Mexico. Known locations are in Lake Hodges, Santee, El Cajon, Mission Valley, and Mission Trails Park. Many occurrences have been extirpated in San Diego County due to urban development and agriculture.

This species was not observed within the BSA during the surveys. San Diego ambrosia is found on the upper terraces of rivers and drainages as well as in open grasslands, openings in sage scrub, and dry lakebeds. The species may also be found in disturbed sites such as fuel breaks and roadways.

San Diego ambrosia initiates its growth from underground rhizomes after the first rains in early spring and is usually not detectable by late summer. This species would have been detectable during the May surveys. There is a low potential for occurrence of this species within the BSA but is not expected within the AE. Almost all of the San Diego locations are associated with major rivers or stream courses and their tributaries, or in disturbed areas adjacent to these landforms. Such habitat does not occur within the BSA. The closest known population is from Del Dios, approximately 8.85 km (5.5 miles) east of the BSA. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.3.4. Discussion of Del Mar Manzanita

The Del Mar manzanita is listed as endangered by the USFWS and is an MHCP covered species, an MHCP narrow endemic, and a CNPS List 1B species. This tall, woody shrub in the heath family typically grows on eroding sandstone in relatively open, low-growing coastal maritime chaparral. It is largely restricted to siliceous sandstone outcrops on coastal bluffs ranging from Oceanside, California, to Baja California, Mexico. San Diego locations range from Torrey Pines State Reserve to Los Peñasquitos Canyon Preserve. Due to urbanization of the coastal environments in the county, the endemic Del Mar manzanita is in severe decline.

4.3.4.1. Survey Results

Del Mar manzanita occurs in southern maritime chaparral habitat, generally on the bare sandstone areas where there is minimal competition from other species. This species' growth form is a prostrate or upright shrub and is detectable during any time of the year.

Approximately 31 individuals of the Del Mar manzanita were observed within the southern maritime chaparral in the northeastern portion of the BSA. Additional individuals outside of the BSA were observed immediately adjacent to those individuals within the BSA. Additional individuals were observed within the southern maritime chaparral adjacent to the southwestern portion of the BSA.

4.3.4.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs.

4.3.4.3. Project Impacts

Though present within the BSA, this species would not be directly impacted by the Build Alternative. Populations within the BSA are far enough removed from the limits of the AE that indirect impacts are not expected.

4.3.4.4. Compensatory Mitigation

Since there would not be any direct or indirect impacts to Del Mar manzanita, no compensatory mitigation measures would be required.

4.3.4.5. Cumulative Impacts

The Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this sensitive species through direct, incremental loss of populations and its habitat and increasing indirect pressures on remaining sensitive populations. Since this species would not be directly impacted by the project, the Manchester/I-5 Interchange project would not contribute to cumulative direct impacts to this species.

4.3.5. Discussion of Coastal Dunes Milk-vetch

The coastal dunes milk-vetch is listed as endangered by the USFWS and CDFG and is a CNPS List 1B species. Ranging as far north as Monterey County, the coastal dunes milk-vetch is restricted to sand dunes along the California coast. Due to the high degree of disturbance throughout California's coastline, it is presumed extirpated in southern California and close to extinction in central California (Reiser 2001). The only confirmed report of its existence in San Diego County is on the Silver Strand in the South Bay. Although this species is reported from the region, suitable high quality habitat for this species is not present onsite.

Coastal dunes milk-vetch was not observed within the BSA though surveys were conducted during this species' traditional flowering period (April and May). There is a small amount of appropriate marginal habitat for this species within the BSA. However, it has never been reported from the vicinity of the BSA (or if so these "documented populations" were misidentifications) and, given its limited range and because it is thought to be extirpated from the county, coastal dunes milk-vetch is not expected to occur within the BSA. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.3.6. Discussion of South Coast Saltscale

The south coast saltscale is considered a List 1B species by CNPS. This small scaly herb in the goosefoot family typically grows in xeric, oftentimes disturbed clay loam surrounded by coastal sage scrub. It can also be found growing on open alkali flats. This particular sensitive species ranges from Ventura County, including the Channel Islands, extending south to San Diego County, and into Baja California, Mexico. Within San Diego County, the south coast saltscale can be found along the coastal bluffs and eroded hillsides in Oceanside, Otay Mesa, and Chula Vista. The small coastal populations are severely declining due to the loss of native vegetation and habitats along the coast. Most large populations are restricted to northern Baja California and offshore islands (Reiser 2001).

4.3.6.1. Survey Results

Appropriate habitat for this species occurs within the BSA, north of Manchester Avenue. Approximately 100 individuals were observed during the April and May surveys. Though this species was observed within the BSA, it was not observed within, and is not expected to occur within, the AE.

4.3.6.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs.

4.3.6.3. Project Impacts

This species was not observed within the AE; therefore, no impacts to this species are anticipated.

4.3.6.4. Compensatory Mitigation

Since no impacts to this species are anticipated, no compensatory mitigation measures would be required.

4.3.6.5. Cumulative Impacts

Since this species would not be directly impacted by the project, the Manchester/I-5 Interchange project would not contribute to cumulative direct impacts to this species.

4.3.7. Discussion of Encinitas Baccharis

The Encinitas baccharis is listed as threatened by the USFWS and as endangered by the CDFG. It is an MHCP covered species, an MHCP narrow endemic, and a CNPS List 1B species. This nearly extirpated species from the aster family requires low-growing chaparral (Reiser 2001). This sensitive shrub is found in two types of soil: Corralitos loamy sand and Cieneba rocky coarse sandy loam. Limited in its distribution due to strict edaphic conditions, Encinitas baccharis only occurs in a few areas of San Diego County. Known locations include Lake Hodges, Poway, Encinitas, and Mt. Israel. The closest known population of Encinitas baccharis is approximately 1.8 km (1.5 miles) northeast of the northern terminus of the BSA in Lux Canyon (SANDAG 2001).

Encinitas baccharis was not observed within the BSA during the surveys. The September survey did coincide with the beginning of the traditional blooming period of this species. This species is expected to have a low potential for occurrence within

the BSA and is not expected within the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.3.8. Discussion of Thread-Leaved Brodiaea

The thread-leaved brodiaea is listed as threatened by the USFWS and endangered by the CDFG. It is also an MHCP covered species, an MHCP narrow endemic, and a CNPS List 1B species. It is typically found in clay soils of open chaparral, coastal sage scrub, valley and foothill grasslands, and on the periphery of vernal pools. This endemic only occurs in four counties in southern California: Los Angeles, Orange, Riverside, and San Diego. Local known populations are found in San Marcos, Vista, and Carlsbad. The populations found throughout the county are in rapid decline due to past urban development and agriculture. The closest known population is from Encinitas, 6.44 km (4.0 miles) northeast of the BSA.

There are several areas of heavy clay soils within the BSA; however, these areas may be too xeric for this species, which usually occurs in somewhat mesic areas. Thread-leaved brodiaea was not observed during the May surveys, which coincide with this species' traditional flowering period. Thread-leaved brodiaea is assumed to have a low potential for occurrence within the BSA because of the xeric condition of these clay soils. This species is not expected to occur within the AE due to disturbed conditions present. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.3.9. Discussion of Wart-stemmed Ceanothus

The wart-stemmed ceanothus is a CNPS List 2 species and an MHCP covered species. Typically, this shrub is found among coastal chaparral with plant associates such as chamise and mission manzanita. Populations of this species flourish on north-facing slopes and can dominate these areas of dense chaparral from San Diego County to Baja California, Mexico. Local, known populations have been noted in Torrey Pines State Reserve, Carmel Mountain, Lake Hodges, Point Loma, Miramar, and along the coast between Carlsbad and La Jolla. Also, there is a population of this sensitive ceanothus immediately adjacent to the southern boundary of the study site (SANDAG 2001). Due to development, populations are declining on the periphery of many coastal cities in San Diego County.

4.3.9.1. Survey Results

Approximately 343 individuals of this species were observed within the southern maritime chaparral in the southwest and northeast portions of the BSA.

4.3.9.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs.

4.3.9.3. Project Impacts

No individuals of wart-stemmed ceanothus would be directly impacted by the Build Alternative. Most of the individuals within the BSA are far enough removed from the AE that indirect impacts are not expected. However, several individuals east of I-5, between Manchester Avenue and Birmingham Drive, could be indirectly impacted by unauthorized trespass, construction-generated fugitive dust, and erosion.

4.3.9.4. Compensatory Mitigation

Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.

4.3.9.5. Cumulative Impacts

The Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this sensitive species through direct, incremental loss of populations and its habitat and increasing indirect pressures on remaining sensitive populations. Since this species would not be directly impacted by the project, the Manchester/I-5 Interchange project would not contribute to cumulative direct impacts to this species. However, cumulative indirect impacts may occur.

4.3.10. Discussion of Orcutt's Pincushion

The Orcutt's pincushion is considered a List 1B species in California by the CNPS. This annual species of the sunflower family is found along the Pacific coast in sandy soils of coastal bluff scrub and coastal sand dunes ranging in distribution from Ventura County to Baja California, Mexico. This subspecies is distinctively characterized by having fleshy, basal, 2-pinnately lobed leaves with flowers that bloom from January to August. This List 1B species is in severe decline due to extensive impacts from coastal urbanization, which have greatly decreased population size and distribution. For example, the Orcutt's pincushion has not been reported from the coastline of Orange County in 60 years due to coastal residential development (Reiser 2001). In San Diego County, coastal populations of this species are known from Encinitas, Solana Beach, Pacific Beach, Point Loma, and North Island. However, local botanists suggest that some of these sites are no longer extant (Reiser 2001).

4.3.10.1. Survey Results

Approximately 4,700 individuals of Orcutt's pincushion were observed during the spring surveys of the BSA. This was the most common sensitive species detected within the BSA and additional populations of this species also occur immediately adjacent to the BSA.

4.3.10.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs.

4.3.10.3. Project Impacts

Approximately 52 individuals of this species would be directly impacted (temporary and permanent combined) by the Build Alternative. Additional individuals immediately adjacent to the AE could be indirectly impacted from trampling from inadvertent trespass, construction-generated fugitive dust, and erosion.

4.3.10.4. Compensatory Mitigation

Compensatory mitigation measures for direct impacts to Orcutt's pincushion would, in part, be habitat based. Securing comparable habitat at the required mitigation ratio would mitigate for the direct impacts to this species. Mitigation measures for indirect impacts to sensitive habitats, mentioned previously, would also mitigate for any potential indirect impacts to this species.

4.3.10.5. Cumulative Impacts

Implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this sensitive species through direct, incremental loss of populations and its habitat and increasing indirect pressures on remaining sensitive populations.

Implementation of the Manchester/I-5 Interchange project would contribute to the cumulative impacts to this species as would the Caltrans 10+4 I-5 Project, which could potentially impact additional individuals of this species.

4.3.11. Discussion of Orcutt's Spineflower

The Orcutt's spineflower is listed as endangered by both the USFWS and CDFG. It is an MHCP covered species, an MHCP narrow endemic, and a CNPS List 1B species. This tiny endemic of the buckwheat family is restricted to openings in coastal chamise chaparral with sandy soils in San Diego County. Threatened by urbanization, most of its habitat has been turned into new housing communities. Considered extinct in the late 1980s, there are only three population sites left in San Diego County. Two sites occur in Point Loma and one in Oak Crest Park, Encinitas, which is the closest known population (Bauder 2000).

This species was not observed during the spring surveys, which were conducted during this species' traditional flowering period (March to May) and therefore would have been observable if present. Suitable habitat exists within the southern maritime chaparral in the northeast and southwest portions of the BSA. However, though much of the southern maritime chaparral within the BSA is still in fairly good condition, it appears to be too disturbed for the Orcutt's spineflower, which is extremely sensitive to minor disturbances. This species is not expected to occur within the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.3.12. Discussion of Summer Holly

The summer holly is a CNPS List 1B species and an MHCP covered species. Found on mesic north-facing slopes in southern mixed chaparral and steep drainages, this woody shrub from the heath family occurs in large populations in typically tall dense vegetation. Local populations are found throughout San Diego, Riverside, and Orange Counties, but the species is declining as a whole throughout its entire range. Due to urbanization and habitat destruction, only scattered populations remain in local areas like Encinitas, Carlsbad, San Marcos, Los Peñasquitos Canyon, and Escondido.

4.3.12.1. Survey Results

Two individuals of this species were observed within the southern maritime chaparral habitat in the southwest portion of the BSA. Additional individuals were observed immediately outside of the BSA in this general area.

4.3.12.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs.

4.3.12.3. Project Impacts

Though present within the BSA, no individuals of summer holly would be impacted by the Build Alternative. This species is far enough removed from the AE that indirect impacts are not anticipated.

4.3.12.4. Compensatory Mitigation

Since there would not be any direct or indirect impacts to summer holly, no compensatory mitigation measures would be required.

4.3.12.5. Cumulative Impacts

The implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this sensitive species through direct, incremental loss of populations and its habitat and increasing

indirect pressures on remaining sensitive populations. However, since this species would not be directly impacted by the project, the Manchester/I-5 interchange project would not contribute to cumulative direct impacts to this species.

4.3.13. Discussion of Sea Dahlia

The sea dahlia is a CNPS List 2 species. Ranging from San Diego south to Baja California, Mexico, this aster species can be found on highly eroded sandstone cliffs along the coast. Typically, due to the frequent moist sea breezes and low competition along these steep eroding slopes, this perennial can persist in relatively large populations. Local populations occur in Camp Pendleton, Del Mar, Torrey Pines State Reserve, and Point Loma.

4.3.13.1. Survey Results

Approximately 389 individuals of sea dahlia were observed within the BSA during the spring surveys. This species does not occur within the AE because of the disturbed conditions present there.

4.3.13.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs.

4.3.13.3. Project Impacts

No individuals of sea dahlia would be directly impacted by the Build Alternative. Most of the individuals within the BSA are far enough removed from the AE that indirect impacts are not expected. However, several individuals on the cut slopes northwest of the interchange could be indirectly impacted by unauthorized trespass, construction-generated fugitive dust, and erosion.

4.3.13.4. Compensatory Mitigation

Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, and erosion would be mitigated

through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.

4.3.13.5. Cumulative Impacts

The implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this sensitive species through direct, incremental loss of populations and its habitat and increasing indirect pressures on remaining sensitive populations. However, since this species would not be directly impacted by the project, the Manchester/I-5 interchange project would not contribute to cumulative direct impacts to this species.

4.3.14. Discussion of Short-leaved Dudleya

The short-leaved dudleya is listed as endangered by the CDFG, and is an MHCP covered species, an MHCP narrow endemic, and a CNPS List 1B species. This species is from the stonecrop family and persists in open areas in chamise chaparral or Torrey pine forest. Typically, all sites are characterized by having small, marble-sized, iron-bearing concretions. Healthy local populations can be found in Torrey Pines State Reserve, Del Mar, La Jolla, Carmel Mountain, and near Mt. Soledad. With low rates of competition, the population of short-leaved dudleya is currently stable in San Diego County. The closest known population in relation to the project site is approximately 5.0 km (3.1 miles) south in Crest Canyon (SANDAG n.d.; Reiser 2001).

This species was not observed during the spring surveys, which coincided with its traditional blooming period. However, this species is not expected to occur within the BSA as the BSA is outside of the known range of this species. There is only minimal, suitable habitat for this species within the BSA and no suitable habitat within the AE. This species is not expected to occur within the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.3.15. Discussion of San Diego Button Celery

The San Diego button celery is listed as endangered by both the USFWS and CDFG. This species is an MHCP covered species, an MHCP narrow endemic, and a CNPS List 1B species. Restricted to vernal pools and mima mounds, this herbaceous biennial has decreased dramatically in the last decade. Tolerable to only select soils, like Redding gravelly loam, this species is restricted to more peripheral vernal pool

habitats. Most local populations are isolated colonies of previously larger, connected populations. The closest known population is at the Carlsbad Poinsettia Train Station approximately 8.85 km (5.5 miles) northwest of the BSA (Reiser 2001).

This species was not observed within the BSA during the spring surveys, which were conducted during this species' traditional flowering period (April-June). There is no suitable habitat for this species within the BSA. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.3.16. Discussion of San Diego Barrel Cactus

The San Diego barrel cactus is an MHCP covered species and a CNPS List 2 species. This yellow-flowered cactus persists on hillsides of coastal sage scrub, on slopes in chaparral, and on the periphery of vernal pools. It utilizes a variety of soil types, typically within xeric conditions, but at times under mesic conditions as well. With a limited distribution, ranging only from coastal San Diego County to Baja California, Mexico, this species is slowly declining. The closest known population reported in relation to the BSA is in the upland habitat adjacent to San Elijo Lagoon (SANDAG n.d.; Reiser 2001).

4.3.16.1. Survey Results

Approximately 117 individuals were observed within the BSA. Additional individuals were observed immediately adjacent to the BSA.

4.3.16.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs.

4.3.16.3. Project Impacts

This species would not be directly impacted by the Build Alternative. In addition, most of the individuals within the BSA are far enough removed from the AE that

indirect impacts to these individuals are not expected. However, several individuals northeast of the Manchester/I-5 Interchange are close enough to the AE that they could potentially be indirectly impacted by unauthorized access, erosion, and construction-generated fugitive dust.

4.3.16.4. Compensatory Mitigation

Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, and erosion would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.

4.3.16.5. Cumulative Impacts

The Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this sensitive species through direct, incremental loss of populations and its habitat and increasing indirect pressures on remaining sensitive populations. However, since this species would not be directly impacted by the project, the Manchester/I-5 interchange project would not contribute to cumulative direct impacts to this species.

4.3.17. Discussion of Del Mar Mesa Sand Aster

The Del Mar Mesa sand aster is a CNPS List 1B species, an MHCP covered species, and an MHCP narrow endemic. The sensitive aster inhabits coastal maritime chaparral in sandy, open, and sometimes disturbed areas. Populations can be commonly sighted in Torrey Pines State Reserve, Del Mar, Carmel Valley, and north of Manchester Avenue in Encinitas (Reiser 2001).

4.3.17.1 Survey Results

Approximately 1,462 individuals of this species were observed in the open upland areas throughout the BSA including native, nonnative, and disturbed habitats. This species flourishes in disturbed areas and is conspicuously absent from areas of dense, mature vegetation.

4.3.17.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited

to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs.

4.3.17.3. Project Impacts

The Build Alternative would directly impact (permanent and temporary combined) 229 individuals of this species. Additional individuals immediately adjacent to the AE could be indirectly impacted from trampling from inadvertent trespass, construction-generated fugitive dust, and erosion.

4.3.17.4. Compensatory Mitigation

Compensatory mitigation measures for direct impacts to Del Mar Mesa sand aster would, in part, be habitat based. Securing comparable habitat at the required mitigation ratio will mitigate for the direct impacts to most species. However, since this species is a narrow endemic, additional species-specific measures would likely be required in addition to habitat compensation. Mitigation measures proposed for indirect impacts to sensitive habitats, mentioned previously, would also mitigate for any potential indirect impacts to this species.

4.3.17.5. Cumulative Impacts

Implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this sensitive species through direct, incremental loss of populations and its habitat and increasing indirect pressures on remaining sensitive populations.

Implementation of the Manchester/I-5 Interchange project would contribute to the cumulative impacts to this species as would the Caltrans 10+4 I-5 Project, which could potentially impact additional individuals of this species.

4.3.18. Discussion of Spreading Nararretia

The spreading navarretia is a spreading annual from the phlox family and is listed as a threatened species by USFWS, and is an MHCP covered species, an MHCP narrow endemic, and a CNPS List 1B species. Limited to Riverside and San Diego Counties, this species is only found in vernal pools or swales. A large population occurs in Otay Mesa, Ramona, and San Marcos. Due to development and habitat loss, this species is severely declining. The closest known population is on Del Mar Mesa.

This species was not observed during the spring surveys, which were conducted during this species' traditional flowering period. In addition, due to the lack of vernal pool habitat within the BSA, this species would not be expected to occur within the BSA. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.3.19. Discussion of California Orcutt Grass

This inconspicuous grass found in vernal pool habitats is listed as endangered by both USFWS and CDFG. It is also a CNPS List 1B species, an MHCP covered species, and an MHCP narrow endemic species. California Orcutt grass is only known from a few sites in San Diego County. The closest known population is at the Carlsbad Poinsettia Train Station approximately 8.85 km (5.5 miles) northwest of the BSA (Reiser 2001).

California Orcutt grass was not observed during the spring surveys for the Manchester/I-5 Interchange project. These surveys were conducted during the traditional flowering period for this species (April to August). There is no suitable habitat for this species within the BSA; therefore, this species is not expected to occur. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.3.20. Discussion of Torrey Pine

The Torrey pine is a CNPS List 1B species and an MHCP covered species. Found only in San Diego County and on Santa Rosa Island, this sensitive tree species is slowly declining due to beetle infestation and human-induced fire. Torrey pine is found on the coast in a closed coniferous forest within the Torrey Pines State Reserve. Locally, the alluvial loam and dense fog creates favorable mesic conditions for the vestigial tree along the coast. The populations within the reserve occur approximately 1.2 km (0.75 mile) west of the BSA (SANDAG n.d.; Reiser 2001).

4.3.20.1. Survey Results

Three individuals of Torrey pine were observed during the surveys within the BSA. Another approximately 15 individuals were observed immediately adjacent to the BSA. However, with the exception of one or two individuals, a majority of these individuals were planted as ornamentals within a landscape setting and do not represent natural populations. Two small juvenile specimens (under 2 m [6 ft] each) have become established within areas of southern maritime chaparral, a habitat of this

species. These individuals are assumed to have become established from seed from some of the ornamental specimens, since there are no mature "native" specimens present within this community. Since these individuals arose from nursery-propagated material and do not occur in a natural setting, these individuals are not considered sensitive. The closest natural population is Crest Canyon, approximately 4.83 km (3.0 miles) south of the BSA.

4.3.20.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs. No natural populations of Torrey pine were found in the BSA; therefore, no additional species-specific avoidance and minimization efforts will be required.

4.3.20.3. Project Impacts

Natural populations or individuals of Torrey pine would not be directly or indirectly impacted from the Manchester/I-5 Interchange project. Two individuals planted alongside I-5 would be impacted by the Build Alternative.

4.3.20.4. Compensatory Mitigation

Since no natural populations or individuals of this species would be impacted from the Manchester/I-5 Interchange project, no compensatory mitigation measures would be required.

4.3.20.5. Cumulative Impacts

Since natural populations or individuals of this species would not be impacted by the project, implementation of the Manchester/I-5 Interchange project would not contribute to cumulative impacts to this sensitive species.

4.3.21. Discussion of San Diego Mesa Mint

This small annual from the mint family is restricted to vernal pool habitats and is listed as endangered by both the USFWS and CDFG. San Diego mesa mint is also a

CNPS List 1B species, an MHCP covered species, and an MHCP narrow endemic. Found in Redding cobbly loams near Miramar and Kearny Mesa, the endemic San Diego mesa mint is slowly declining throughout San Diego County due to urban development and agriculture. The closest known population is Del Mar Mesa, approximately 11.27 km (7.0 miles) southeast of the BSA.

San Diego mesa mint was not observed during the spring surveys for the Manchester/I-5 Interchange project, which were conducted during the traditional blooming period of this species (April to July). In addition, there is no suitable habitat within the BSA; therefore, this species is not expected to occur there. No avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.3.22. Discussion of Nutall's Scrub Oak

The coastal Nuttall's scrub oak is a CNPS List 1B species and an MHCP covered species. Found in Chesterton fine sandy loam along the coast as well as inland throughout the county, this sensitive tree prefers north-facing slopes or flat terrain in coastal chaparral. Due to the major increase in development within the San Diego area, this species is substantially declining.

4.3.22.1. Survey Results

Approximately 24 individuals of Nuttall's scrub oak were observed within the BSA during the surveys. These individuals occur in the southern maritime chaparral in the northeast and southwest portions of the BSA.

4.3.22.2. Avoidance and Minimization Efforts

Environmental consequences of the project on biological resources would be avoided and reduced to the extent feasible through project design. Additional measures to further avoid and reduce impacts to these sensitive resources would be done during project implementation via responsible preconstruction planning and construction activities as noted where relevant. Such measures would include, but not be limited to, preconstruction meetings, contractor awareness programs, temporary fencing and signage of all sensitive resource areas immediately adjacent to the AE, the presence of biological monitors during the construction activities adjacent to sensitive biological resources, and the implementation and strict adherence to standard BMPs.

4.3.22.3. Project Impacts

The Build Alternative would not directly impact this species. In addition, most individuals present within the BSA are far enough removed from the AE that indirect impacts are not expected to occur. However, several individuals near the northern end of the AE are close enough that they could potentially be indirectly impacted from unauthorized trespass, construction-generated fugitive dust, and erosion.

4.3.22.4. Compensatory Mitigation

Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan.

4.3.22.5. Cumulative Impacts

The implementation of the Manchester/I-5 Interchange project, as well as other projects within the region, could contribute to cumulative impacts to this sensitive species through direct, incremental loss of populations and its habitat and increasing indirect pressures on remaining sensitive populations. However, since this species would not be directly impacted by the project, the Manchester/I-5 interchange project would not contribute to cumulative direct impacts to this species.

4.4. Special Status Animal Species Occurrences

Special status animals are species that are listed as threatened or endangered by the USFWS (1999) and/or CDFG (2002e) or are considered fully protected species or species of special concern by the CDFG (2003), are protected by the Migratory Bird Treaty Act (MBTA), or are covered by the Working Draft MHCP. Species that are federally or state-listed are afforded a degree of protection that entails a permitting process, requiring the implementation of mitigation measures to compensate for impacts to the species. Species that are proposed to be listed by the USFWS are treated similarly to species listed by that agency; recommendations of the USFWS, however, are advisory rather than mandatory in the case of proposed species.

Additionally, the federal MBTA provides legal protection for almost all breeding bird species occurring in the United States and therefore affords protection to the bird species nesting within the study area. The MBTA restricts the killing, taking, collecting, and selling or purchasing of native bird species or their parts, nests, or

eggs. Certain game bird species can be hunted for specific periods determined by federal and state governments. The intent of the MBTA is to eliminate any commercial market for migratory birds, feathers, or bird parts, especially for eagles and other birds of prey. The proposed project is in compliance with the MBTA because the project would not facilitate the commercial market for any bird species.

There are 89 sensitive wildlife species known to occur in the region surrounding the proposed Manchester/I-5 Interchange project. Four sensitive animal species were detected within the BSA: the federally listed threatened coastal California gnatcatcher, the state-listed endangered Belding's savannah sparrow, the yellow-breasted chat, and the orange-throated whiptail. Several other sensitive species were observed outside of the BSA, including the federally and state-listed endangered least Bell's vireo, southwestern willow flycatcher, and light-footed clapper rail; and the least bittern (*Ixobrychus exilis*), white-faced ibis (*Plegadis chihi*), and yellow warbler (*Dendroica petechia*). The following discussion of sensitive species and potential impacts is based on information obtained through the USFWS, CDFG, MHCP, and SELC. The species discussed below are those that are known to occur or with the potential to occur within the BSA. Those species that are known from the region but are not expected to occur onsite are discussed separately, in Appendix C. The following discussion presents an impact analysis of the Build Alternative.

4.4.1. Discussion of Salt Marsh Skipper Butterfly

The salt marsh skipper butterfly (*Panoquina errans*) is covered under the MHCP. The species is restricted to coastal salt marshes and coastal estuaries. Adults and larvae are frequently associated with salt grass but are associated with other plants, as well. The species ranges from Los Angeles County south to the southern tip of Baja California, Mexico. Known populations occur in salt marsh habitat in association with nearly every coastal lagoon in San Diego County. Within the MHCP area, major populations and critical locations occur in salt marshes and saltpan in Encinitas, Carlsbad, and Oceanside.

4.4.1.1. Survey Results

No salt marsh skipper butterflies were observed during the general wildlife surveys conducted for the project between March 28 and June 28, 2002. However, these surveys were conducted outside of the normal flight season (July-September) for the butterfly. Although no salt marsh skipper butterflies were observed within the BSA, the presence of suitable habitat and the known historical location data within the

region indicate that there is a high probability that this species occurs within the study area.

4.4.1.2. Avoidance and Minimization Efforts

Avoidance and minimization measures for the salt marsh skipper butterfly are difficult to assess because of the biological constraints resulting from the various life cycle stages of the butterfly. The species is resident in salt marsh habitat, yet it is optimally detected during its flight period. Therefore, impacts to suitable habitat should be minimized by implementing measures such as fencing the limits of grading to avoid and minimize impacts to habitats adjacent to the project design footprint and equipment staging areas. Impacts associated with the project alternative would be minimized or avoided through design modifications.

4.4.1.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 0.02 hectare (0.04 acre) of salt marsh and 0.01 hectare (0.02 acre) of brackish marsh vegetation. Temporary losses would result in 0.14 hectare (0.35 acre) of salt marsh habitat and 0.21 hectare (0.52 acre) of brackish marsh habitat. Indirect shading impacts due the proposed extension of the Manchester/I-5 Bridge would permanently impact 0.02 hectare (0.05 acre) of salt marsh habitat and 0.11 hectare (0.28 acre) of brackish marsh habitat suitable for the salt marsh skipper butterfly.

4.4.1.4. Compensatory Mitigation

The draft MHCP proposes to include the salt marsh skipper butterfly as one of the species covered under the plan. As a habitat-based conservation plan, impacts to individual species are compensated for by mitigation with habitat acquisition, enhancement, or creation that would be considered suitable for the species impacted. Once the MHCP is approved, impacts to the salt marsh skipper butterfly will be mitigated through a habitat-based compensation ratio to be determined by the City of Encinitas. It is likely that a compensation ratio for impacts within the Caltrans right-of-way would be deemed adequate by the CDFG.

4.4.1.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the salt marsh skipper butterfly. These impacts would result in the incremental loss or degradation of habitats suitable for this species. However, because the proposed Manchester/I-5 Interchange project would include the maximum build-out of the bridge, implementation of the Caltrans

10+4 I-5 Project would not directly impact any additional habitat suitable for this species.

4.4.2. Discussion of Quino Checkerspot Butterfly

The Quino checkerspot butterfly is a federally listed endangered species and is covered under the MHCP. The species is restricted to open grassland and sunny openings within shrubland habitats of Riverside and San Diego Counties, where its distribution is defined primarily by that of its host plants, dot-seed plantain (*Plantago erecta*) and owl's clover (*Castilleja exerta*). Historically, the Quino checkerspot butterfly ranged from the western portions of Riverside, Orange, and San Diego Counties, extending south into northern Baja California, Mexico. Recently, populations within San Diego County have been recorded from Otay Mountain, Jacumba, Oak Grove, and Otay Mesa. This species may be extirpated from the MHCP area; however, habitat for this species persists, providing the opportunity for recolonization.

4.4.2.1. Survey Results

No focused surveys for the Quino checkerspot butterfly were conducted for the project. However, various general plant and wildlife surveys were conducted within the BSA between March 28 and June 28, 2002, to determine potential habitat for sensitive species, including the Quino checkerspot butterfly. Because these surveys were conducted late in the season during a drought year, detection of the Quino checkerspot butterfly's host plants, dot-seed plantain and owl's clover, was extremely difficult. The habitat within the survey area does have the potential to support the host plants in sporadic clusters, but it probably does not have the potential to sustain a population large enough to support the butterfly. Additionally, the BSA is not located within the areas requiring surveys, as determined by the USFWS. Based on the project habitat reconnaissance surveys, the location of the site outside of areas requiring focused Quino checkerspot butterfly surveys, and historical location data, there is a low potential for this species to occur within the BSA.

4.4.2.2. Avoidance and Minimization Efforts

Avoidance and minimization measures for the Quino checkerspot butterfly are difficult to assess because of the biological constraints resulting from the various life cycle stages of the butterfly. The species is resident in a variety of open upland habitats that support its host plants, yet it is optimally detected during its flight period. Therefore, impacts to suitable habitat should be minimized by implementing measures such as fencing the limits of grading to avoid and minimize impacts to

habitats adjacent to the project design footprint and equipment staging areas. Impacts associated with the project alternative would be minimized or avoided through design modifications.

4.4.2.3. Project Impacts

Quino checkerspot butterfly habitat is absent from the BSA; therefore, the alternative for the proposed Manchester/I-5 Interchange project would not result in the permanent or temporary loss of any Quino checkerspot butterfly habitat.

4.4.2.4. Compensatory Mitigation

The MHCP includes the Quino checkerspot butterfly as one of the species covered under the plan. As such, an endangered species "take" permit would be issued for the Manchester/I-5 Interchange project that would include all species covered under the MHCP that would be affected by the project for impacts within the planning area. Within the MHCP area, impacts to biological resources would be compensated for through the acquisition, enhancement, or creation of habitats considered suitable for the covered species. The exact compensatory rates would be determined by the City of Encinitas once the MHCP has been approved. As a federally listed endangered species, project impacts outside of the MHCP's area of coverage (i.e., the Caltrans right-of-way) would require compensatory mitigation as determined through the Section 7 consultation process with the USFWS.

4.4.2.5. Cumulative Impacts

The projects listed in Table 8 would contribute to cumulative impacts to the Quino checkerspot butterfly. These impacts would result in the development and incremental loss of habitats suitable for this species through habitat conversion and degradation. Implementation of the Caltrans 10+4 I-5 Project, however, would not result in any additional cumulative impacts to habitats suitable for this species because the proposed Manchester/I-5 Interchange project would include the maximum build-out of the bridge.

4.4.3. Discussion of Southwestern Pond Turtle

The southwestern pond turtle is considered a state species of concern and is covered under the MHCP. It inhabits permanent or nearly permanent bodies of water and requires basking sites such as partially submerged logs, vegetation mats, or open mud banks. This subspecies ranges from southern California to northern Baja California, Mexico. Within the MHCP area, the southwestern pond turtle occurs in Buena Vista Lagoon, Escondido Creek, San Luis Rey River, and the upper reaches of Pilgrim

Creek on Camp Pendleton. Buena Vista Lagoon, Escondido Creek, and the San Luis Rey River are considered major populations and critical locations.

4.4.3.1. Survey Results

No southwestern pond turtles were observed during the general wildlife surveys conducted for the project between March 28 and June 28, 2002. Historical location data for the region and limited habitat availability within the survey area indicate a low potential for this species to occur within the BSA.

4.4.3.2. Avoidance and Minimization Efforts

To minimize or avoid impacts to the southwestern pond turtle, all impacts to suitable habitat within the BSA should be avoided or minimized through project design features. It is likely that for areas outside of the MHCP planning area, the CDFG would require a southwestern pond turtle trapping and relocation effort in suitable habitat, and the use of exclusionary fencing between the AE and adjacent habitat.

4.4.3.3. Project Impacts

The southwestern pond turtle occurs in low numbers throughout the region. Populations have experienced a steady decline due to increased urbanization and habitat destruction. The proposed Manchester/I-5 Interchange project would result in the permanent and temporary loss of marginally suitable southwestern pond turtle habitat within the proposed AE, consisting of open water, freshwater marsh, and coastal brackish marsh. The Build Alternative would include the permanent loss of 0.10 hectare (0.23 acre) and the temporary loss of 0.36 hectare (0.89 acre) of marginally suitable habitat for this species. Indirect shading impacts due the proposed extension of the Manchester/I-5 Bridge would permanently impact 0.08 hectare (0.21 acre) of open water habitat and 0.11 hectare (0.28 acre) of brackish marsh habitat suitable for the southwestern pond turtle.

4.4.3.4. Compensatory Mitigation

The southwestern pond turtle is known to occur within the region; however, lack of evidence of occupation during general wildlife surveys conducted for the project and limited suitable habitat availability suggest that the population size within the BSA is extremely low. Although major populations and critical habitats have been identified elsewhere within the MHCP area, any impact by the project to this species would be relatively minor in relation to the distribution of the southwestern pond turtle and its habitat. Thus, no compensatory mitigation would be required.

4.4.3.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss of habitats suitable for the southwestern pond turtle. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Implementation of the Caltrans 10+4 I-5 Project would not result in losses of suitable habitat for the southwestern pond turtle within the BSA. These losses would contribute cumulative impacts to this species through habitat conversion and degradation.

4.4.4. Discussion of San Diego Horned Lizard

The San Diego horned lizard is considered a state species of concern. It prefers friable, rocky, or shallow sandy soils in coastal sage scrub and chaparral in arid and semiarid climates where there are open areas for sunning and bushes for cover, from sea level to elevations of over 2,438 m (8,000 ft). This lizard is primarily active in late spring and early summer (April to July), and harvester ants – the primary food item of the horned lizard – indicate potential for occurrence of the lizard in an area. This subspecies is endemic to extreme southwestern California, from Los Angeles County into Baja California, Mexico. In San Diego County, it is relatively widespread and locally common from the coast to the western edge of the desert. Although there are no major or critical populations within the MHCP area, the MHCP database shows three records near San Elijo Lagoon, with scattered sightings in east Oceanside, Carlsbad, south Encinitas, southwestern San Marcos, and southwestern Escondido.

4.4.4.1. Survey Results

The San Diego horned lizard is known to occur within San Elijo Lagoon, as reported by the SELC. No San Diego horned lizards or scat were observed during EDAW wildlife surveys conducted for the project between March 28 and June 28, 2002. However, the presence of suitable habitat within the survey area and the known historical location data within the region indicate there is a moderate potential for the San Diego horned lizard to occur within the BSA.

4.4.4.2. Avoidance and Minimization Efforts

Avoidance and minimization measures for the San Diego horned lizard would include biological monitoring during all phases of construction activity, relocation of any San Diego horned lizards found within the construction area, project timing restrictions, and habitat restoration requirements. Impacts associated with the proposed project would be minimized or avoided through design modifications.

4.4.4.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 1.41 hectares (3.48 acres) and a temporary loss of 1.09 hectares (2.68 acres) of Diegan coastal sage scrub and southern maritime chaparral vegetation suitable for the San Diego horned lizard.

4.4.4.4. Compensatory Mitigation

Since the San Diego horned lizard is known to occur in proximity to the BSA, if the species does occur within the study area, the population size is expected to be relatively low due to the limited and isolated extent of coastal sage scrub habitat onsite. Because no critical populations of the San Diego horned lizard have been identified within the region, and any impact to this species would be relatively minor in relationship to the distribution of the San Diego horned lizard and its habitat, no compensatory mitigation would be required for impacts outside of the MHCP planning area. Impacts within the MHCP area would be compensated based on a ratio to be determined once the plan has been approved.

4.4.4.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the San Diego horned lizard. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, permanent and temporary losses of Diegan coastal sage scrub and southern maritime chaparral vegetation communities are expected within the BSA. These impacts would result in the incremental loss of suitable habitats for the species through direct habitat conversion and degradation.

4.4.5. Discussion of Coronado Island Skink

The Coronado Island skink (*Eumeces skiltonianus interparietalis*) is considered a state species of concern. It occurs in mesic pockets within a variety of habitats ranging from coastal sage scrub, chaparral, oak woodlands, pinon-juniper, and riparian woodlands to pine forests. This species is found along the coastal plain and Peninsular Ranges west of the deserts, from San Gorgonio Pass, Riverside County, California south to San Quentin, Baja California, Mexico. Isolated populations also occur off the coast of southern California and Baja California on Santa Catalina, Los Coronados, and Todos Santos Islands.

4.4.5.1. Survey Results

The Coronado Island skink is known to occur within San Elijo Lagoon, as reported by the SELC. However, no Coronado skinks were observed during the various general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Because habitat features within suitable vegetation communities in the survey area are limited (e.g., leaf litter, logs, cobbles, small boulders, etc.), there is a low probability that this species will occur within the BSA.

4.4.5.2. Avoidance and Minimization Efforts

The Build Alternative will be designed to avoid and minimize impacts to potential Coronado Island skink habitat within the AE. Due to the relatively low probability that this species occurs within the BSA, no other avoidance or minimization measures are necessary.

4.4.5.3. Project Impacts

The Coronado Island skink occurs in low numbers throughout the region. Populations have experienced a steady decline due to increased urbanization and habitat destruction. The proposed Manchester/I-5 Interchange project would result in the permanent and temporary loss of marginally suitable Coronado Island skink habitat within the proposed AE. The Build Alternative would result in the permanent loss of 1.44 hectares (3.56 acres) and a temporary loss of 1.13 hectares (2.77 acres) of coastal sage scrub, southern maritime chaparral, and southern willow scrub habitats suitable for the Coronado Island skink.

4.4.5.4. Compensatory Mitigation

Although the Coronado Island skink is known to occur within the survey area, lack of evidence of occupation during the general wildlife surveys conducted for the project and limited suitable habitat availability suggest that if the species occurs within the BSA, the population size would be extremely low. Because no major populations or critical locations for the Coronado skink have been identified within the region and because any impact to this species would be relatively minor in relation to the distribution of the Coronado skink and its habitat, no compensatory mitigation would be required.

4.4.5.5. Cumulative Impacts

The projects listed in Table 8 would contribute to the cumulative impacts to the Coronado Island skink. These impacts would contribute to development resulting in the incremental loss of habitats suitable for this species through habitat conversion

and degradation. Implementation of the Caltrans 10+4 I-5 Project would result in the permanent and temporary loss of marginally suitable habitat for this species.

4.4.6. Discussion of Orange-throated Whiptail

The orange-throated whiptail is considered a fully protected, state species of concern and is covered under the MHCP. This species prefers washes and other sandy areas in coastal sage scrub, chaparral, and valley-foothill hardwood forests, with patches of brush and rocks for cover. This subspecies is restricted to the extreme southwest of California and northwest of Baja California, Mexico. In California, it is found on the west side of the Peninsular Ranges in Los Angeles, San Bernardino, Orange, Riverside, and San Diego Counties, between sea level and 914 m (3,000 ft) amsl. A limiting factor to the species' range is the availability of its primary food item, the termite (*Reticulitermes hesperus*). Although there are no major populations or critical locations within the MHCP area, the MHCP database shows eight records near San Elijo Lagoon, with scattered sightings in east Oceanside, Carlsbad, north and south Encinitas, and southwest and east Escondido.

4.4.6.1. Survey Results

The orange-throated whiptail has been recorded within San Elijo Lagoon by the SELC. It was also observed at one location within the BSA during the general wildlife surveys conducted between March 28 and June 28, 2002. The presence of the species onsite, and the known historical location data within the region, indicate a high potential for the orange-throated whiptail to occur in much of the suitable habitat within the BSA.

4.4.6.2. Avoidance and Minimization Efforts

Impacts to the orange-throated whiptail will be avoided and minimized to the greatest extent feasible through project design modifications. For unavoidable impacts within the MHCP planning area, the City of Encinitas will determine if any additional measures are required once the MHCP is approved. In areas not covered by the MHCP, appropriate avoidance and minimization measures would be determined through discussions with the CDFG.

4.4.6.3. Project Impacts

The orange-throated whiptail occurs throughout the region. Populations have experienced a steady decline due to increased urbanization and habitat destruction. The proposed Manchester/I-5 Interchange project would result in the permanent and temporary loss of marginally suitable orange-throated whiptail habitat within the

proposed AE. The Build Alternative would result in the permanent loss of 1.41 hectares (3.48 acres) and a temporary loss of 1.09 hectares (2.68 acres) of Diegan coastal sage scrub and southern maritime chaparral vegetation suitable for the orange-throated whiptail.

4.4.6.4. Compensatory Mitigation

The draft MHCP proposes to include the orange-throated whiptail as one of the species covered under the plan. As a habitat-based conservation plan, impacts to individual species are compensated for by mitigation with habitat acquisition, enhancement, or creation that would be considered suitable for the species impacted. Once the MHCP is approved, impacts to the orange-throated whiptail will be mitigated through a habitat-based compensation ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, compensatory mitigation would be determined through input by the CDFG.

4.4.6.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss of habitats suitable for the orange-throated whiptail. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Implementation of the Caltrans 10+4 I-5 Project would result in the permanent and temporary loss of Diegan coastal sage scrub and southern maritime chaparral habitats within the BSA. These losses would contribute cumulative impacts to this species through habitat conversion and degradation.

4.4.7. Discussion of Silvery Legless Lizard

The silvery legless lizard (*Anniella pulchra pulchra*) is considered a state species of concern. It occurs near beaches, chaparral, and pine-oak woodland, and near sycamores, cottonwoods, and oaks that grow on stream terraces, from sea level to 1,951 m (6,400 ft) amsl. This species prefers sandy or loose loamy soils with high moisture content. The range of the silvery legless lizard extends west of the Sierra Nevada from San Francisco to Baja California Norte, Mexico. It is also known from Los Coronados and Todos Santos Islands of the coast of Baja California, Mexico. In San Diego County, this subspecies is widespread throughout the lower elevations between the coastline and the western border of Anza Borrego Desert.

4.4.7.1. Survey Results

The silvery legless lizard is known to occur within San Elijo Lagoon, as reported by the SELC. However, no silvery legless lizards were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Lack of suitable habitat features (e.g., deep, sandy soils) within the survey area indicates a low potential for this species to occur within the BSA.

4.4.7.2. Avoidance and Minimization Efforts

Impacts associated with the project alternative would be minimized or avoided through design modifications. Due to the low likelihood that this species occurs within the BSA, additional avoidance and minimization measures would not be required.

4.4.7.3. Project Impacts

The silvery legless lizard occurs in low numbers throughout the region. Populations have experienced a steady decline due to increased urbanization and habitat destruction. The proposed Manchester/I-5 Interchange project would result in the permanent and temporary loss of marginally suitable silvery legless lizard habitat within the proposed AE. The Build Alternative would result in the permanent loss of 0.03 hectare (0.07 acre) and a temporary loss of 0.07 hectare (0.17 acre) of southern maritime chaparral habitat suitable for the silvery legless lizard.

4.4.7.4. Compensatory Mitigation

The silvery legless lizard is known to occur within the survey area; however, limited suitable habitat within the BSA and lack of evidence of occupation during the general wildlife surveys conducted for the project suggest that if the species does occur within the study area, the population size would be extremely low. Because no major populations or critical locations for the silvery legless lizard have been identified within the region and because any impact to this species would be relatively minor in relation to the distribution of the silvery legless lizard and its habitat, no compensatory mitigation would be required.

4.4.7.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the silvery legless lizard. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, a permanent and temporary loss of southern maritime chaparral vegetation is expected

within the BSA. These impacts would result in the incremental loss of suitable habitats for the species through direct habitat conversion and degradation.

4.4.8. Discussion of Coast Patch-nosed Snake

The coast patch-nosed snake (*Salvadora hexalepis virgultea*) is considered a state species of concern. It is found in a variety of habitats including coastal sage scrub, chaparral, riparian areas, grasslands, and agricultural fields, from sea level to 2,134 m (7,000 ft) amsl. This species prefers open habitats with friable or sandy soils, burrowing rodents for food, and enough cover to escape predation. The distribution of the coast patch-nosed snake includes the coastal slope of southern California and northern Baja California, Mexico.

4.4.8.1. Survey Results

No coast patch-nosed snakes were observed during the various general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Suitable habitat within the BSA is limited; thus, there is a low potential for this species to occur within the survey area.

4.4.8.2. Avoidance and Minimization Efforts

Impacts to habitats suitable for the coast patch-nosed snake will be avoided or minimized to the greatest extent possible through project design modifications. Because there is a low likelihood that this species occurs within the BSA, no additional avoidance or minimization efforts would be required.

4.4.8.3. Project Impacts

The proposed Mancester/I-5 Interchange project would result in the permanent and temporary loss of suitable coast patch-nosed snake habitat within the proposed AE. The Build Alternative would result in the permanent loss of 1.77 hectares (4.38 acres) and a temporary loss of 1.44 hectares (3.53 acres) of habitat suitable for the coast patch-nosed snake, including impacts to coastal sage scrub and southern maritime chaparral.

4.4.8.4. Compensatory Mitigation

Limited suitable habitat within the BSA and lack of evidence of occupation during the general wildlife surveys conducted for the project suggest that, if the coast patch-nosed snake does occur within the study area, the population size would be extremely small. No compensatory mitigation would be required for this species because any impacts would be relatively minor in relation to its distribution.

4.4.8.5. Cumulative Impacts

The projects listed in Table 8 would contribute to the cumulative impacts to the coast patch-nosed snake. These impacts would result in development and the incremental loss of habitats suitable for this species through habitat conversion and degradation. Implementation of the 10+4 I-5 Project would result in the permanent and temporary loss of coastal sage scrub, southern maritime chaparral, southern willow scrub, and nonnative grassland habitats suitable for this species.

4.4.9. Discussion of Two-striped Garter Snake

The two-striped garter snake is considered a state species of concern. This highly aquatic species occurs in or near permanent fresh water, usually along streams with rocky beds bordered by willows and other riparian vegetation. This species ranges along coastal California from Monterey County south to northwestern Baja California, Mexico, at elevations below 2,286 m (7,500 ft) amsl. Several isolated populations also occur in Baja California Sur, Mexico. It is widespread and locally common in creeks throughout western and central San Diego County but is absent from the desert.

4.4.9.1. Survey Results

The two-striped garter snake is known to occur within San Elijo Lagoon, as reported by the SELC. However, no two-striped garter snakes were observed during the various general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Because suitable habitat within the BSA is limited, there is a low potential that this species will occur within the survey area.

4.4.9.2. Avoidance and Minimization Efforts

The Manchester/I-5 Interchange project will be designed to avoid and minimize impacts to wetland habitats. Therefore, impacts to habitats suitable for the two-striped garter snake would be minimized to the greatest extent possible.

4.4.9.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 0.09 hectare (0.21 acre) and the temporary loss of 0.15 hectare (0.37 acre) of two-striped garter snake habitat, including freshwater marsh and open water habitats. Indirect shading impacts due the proposed extension of the Manchester/I-5 Bridge would permanently impact 0.08 hectare (0.21 acre) of open water habitat suitable for this species.

4.4.9.4. Compensatory Mitigation

Although the two-striped garter snake is known to occur within the survey area, lack of evidence of occupation during the general wildlife surveys conducted for the project and limited suitable habitat availability suggest that the population size within the BSA is extremely low. Because no major populations or critical locations for the two-striped garter snake have been identified within the region and because any impact to this species would be relatively minor in relation to the distribution of the two-striped garter snake and its habitat, no compensatory mitigation would be required specific to impacts to the species. However, any wetland compensatory mitigation would benefit the two-striped garter snake.

4.4.9.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss of habitats suitable for the two-striped garter snake. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Implementation of the 10+4 I-5 Project would result in a permanent loss of suitable habitat within the BSA. These losses would contribute cumulative impacts to this species through habitat conversion and degradation.

4.4.10. Discussion of Northern Red Diamond Rattlesnake

The northern red diamond rattlesnake (*Crotalus ruber ruber*) is considered a state species of concern. It is often found in chaparral, coastal sage scrub, along creek banks, and in rock outcrops or piles of debris. This subspecies prefers dense vegetation in rocky areas with a supply of burrowing rodents for prey. The northern red diamond rattlesnake is restricted to southern California and Baja California from Morongo Pass to the tip of the Baja Peninsula, with the majority of its California range in San Diego County. It occurs from sea level to 914 m (3,000 ft) amsl.

4.4.10.1. Survey Results

No northern red diamond rattlesnakes were detected during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Based on historical data for the region and limited habitat availability within the survey area, there is a low potential for this species to occur within the BSA.

4.4.10.2. Avoidance and Minimization Efforts

All impacts to suitable northern red diamond rattlesnake habitat will be avoided and minimized to the greatest extent possible through project design modifications.

Because this species has a low potential to occur within the BSA, no addition avoidance or minimization efforts would be required.

4.4.10.3. Project Impacts

The proposed Manchester/I-5 Interchange project would result in the permanent and temporary loss of habitats suitable for the northern red diamond rattlesnake. Within the AE for the project, the Build Alternative would result in the permanent loss of 1.41 hectares (3.48 acres) and a temporary loss of 1.09 hectares (2.68 acres) of marginally suitable habitat for this species.

4.4.10.4. Compensatory Mitigation

Limited suitable habitat and lack of evidence of occupation during the general wildlife surveys conducted for the project suggest that, if the northern red diamond rattlesnake does occur within the BSA, the population size is extremely low. Because any impacts to this species would be relatively minor in relation to its distribution and habitat, no compensatory mitigation would be required.

4.4.10.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the northern red diamond rattlesnake. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, a permanent and temporary loss of marginally suitable habitats is expected within the BSA. These losses would result in the incremental loss of suitable habitats for the species through direct habitat conversion and degradation.

4.4.11. Discussion of Common Loon

The common loon (*Gavia immer*) is considered a state species of concern within its breeding range. It is found in shallow, marshy areas along the banks of freshwater rivers and lakes, and also near estuaries and lagoons. This species breeds in Canada and the northern United States and then migrates and winters along both coasts of North America. In San Diego County, the common loon is an uncommon to fairly common migrant and winter visitor, and rare to uncommon in the summer (Unitt 1984). It is known to occur within San Elijo Lagoon, as reported by the SELC. However, historical data show that this species is not expected to nest within the BSA. Thus, no impacts are expected to occur to nesting common loons, and no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.12. Discussion of American White Pelican

The American white pelican (*Pelecanus erythrorhynchos*) is considered a state species of concern within its breeding range. It inhabits lakes, ponds, and coastal waters. This species is found from central Canada southeast to the Atlantic coast, from Florida southward, and southwest to the Pacific coast, south of central California. It also winters on both coasts of Baja California and Mexico. In San Diego County, it is a rare migrant and winter visitor (Unitt 1984). The American white pelican is known to occur within San Elijo Lagoon, as reported by the SELC. However, historical data for the region suggest that this species is not expected to nest within the BSA. Thus, no impacts to nesting American white pelicans are expected, and no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.13. Discussion of California Brown Pelican

The California brown pelican is a federally listed endangered and fully protected state-listed endangered species within its breeding range. It is also covered under the MHCP. This species occurs in coastal saltwater in harbors, bays, and estuaries and on the open ocean, especially within 19.3 km (12 miles) of shore, but regularly to 160.9 km (100 miles) of shore. The California brown pelican is a year-round, nonbreeding resident in San Diego County. It breeds on offshore islands, the Coronado Islands being the closest breeding location to San Diego County. Within the MHCP area, these pelicans are found along the coast and around lagoons. Although there are no major populations within the MHCP area, the MHCP database shows a single record in San Elijo Lagoon. Also, coastal areas with restricted human access and shallow coastal waters are considered critical locations because the California brown pelican forages in these areas. This species is known to occur within San Elijo Lagoon, as reported by the SELC. However, it is not expected to nest within the lagoon (Unitt 1984). Thus, because no impacts to nesting California brown pelicans are expected, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.14. Discussion of Double-crested Cormorant

The double-crested cormorant (*Phalacrocorax auritus*) is considered a state species of concern within its rookery sites. It is found near freshwater and saltwater near the coastline, inshore waters, beaches, inland rivers, and lakes. It ranges from central Canada and the north-central United States, south to the coastline of the Atlantic and

the Gulf of Mexico, west to the Pacific Coast, and southwest to the coastline of Baja California, Mexico. The double-crested cormorant is a common to very common nonbreeding species in the coastal waters, bays, and inland ponds and lakes of San Diego County (Unitt 1984). This species is known to occur within San Elijo Lagoon, as reported by the SELC, but is not expected to breed within the BSA. Thus, because no impacts to double-crested cormorant rookery sites are expected to occur, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.15. Discussion of Least Bittern

The least bittern is considered a state species of concern within its breeding range. It inhabits freshwater and brackish water marshes, usually near open water sources, and desert riparian habitats. Most of the California population winters in Mexico and migrates in the spring and the summer to scattered locations in the western United States, including the Colorado River, Salton Sea, and coastal lowlands of southern California where some populations are resident. In San Diego County, least bitterns have been reported from Mission Valley, the San Diego River mouth, the Tijuana River mouth, San Luis Rey River, San Pasqual Valley, Batiquitos and San Elijo Lagoons, and Guajome Lake. Nesting localities are reported at Mission Valley, San Luis Rey, Guajome Lake, and San Pasqual Valley (Unitt 1984). Although this species is known to occur within San Elijo Lagoon as reported by the SELC, it is unlikely to breed within the lagoon (Unitt 1984). Thus, because no impacts are expected to occur to nesting least bitterns, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.16. Discussion of Great Blue Heron

The great blue heron (*Ardea herodias*) is considered a state species of concern within its rookery sites. It is commonly found in fresh and saltwater emergent wetlands and estuaries and is less common along rivers, in croplands, pastures, and foothill ponds. This species is one of the most widespread of all North American herons and is found throughout most of California. Though typically a nonbreeder in the wetlands and bays of San Diego County, the great blue heron has nested at five breeding colonies in San Diego County since the 1970s: Point Loma, Coronado, San Dieguito Valley near Rancho Santa Fe, San Diego Wild Animal Park, and Lake Henshaw. There are also reports of isolated pairs nesting at other locations, including Sutherland Reservoir, Del Mar, and Mission Bay (Unitt 1984). This species is known to occur

within San Elijo Lagoon, as reported by the SELC; however, it is not expected to breed within the BSA (Unitt 1984). Thus, because no impacts are expected to the rookery sites of the great blue heron, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.17. Discussion of Great Egret

The great egret (*Ardea alba*) is considered a state species of concern within its rookery sites. It is common worldwide in freshwater and saltwater marshes, swampy woods, ponds, lagoons, estuaries, mangroves, streams, lakes, and ponds. In North America, the great egret occurs as a breeding resident along the Atlantic Coast and along the Pacific Coast inland to central Idaho (Terres 1980). In California, it is distributed throughout the coastal lowlands and the Central Valley as a winter visitor or year-round resident. It is a fairly common winter visitor and rare to uncommon nonbreeding summer visitor in San Diego County (Unitt 1984).

4.4.17.1. Survey Results

The great egret is known to occur within San Elijo Lagoon, as reported by the SELC. However, no great egrets were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Historical location data and suitable habitat within the survey area indicate a moderate potential for this species to occur within the BSA.

4.4.17.2. Avoidance and Minimization Efforts

Within the BSA, impacts to suitable great egret habitat would be avoided or minimized to the greatest extent feasible through project design. Where impacts are unavoidable, all construction activities would be required to avoid the breeding season (March 1 through September 30), thereby adhering to the MBTA.

4.4.17.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 0.12 hectare (0.27 acre) and the temporary loss of 0.37 hectare (0.92 acre) of open water, freshwater marsh, saltwater marsh, and brackish marsh habitats. Indirect shading impacts due the proposed extension of the Manchester/I-5 Bridge would permanently impact 0.08 hectare (0.21 acre) of open water, 0.02 hectare (0.05 acre) of salt marsh habitat, and 0.11 hectare (0.28 acre) of brackish marsh habitat suitable for the great egret.

4.4.17.4. Compensatory Mitigation

Although the draft MHCP does not include the great egret as one of the species covered under the plan, mitigation measures proposed in the MHCP for other wetland-dependent species would be sufficient for the great egret, as well. This mitigation would include habitat acquisition, enhancement, or creation at a compensation ratio to be determined by the City of Encinitas. For areas within the AE that are not covered by the MHCP, additional compensatory mitigation may be determined through discussions with the CDFG.

4.4.17.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss or degradation of habitats suitable for the great egret. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. However, because the proposed Manchester/I-5 Interchange project would include the maximum build-out of the bridge, implementation of the Caltrans 10+4 I-5 Project would not directly impact any additional habitat suitable for this species.

4.4.18. Discussion of White-faced Ibis

The white-faced ibis is considered a state species of concern within its rookery sites and is covered under the MHCP. It nests and forages in freshwater lagoons, rivers, lakes, wet agricultural fields, and occasionally salt marshes. This species is distributed from Oregon south to Argentina and southeast to Louisiana. The white-faced ibis is an uncommon, localized winter resident in San Diego County and a sporadic breeder on the coastal slope; however, it is found regularly in small numbers in the lower river valleys of San Diego County. Within the MHCP area, recent breeding colonies for this species have been recorded at Buena Vista Lagoon and Guajome Lake. Major populations, as distinguished by the MHCP, occur at Buena Vista, Batiquitos, and San Elijo Lagoons and Guajome Lake. The breeding colonies at Buena Vista Lagoon and Guajome Lake are considered critical locations.

4.4.18.1. Survey Results

The white-faced ibis was observed within San Elijo Lagoon in 2002, as reported by the SELC. The location of the white-faced ibis detected by the SELC is shown in Figure 8c. No white-faced ibis were observed or detected within or adjacent to the BSA during the general wildlife surveys conducted for the project between March 28 and June 28, 2002; however, this species is typically a winter resident in San Diego County and thus would not be present in the late spring when the surveys were

conducted. Because suitable habitat is present within the survey area and because San Elijo Lagoon is historically known to support the species, there is a moderate potential for the white-faced ibis to occur within the BSA during the winter.

4.4.18.2. Avoidance and Minimization Efforts

To minimize or avoid impacts to the white-faced ibis, all impacts to suitable wintering habitat within the BSA should be avoided. Habitat restoration, creation, or enhancement may be required if impacts are unavoidable. Impacts associated with the project would be minimized or avoided through design modifications.

4.4.18.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 0.12 hectare (0.27 acre) and the temporary loss of 0.37 hectare (0.92 acre) of open water, freshwater marsh, saltwater marsh, and brackish marsh habitats. Indirect shading impacts due the proposed extension of the Manchester/I-5 Bridge would permanently impact 0.08 hectare (0.21 acre) of open water, 0.02 hectare (0.05 acre) of salt marsh habitat, and 0.11 hectare (0.28 acre) of brackish marsh habitat suitable for the white-faced ibis.

4.4.18.4. Compensatory Mitigation

Although the draft MHCP does not include the white-faced ibis as one of the species covered under the plan, mitigation measures proposed in the MHCP for other wetland-dependent species would be sufficient for the white-faced ibis, as well. This mitigation would include habitat acquisition, enhancement, or creation at a compensation ratio to be determined by the City of Encinitas. For areas within the AE that are not covered by the MHCP, additional compensatory mitigation may be determined through discussions with the CDFG.

4.4.18.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss or degradation of habitats suitable for the white-faced ibis. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. However, because the proposed Manchester/I-5 Interchange project would include the maximum build-out of the bridge, implementation of the Caltrans 10+4 I-5 Project would not directly impact any additional habitat suitable for this species.

4.4.19. Discussion of Wood Stork

The wood stork (*Mycteria americana*) is considered a state species of concern. It occurs in wet meadows, coastal swamps and marshes, and shallow water in canals and ditches. This species breeds in Florida, Georgia, and tropical America and occasionally elsewhere along the coast from South Carolina to Texas. Outside the breeding season, the wood stork migrates as far north as Massachusetts and as far west as California. It is now a casual visitor along the coast of northern San Diego County and has been observed in Buena Vista and San Elijo Lagoons (Unitt 1984).

4.4.19.1. Survey Results

The wood stork is known to occur within San Elijo Lagoon, as reported by the SELC. However, no wood storks were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Historical location data for the region and limited suitable habitat within the survey area indicate a low potential for this species to occur within the BSA.

4.4.19.2. Avoidance and Minimization Efforts

Impacts to suitable wood stork habitat would be minimized through project design measures. If impacts are unavoidable, all construction activities within wood stork habitat would be required to comply with the MBTA by avoiding the breeding season (March 1 through September 30). Additional measures may be determined through discussions with the resource agencies.

4.4.19.3. Project Impacts

Wood stork populations have experienced a steady decline due to increased urbanization and habitat destruction. The proposed Manchester/I-5 Interchange project would result in the permanent and temporary loss of marginally suitable wood stork habitat within the proposed AE. The Build Alternative would result in the permanent loss of 0.12 hectare (0.27 acre) and the temporary loss of 0.37 hectare (0.92 acre) of open water, freshwater marsh, saltwater marsh, and brackish marsh habitats. Indirect shading impacts due the proposed extension of the Manchester/I-5 Bridge would permanently impact 0.08 hectare (0.21 acre) of open water, 0.02 hectare (0.05 acre) of salt marsh habitat, and 0.11 hectare (0.28 acre) of brackish marsh habitat suitable for the wood stork.

4.4.19.4. Compensatory Mitigation

The wood stork is known to occur within the survey area; however, limited suitable habitat within the BSA and lack of evidence of occupation during the general wildlife surveys conducted for the project suggest that the population size within the BSA is

extremely low. Because no major populations or critical locations for the wood stork have been identified within the region and because any impact to this species would be relatively minor in relation to the distribution of the wood stork and its habitat, no compensatory mitigation would be required.

4.4.19.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the wood stork. These impacts would result in the incremental loss or degradation of habitats suitable for this species. However, because the proposed Manchester/I-5 Interchange project would include the maximum build-out of the bridge, implementation of the Caltrans 10+4 I-5 Project would not directly impact any additional habitat suitable for this species.

4.4.20. Discussion of Fulvous Whistling-duck

The fulvous whistling-duck (*Dendrocygna bicolor*) is considered a state species of concern within its breeding range. It can be found in broad, open freshwater marshes, rice fields, flooded agricultural fields, and cultivated land. This species occurs in Asia, Africa, Madagascar, South America, and North America. In southern California, it formerly occurred to some extent throughout the year, but it has now been extirpated from its wild state. With large numbers of free-flying individuals being kept at the San Diego Wild Animal Park in the San Pasqual Valley and at Sea World on Mission Bay, most or all recent observations involve escapees from captivity (Unitt 1984). The fulvous whistling-duck has been reported from San Elijo Lagoon by the SELC; however, it is not expected to nest within the lagoon (Unitt 1984). Thus, no impacts to nesting fulvous whistling-duck are expected, and no avoidance, minimization, or compensatory measures would be required for this species.

4.4.21. Discussion of Osprey

The osprey (*Pandion haliaetus*) is considered a state species of concern within its breeding range and is covered under the MHCP. It forages in coastal estuaries, large lakes, and reservoirs that support forage fish populations and nests near these habitats in large, dead-topped trees, snags, cliffs, and man-made structures that can support their nesting platform. This species is widely distributed in North America but is an uncommon wintering species and is relatively rare during the breeding season in San Diego County. Within the MHCP area, the species has been recorded at Agua Hedionda Lagoon, San Elijo Lagoon, Batiquitos Lagoon, Lake Hodges, San Vicente

Reservoir, and San Diego Bay. There are no major populations in the plan area. All coastal lagoons and estuaries are considered critical locations. The osprey is known to occur within San Elijo Lagoon, as reported by the SELC; however, it is not expected to breed within the lagoon. Thus, no impacts are expected to nesting ospreys, and no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.22. Discussion of White-tailed Kite

The white-tailed kite (*Elanus leucurus*) is a state fully protected species within its breeding range. It inhabits riparian or oak woodland adjacent to grassland or open fields where it hunts rodents. This species occurs in North, Central, and South America; Australia; southern Eurasia; and Africa. In North America, the white-tailed kite is distributed along the Pacific Coast from Washington south to Baja California, Mexico, with a small population in southeast Arizona, and along the Gulf Coast from Florida south into Mexico. In California, kites are found along the coast and in the Central Valley. The white-tailed kite is a fairly common resident in San Diego County (Unitt 1984).

4.4.22.1. Survey Results

The white-tailed kite is known to occur within San Elijo Lagoon, as reported by the SELC. However, no white-tailed kites were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Based on historical location data and the presence of suitable habitat, there is a high potential for this species to occur within the survey area.

4.4.22.2. Avoidance and Minimization Efforts

The white-tailed kite is not expected to breed within the BSA. However, impacts to all winter perches and suitable foraging habitat within the survey area would be minimized through project design features.

4.4.22.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 0.33 hectare (0.82 acre) and a temporary loss of 0.31 hectare (0.76 acre) of nonnative grassland vegetation suitable as foraging habitat for the white-tailed kite.

4.4.22.4. Compensatory Mitigation

Although the draft MHCP does not include the white-tailed kite as one of the species covered under the plan, mitigation measures proposed in the MHCP for other raptor species would be sufficient for the white-tailed kite, as well. This mitigation would include habitat acquisition, enhancement, or creation at a compensation ratio to be determined by the City of Encinitas. For areas within the AE that are not covered by the MHCP, additional compensatory mitigation may be determined through discussions with the CDFG.

4.4.22.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the white-tailed kite. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, permanent and temporary loss of nonnative grassland vegetation suitable for foraging is expected within the BSA. These impacts would result in the incremental loss of suitable habitats for the species through direct habitat conversion and degradation.

4.4.23. Discussion of Northern Harrier

The northern harrier (*Circus cyaneus*) is considered a state species of concern in areas where it nests and is covered under the MHCP. It prefers to breed and forage in marshes, grasslands, agricultural fields, and open coastal sage scrub. This species is distributed throughout North America, Central America, and Eurasia. Within North America, San Diego County is the southwestern limit of the northern harrier's breeding locations. It is an uncommon to fairly common winter visitor and a rare, local summer resident in the coastal lowlands of San Diego County (Unitt 1984). Within the MHCP area, documented breeding locations are lacking; however, foraging observations are frequent and widespread. Adjacent to the MHCP area, Camp Pendleton supports about six breeding pairs, some of which probably forage within MHCP habitat. In addition, a pair may have bred in east Carlsbad during 2000. There are no major populations in the plan area; however, the MHCP database shows a single record in San Elijo Lagoon. The agricultural fields in the San Luis Rey River valley, the marsh and grassland habitats adjacent to Camp Pendleton, and the lagoons within the MHCP study area are all considered critical locations. This species, however, is not expected to nest within San Elijo Lagoon. Thus, because no impacts are expected to occur to nesting northern harriers, no avoidance,

minimization, or compensatory mitigation measures would be required for this species.

4.4.24. Discussion of Sharp-shinned Hawk

The sharp-shinned hawk (*Accipiter striatus*) is considered a state species of concern within its breeding range. It is a woodland hawk that requires a certain amount of dense cover, but this species can be localized and scattered through relatively open country. This species is distributed throughout North, Central, and South America. In California it is a fairly common migrant and winter resident, although its breeding distribution is poorly documented. In San Diego County, it is an uncommon migrant and winter visitor (Unitt 1984). The San Jacinto Mountains north of San Diego County are the documented southern breeding range of this species. Thus, although the sharp-shinned hawk is known to winter within San Elijo Lagoon as reported by the SELC, it is not expected to nest there. Thus, because no impacts are expected to nesting sharp-shinned hawks, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.25. Discussion of Cooper's Hawk

The Cooper's hawk (*Accipiter cooperii*) is considered a state species of concern within its breeding range and is covered under the MHCP. It prefers to breed in dense stands of oak or riparian woodland and, on a limited basis, suburban exotic woodlands. This species ranges throughout much of the United States, from southern Canada to northern Mexico. It is an uncommon migrant and winter visitor to San Diego County. Within the MHCP area, potential breeding locations include the San Luis Rey River, Pilgrim Creek, and oak woodland habitats in San Marcos and Escondido. There are no major populations in the plan area; however, the MHCP database shows a single record in San Elijo Lagoon. The San Luis Rey River, Pilgrim Creek, and oak woodland habitats in San Marcos and Escondido are all considered critical locations. Although the cooper's hawk is known to occur within San Elijo Lagoon as reported by the SELC, it is not expected to nest within the BSA. Thus, because no impacts are expected to occur to nesting Cooper's hawks, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.26. Discussion of Ferruginous Hawk

The ferruginous hawk (*Buteo regalis*) is considered a state species of concern within its wintering range. It inhabits large, open tracts of grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats with elevated structures for nesting. This species breeds from eastern Washington, southern Alberta, and southern Saskatchewan south to eastern Oregon, Nevada, northern and southeastern Arizona, northern New Mexico, north-central Texas, western Oklahoma, and Kansas. It winters primarily from the central and southern parts of its breeding range south to Mexico. The ferruginous hawk is a rare winter visitor to San Diego County (Unitt 1984).

4.4.26.1. Survey Results

The ferruginous hawk is known to winter within San Elijo Lagoon, as reported by the SELC. However, no ferruginous hawks were observed during the general wildlife surveys within the BSA project between March 28 and June 28, 2002. These surveys, however, were conducted during late spring, a time during which this species is not present in San Diego County. Limited suitable habitat within the survey area and known historical location data from the region indicate there is a low potential for the ferruginous hawk to occur within the BSA during the winter.

4.4.26.2. Avoidance and Minimization Efforts

Although the ferruginous hawk is not expected to breed within the survey area, all impacts to wintering perches and foraging habitat within the BSA would be minimized to the greatest extent feasible. If impacts are unavoidable, additional measures may be determined through discussions with the resource agencies.

4.4.26.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 1.71 hectares (4.23 acres) and a temporary loss of 1.33 hectares (3.28 acres) of coastal sage scrub and nonnative grassland habitat suitable for the ferruginous hawk.

4.4.26.4. Compensatory Mitigation

Although the ferruginous hawk is known to occur within the survey area, lack of evidence of occupation during the general wildlife surveys conducted for the project and limited suitable habitat availability suggest that the population size within the BSA is extremely low. Because no major populations or critical locations for the ferruginous hawk have been identified within the region and because any impact to

this species would be relatively minor in relation to the distribution of the ferruginous hawk and its habitat, no compensatory mitigation would be required.

4.4.26.5. Cumulative Impacts

The projects listed in Table 8 would contribute to the cumulative impacts to the ferruginous hawk. These impacts would contribute to development resulting in the incremental loss of habitats suitable for this species through habitat conversion and degradation. Implementation of the Caltrans 10+4 I-5 Project would result in the permanent and temporary loss of coastal sage scrub and nonnative grassland habitat suitable for this species.

4.4.27. Discussion of Golden Eagle

The golden eagle (*Aquila chrysaetos*) is considered a fully protected, state species of concern within its breeding and wintering ranges. It is also covered under the MHCP and the Federal Bald Eagle Protection Act. This species forages in extensive areas of open sage scrub, grasslands, and recently burned chaparral and nests on cliffs and in large trees that can support their large nesting platform. The golden eagle is widely distributed throughout North America, Eurasia, and north Africa but is an uncommon wintering species and relatively rare during the breeding season in San Diego County. Within the MHCP area, the species has been recorded at Agua Hedionda Lagoon, San Elijo Lagoon, Batiquitos Lagoon, Lake Hodges, San Vicente Reservoir, and San Diego Bay. There are no major populations in the plan area. All coastal lagoons and estuaries are considered critical locations. Although the golden eagle is known to occur within San Elijo Lagoon, it does not nest or winter there. Thus, because no impacts are expected to occur to nesting or wintering golden eagles, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.28. Discussion of Merlin

The merlin (*Falco columbarius*) is considered a state species of concern within its wintering range. It inhabits grasslands and agricultural fields. This species can be found in North America, tropical America, and Eurasia. In North America, it breeds from Alaska east to Newfoundland and south to Wyoming, Montana, and northeastern Maine. It winters mainly in the southern United States north to British Columbia and down the west coast and east to southern New England. This species only occurs in California in the winter and is near its southwestern distributional

limits in San Diego. The merlin is a rare winter visitor to San Diego County (Unitt 1984).

4.4.28.1. Survey Results

The merlin is known to winter within San Elijo Lagoon, as reported by the SELC. No merlins were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. These surveys, however, were conducted during late spring, a time during which this species is not present in San Diego County. The presence of suitable habitat and historical location data indicate a moderate potential for the species to occur within the survey area during the winter.

4.4.28.2. Avoidance and Minimization Efforts

The merlin is not expected to breed within the survey area. However, to minimize impacts to suitable wintering habitat within the BSA, the final project design would avoid such habitat to the greatest extent possible. Unavoidable impacts to the species may require additional minimization efforts to be determined through discussions with the CDFG.

4.4.28.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 0.38 hectare (0.93 acre) and a temporary loss of 0.36 hectare (0.88 acre) of nonnative grassland and agricultural vegetation suitable as foraging habitat for the merlin.

4.4.28.4. Compensatory Mitigation

Although the draft MHCP does not include the merlin as one of the species covered under the plan, mitigation measures proposed in the MHCP for other raptor species would be sufficient for the merlin, as well. This mitigation would include habitat acquisition, enhancement, or creation at a compensation ratio to be determined by the City of Encinitas. For areas within the AE that are not covered by the MHCP, additional compensatory mitigation may be determined through discussions with the CDFG.

4.4.28.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the merlin. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, permanent and temporary loss of nonnative grasslands suitable for foraging are expected within the BSA.

These impacts would result in the incremental loss of suitable habitats for the species through direct habitat conversion and degradation.

4.4.29. Discussion of American Peregrine Falcon

The American peregrine falcon is a considered a fully protected, state-listed endangered species within its breeding range and is covered under the MHCP. It is often observed along or near the coast, especially around mudflats, shores, or ponds where large numbers of water birds congregate. This species is also occasionally seen farther inland near reservoirs or on the coastal slopes. The American peregrine falcon ranges throughout North, Central, and South America; Africa; and Australia. Although this species was once widely distributed in North America, pesticide poisoning has led to its extirpation from the eastern United States and southeastern Canada. Its current North American range extends from Alaska southeast into Canada and south to Baja California and northern Mexico. Within and adjacent to the MHCP area, the species has been recorded at Batiquitos Lagoon, Lake Hodges, Camp Pendleton, San Pasqual Valley, San Diego Bay, and San Elijo Lagoon. There are no major populations in the plan area. All coastal wetlands and lagoons within the MHCP area are considered critical foraging locations. The American peregrine falcon is known to winter within San Elijo Lagoon; however, it is not expected to nest there. Thus, because no impacts are expected to nesting American peregrine falcons, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.30. Discussion of Prairie Falcon

The prairie falcon (*Falco mexicanus*) is considered a state species of concern within its breeding range. It is most often observed in open scrub and grassland habitats in open, arid regions with plains for foraging and cliffs for nesting. This species is found only in the western United States, Baja California, and northern Mexico. The prairie falcon is a rare to uncommon winter visitor and a rare breeding resident in San Diego County (Unitt 1984). It is known to winter within San Elijo Lagoon; however, it is not expected to nest there. Thus, because no impacts to nesting prairie falcons are expected, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.31. Discussion of California Black Rail

The California black rail is a fully protected, state-listed threatened species. Along the coast, this species prefers coastal and estuarine salt marshes with unrestricted tidal influence and freshwater emergent wetlands. It nests in or along the marsh edges, usually in an area hidden by marsh grass, on a mat of the previous year's dead grasses. Currently, the California black rail breeds only in a few remaining patches of habitat in central and southern California and western Arizona.

4.4.31.1. Survey Results

The California black rail was not observed during the general wildlife surveys conducted for the project between March 28 and June 28, 2002, nor was it documented by the SELC during 2002 surveys. Historical location data from the region indicate a low potential for the California black rail to occur within the BSA.

4.4.31.2. Avoidance and Minimization Efforts

The CDFG requires that all construction activities within and adjacent to habitat of the California black rail be conducted outside the breeding season for the species (February 15 through August 15) to minimize or avoid impacts to this species. Minimization and avoidance measures would also include minimizing impacts to riparian and aquatic habitats within the BSA, and noise monitoring in areas adjacent to suitable habitat if construction could not avoid the breeding season. The ultimate design of the project would minimize impacts to the species.

4.4.31.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 0.12 hectare (0.27 acre) and the temporary loss of 0.37 hectare (0.92 acre) of open water, freshwater marsh, saltwater marsh, and brackish marsh habitats. Indirect shading impacts due the proposed extension of the Manchester/I-5 Bridge would permanently impact 0.08 hectare (0.21 acre) of open water, 0.02 hectare (0.05 acre) of salt marsh habitat, and 0.11 hectare (0.28 acre) of brackish marsh habitat suitable for the California black rail.

Indirect effects to the species would occur through increased ambient noise levels if construction could not avoid the nesting season of the species. An increase in the ambient noise levels could disrupt nesting and breeding behaviors that play an important role in the biology of the California black rail.

4.4.31.4. Compensatory Mitigation

The California black rail is one of the species covered under the MHCP. Thus, a threatened/endangered species "take" permit would be issued for the Manchester/I-5 Interchange project that would include all listed species covered under the MHCP that would be affected by the project. Impacts to biological resources within the MHCP area would be compensated for through the acquisition, enhancement, or creation of habitats considered suitable for the covered species. Once the MHCP has been approved, the exact compensatory rates would be determined by the City of Encinitas. For impacts to the species in areas not covered by the MHCP, discussions with the CDFG would be required to determine the need for additional compensatory mitigation.

4.4.31.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the California black rail. These impacts would result in the incremental loss or degradation of habitats suitable for this species. However, because the proposed Manchester/I-5 Interchange project would include the maximum build-out of the bridge, implementation of the Caltrans 10+4 I-5 Project would not directly impact any additional habitat suitable for this species.

4.4.32. Discussion of Light-footed Clapper Rail

The light-footed clapper rail is a federally listed and fully protected state-listed endangered species and is covered under the MHCP. It is restricted to coastal salt marshes in southern California where cord grass and pickleweed are the dominant vegetation. This species forages in higher marsh vegetation and along tidal creeks and requires dense vegetation for nesting and escape cover. The light-footed clapper rail ranges in disjunct populations from Santa Barbara County to San Diego County and into Baja California, Mexico. It is an uncommon and very localized resident in San Diego County (Unitt 1984). Within the MHCP area, major populations occur in San Elijo, Batiquitos, Agua Hedionda, and Buena Vista Lagoons. All major population areas and all freshwater marsh vegetation upstream from these major population areas that are used by wintering rails are considered critical locations.

4.4.32.1. Survey Results

Focused survey data for the light-footed clapper rail were obtained from the SELC and reflect the results of the 2002 survey season for San Elijo Lagoon. The locations of the light-footed clapper rails detected by the SELC are shown in Figure 8c. San Elijo Lagoon is historically known to support a major population of this species;

therefore, there is a high potential that the light-footed clapper rail occurs within the BSA.

4.4.32.2. Avoidance and Minimization Efforts

Design modifications would minimize or avoid impacts associated with the proposed project to the greatest possible extent. Any unavoidable impacts to the cord grass and pickleweed vegetation would require efforts to avoid and minimize impacts to the light-footed clapper rail. Avoidance and minimization efforts would include avoiding construction in and adjacent to light-footed clapper rail habitat during the species' breeding season (February 15 through August 15). If construction within and adjacent to suitable habitat cannot avoid the breeding season, then an additional measure would include biological and/or noise monitoring in clapper rail habitat.

4.4.32.3. Project Impacts

The distribution and population size of the light-footed clapper rail in southern California are greatly influenced by the availability of tidal salt marsh habitat. On a regional scale, only the Upper Newport Bay and the Tijuana Wildlife Refuge populations are considered viable. All other light-footed clapper rail subpopulations are unstable and are threatened by habitat degradation, predation, and human impacts. The proposed project is designed to have no direct impact on this species.

Indirect effects to the species would occur through increased ambient noise levels if construction could not avoid the nesting season of the species. An increase in the ambient noise levels could disrupt nesting and breeding behaviors that play an important role in the biology of the light-footed clapper rail.

4.4.32.4. Compensatory Mitigation

The MHCP proposes to include the light-footed clapper rail as one of the species covered under the plan. As such, an endangered species "take" permit would be issued for the Manchester/I-5 Interchange project that would include all listed species covered under the MHCP that would be affected by the project. Impacts to biological resources within the MHCP area would be compensated for through the acquisition, enhancement, or creation of habitats considered suitable for the covered species. The exact compensatory rates would be determined by the City of Encinitas once the MHCP has been approved.

4.4.32.5. Cumulative Impacts

The projects listed in Table 8 would contribute to cumulative impacts to the light-footed clapper rail. These impacts would contribute to development resulting in the

incremental loss of habitats suitable for this species through habitat conversion and degradation. Implementation of the Caltrans 10+4 I-5 Project, however, would not result in any additional cumulative impacts to habitats suitable for this species because the proposed Manchester/I-5 Interchange project would include the maximum build-out of the bridge.

4.4.33. Discussion of Western Snowy Plover

Within its breeding range, the western snowy plover is a federally listed threatened species (for the coastal populations) and a state species of concern. It is also covered under the MHCP. It occurs along coastal sandy beaches on marine and estuarine shores, dunes, and at interior lakes and salt flats. This species requires sandy or gravelly soils for nesting. The western snowy plover is a common migrant, wintering visitor, and breeding resident in San Diego County. It ranges along the coast and on islands from Oregon south to Guatemala. It breeds along the Pacific coast north to Washington and south to Oaxaca, Mexico. It also breeds inland from Oregon east to the Great Salt Lake, Utah; southeast to Kansas and Texas; and south to southeastern California, southern Arizona, southern New Mexico, and north-central Texas. Within the MHCP area, breeding locations occur at the San Luis Rey River mouth and at San Elijo, Batiquitos, and Agua Hedionda Lagoons. Major populations occur at the San Luis Rey River mouth and in the lagoon and estuarine habitats in Oceanside, Carlsbad, and Encinitas. All major population areas are considered critical locations.

4.4.33.1. Survey Results

The western snowy plover is known to breed within San Elijo Lagoon, as reported by the SELC. However, it was not detected during the general biological surveys conducted within the BSA between March 28 and June 28, 2002. Although historical location data from the region show the species to be present in the lagoon, limited availability of suitable habitat within the survey area indicates a low potential for this species to occur within the BSA.

4.4.33.2. Avoidance and Minimization Efforts

The western snowy plover is known to occur within San Elijo Lagoon and could potentially be present within or adjacent to the AE. Thus, all impacts to suitable habitat within the BSA would be avoided to the greatest extent feasible through project design features. The USFWS would also recommend that construction avoid the breeding season for the species (March 1 through September 30). However, if impacts during the breeding season were unavoidable, additional minimization efforts may be required.

4.4.33.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 0.12 hectare (0.27 acre) and the temporary loss of 0.37 hectare (0.92 acre) of open water, freshwater marsh, saltwater marsh, and brackish marsh habitats. Indirect shading impacts due the proposed extension of the Manchester/I-5 Bridge would permanently impact 0.08 hectare (0.21 acre) of open water, 0.02 hectare (0.05 acre) of salt marsh habitat, and 0.11 hectare (0.28 acre) of brackish marsh habitat suitable for the western snowy plover.

Indirect effects to the species would occur through increased ambient noise levels if construction could not avoid the nesting season of the species. An increase in the ambient noise levels could disrupt nesting and breeding behaviors that play an important role in the biology of the western snowy plover.

4.4.33.4. Compensatory Mitigation

The MHCP includes the western snowy plover as one of the species covered under the plan. As such, a threatened species "take" permit would be issued for the Manchester/I-5 Interchange project that would include all listed species covered under the MHCP that would be affected by the project. Within the MHCP area, impacts to biological resources would be compensated for through the acquisition, enhancement, or creation of habitats considered suitable for the covered species. The exact compensatory rates would be determined by the City of Encinitas once the MHCP has been approved. However, additional compensatory mitigation may be required by the resource agencies for impacts outside of the MHCP planning area.

4.4.33.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss or degradation of habitats suitable for the western snowy plover. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. However, because the proposed Manchester/I-5 Interchange project would include the maximum build-out of the bridge, implementation of the Caltrans 10+4 I-5 Project would not directly impact any additional habitat suitable for this species.

4.4.34. Discussion of Long-billed Curlew

The long-billed curlew (*Numenius americanus*) is considered a state species of concern within its breeding range and is covered under the MHCP. It can be found in tidal mudflats, coastal strand, salt marshes, fallow agricultural fields, and grasslands

along the coast. It occurs in southwestern Canada and the western half of the United States and is an uncommon migrant and winter visitor to San Diego County. Within the MHCP area, no regular use areas are known; however, scattered wintering observations have been recorded near coastal lagoons, south Escondido, and central Carlsbad. There are no major populations or critical locations within the MHCP area. The long-billed curlew is known to winter within San Elijo Lagoon; however, it is not expected to nest at this location. Thus, because no impacts are expected to nesting long-billed curlews, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.35. Discussion of Laughing Gull

Within its nesting colonies, the laughing gull (*Larus atricilla*) is considered a state species of concern. It ranges along seacoasts, bays, and estuaries from the Gulf of California south along the Pacific Coast of Mexico, along the Gulf of Mexico from Mexico to Florida, and along the Atlantic Coast from Florida north to Nova Scotia. In San Diego County, this species is a very rare vagrant in fall, winter, and spring, with only a few verified historical sightings (Unitt 1984). Based on the historical occurrence data from the region, the laughing gull is not expected to occur within the BSA. Thus, because no impacts are expected to occur to this species, no additional avoidance, minimization, or compensatory mitigation measures would be required.

4.4.36. Discussion of California Gull

Within its nesting colonies, the California gull (*Larus californicus*) is considered a state species of concern. It inhabits coasts, estuaries, lakes, and rivers, where it uses shorelines and islands to roost. During the breeding season, the California gull migrates to inland prairie habitat, consisting of open annual grasslands with little woody cover. This species occurs along the Pacific coast, from northwestern Canada south to Baja California Sur, Mexico. In San Diego County, it is an abundant migrant and winter visitor but is rare or uncommon as a nonbreeder in the summer (Unitt 1984). The California gull is known to occur within San Elijo Lagoon most often during the fall and spring migration period and during the winter, as reported by the SELC. However, this species is not expected to breed at this location. Thus, because no impacts to California gull nesting colonies are expected, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.37. Discussion of Gull-billed Tern

Within its nesting colonies, the gull-billed tern (*Sterna nilotica*) is considered a state species of concern. It occurs in salt marshes, wetlands, outer beaches, estuaries, coastal bays, and fields and is rare inland except in Florida and at the Salton Sea. This species is found on the east and Gulf coasts, and in Africa, Eurasia, and Australia. In the western part of the United States, this tern is most commonly found at the Salton Sea, where it is known to breed. Thus, because no impacts are expected to occur to gull-billed tern nesting colonies, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.38. Discussion of Elegant Tern

Within its nesting colonies, the elegant tern (*Sterna elegans*) is considered a state species of concern. It is also covered under the MHCP. This species can be found in estuarine and intertidal zones, beaches, mudflats, and lagoon shorelines. The elegant tern's entire range stretches along the Pacific coast from Washington south to central Chile. It is a common spring and winter visitor to San Diego County. Within the MHCP area, no breeding colonies are known. Although there are no major populations or critical locations within the MHCP area, the lagoons and beaches within the area provide important wintering habitats for this species. Although the elegant tern is known to occur within San Elijo Lagoon, it is not expected to breed at this location. Thus, because no impacts to elegant tern nesting colonies are expected, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.39. Discussion of California Least Tern

The California least tern is a federally listed endangered and fully protected state-listed endangered species within its nesting colonies. It is also covered under the MHCP. The species forages in intertidal and estuarine waters and breeds colonially along coastal beaches and saltflats where vegetation is sparse. It occurs along the coast from the San Francisco Bay south to Baja California, Mexico, with San Diego County supporting nearly half of California's breeding population. Within the MHCP area, the California least tern forages in the coastal lagoons, and breeding colonies have been recorded in Batiquitos and San Elijo Lagoons. Suitable breeding habitat exists at the mouth of the San Luis Rey River but is not currently occupied. No major populations occur within the MHCP area; however, the foraging habitat at the mouth of the San Luis Rey River may support the major population that breeds on

the Santa Margarita River delta on Camp Pendleton, just north of the MHCP area. Critical locations used for foraging occur at the San Luis Rey River mouth and in lagoon and estuarine habitats in Encinitas, Carlsbad, and Oceanside.

4.4.39.1. Survey Results

Surveys conducted within the BSA by EDAW between August 23 and September 4, 2002, confirmed that the California least tern is present in San Elijo Lagoon, adjacent to the BSA. No nesting was observed within the BSA, although foraging was noted during project surveys. One California least tern was observed foraging along the channel, west of the existing I-5 bridge. The location of the California least tern detected by EDAW is shown in Figure 8c. Because suitable habitat is present within the survey area and because historical location data show the species to breed in the lagoon, there is a high potential for this species to forage within the BSA.

4.4.39.2. Avoidance and Minimization Efforts

The California least tern is known to occur adjacent to the BSA. Thus, all impacts to suitable habitat within the BSA would be avoided to the greatest extent feasible through project design features. The USFWS and CDFG would require that construction avoid the breeding season for the species (April 1 through September 15). However, if impacts during the breeding season were unavoidable, additional minimization efforts would include biological and/or noise monitoring in and adjacent to snowy plover habitat.

4.4.39.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 0.12 hectare (0.27 acre) and the temporary loss of 0.37 hectare (0.92 acre) of open water, freshwater marsh, saltwater marsh, and brackish marsh habitats. Indirect shading impacts due the proposed extension of the Manchester/I-5 Bridge would permanently impact 0.08 hectare (0.21 acre) of open water, 0.02 hectare (0.05 acre) of salt marsh habitat, and 0.11 hectare (0.28 acre) of brackish marsh habitat suitable for the California least tern.

Indirect effects to the species would occur through increased ambient noise levels if construction could not avoid the nesting season of the species. An increase in the ambient noise levels could disrupt nesting and breeding behaviors that play an important role in the biology of the California least tern.

4.4.39.4. Compensatory Mitigation

The California least tern is one of the species covered under the MHCP. Thus, an endangered species "take" permit would be issued for the Manchester/I-5 Interchange project that would include all listed species covered under the MHCP that would be affected by the project. Impacts to biological resources within the MHCP area would be compensated for through the acquisition, enhancement, or creation of habitats considered suitable for the covered species. Once the MHCP has been approved, the exact compensatory rates would be determined by the City of Encinitas. However, additional compensatory mitigation may be required by the resource agencies for impacts outside of the MHCP planning area.

4.4.39.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the California least tern. These impacts would result in the incremental loss or degradation of habitats suitable for this species. However, because the proposed Manchester/I-5 Interchange project would include the maximum build-out of the bridge, implementation of the Caltrans 10+4 I-5 Project would not directly impact any additional habitat suitable for this species.

4.4.40. Discussion of Black Skimmer

The black skimmer (*Rynchops niger*) is considered a state species of concern within its nesting colonies. It inhabits beaches, coastal lagoons, marshes, and estuaries. This species occurs along both the Pacific and Atlantic coasts. In San Diego County, it is a common resident in south San Diego Bay but very rare elsewhere along the coast (Unitt 1984).

4.4.40.1. Survey Results

The black skimmer is known to occur within San Elijo Lagoon, as reported by the SELC. However, no black skimmers were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Presence of suitable habitat and historical location data indicate that there is a moderate potential for this species to occur within the survey area.

4.4.40.2. Avoidance and Minimization Efforts

Impacts to suitable black skimmer habitat would be minimized through project design measures. If impacts are unavoidable, all construction activities within black skimmer habitat are required to comply with the MBTA by avoiding the breeding

season (March 1 through September 30). Additional measures may be determined through discussions with the resource agencies.

4.4.40.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 0.12 hectare (0.27 acre) and the temporary loss of 0.37 hectare (0.92 acre) of open water, freshwater marsh, saltwater marsh, and brackish marsh habitats. Indirect shading impacts due the proposed extension of the Manchester/I-5 Bridge would permanently impact 0.08 hectare (0.21 acre) of open water, 0.02 hectare (0.05 acre) of salt marsh habitat, and 0.11 hectare (0.28 acre) of brackish marsh habitat suitable for the black skimmer.

Indirect effects to the species would occur through increased ambient noise levels if construction could not avoid the nesting season of the species.

4.4.40.4. Compensatory Mitigation

Although the draft MHCP does not include the black skimmer as one of the species covered under the plan, mitigation measures proposed in the MHCP for other coastal salt marsh and estuarine-dependent species would be sufficient for the black skimmer, as well. This mitigation would include habitat acquisition, enhancement, or creation at a compensation ratio to be determined by the City of Encinitas. For areas within the AE that are not covered by the MHCP, additional compensatory mitigation may be determined through discussions with the CDFG.

4.4.40.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss or degradation of habitats suitable for the black skimmer. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. However, because the proposed Manchester/I-5 Interchange project would include the maximum build-out of the bridge, implementation of the Caltrans 10+4 I-5 Project would not directly impact any additional habitat suitable for this species.

4.4.41. Discussion of Burrowing Owl

The burrowing owl is considered a state species of concern within its burrowing sites and is covered under the MHCP. It inhabits open, dry annual or perennial grasslands, pastures, coastal dunes, desert scrub, and the edges of agriculture fields. It uses rodent burrows for shelter from weather and predators and for nesting. The western

subspecies extends from southern Canada into the western half of the United States and down into Baja California and central Mexico. Within and adjacent to the MHCP, western burrowing owls have been detected and potential habitat is still present in San Marcos, north Oceanside adjacent to Camp Pendleton, central and southeast Carlsbad, Batiquitos and San Elijo Lagoons, and Escondido. There are no major populations within the MHCP area; however, the above-mentioned areas are considered critical locations for this subspecies. Because the burrowing owl is not expected to occur within the BSA, no impacts are expected to the protected burrowing sites for this species. No additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.42. Discussion of Short-eared Owl

The short-eared owl (*Asio flammeus*) is considered a state species of concern within its breeding range. It inhabits wide, open spaces such as grasslands, prairie, agricultural fields, salt marshes, estuaries, mountain meadows, and alpine and Arctic tundra. This species ranges from the central United States to Alaska, although occasional nesting has been reported as far south as central Mexico and Cuba. In San Diego County, it is a rare to uncommon and localized winter visitor (Unitt 1984). Although this species is known to occur within San Elijo Lagoon as reported by the SELC, it is not expected to breed at this location. Thus, because no impacts are expected to nesting short-eared owls, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.43. Discussion of Vaux's Swift

Vaux's swift (*Chaetura vauxi*) is considered a state species of concern within its breeding range. It can be found in mature forests but also forages over open country, land, and water. During migration, this species often roosts in large flocks in hollow trees or chimneys. Within North America, Vaux's swift breeds from southeastern Alaska, southern British Columbia, northern Idaho, and western Montana south to central California and winters casually in California, southern Louisiana, and western Florida. In San Diego County, this species is a common to very uncommon spring migrant and an uncommon to fairly uncommon fall migrant; however, it is sometimes a common to very common localized winter visitor in coastal northern San Diego County (Unitt 1984). Although historical data from the region and the presence of suitable habitat suggest a moderate potential for this species to occur within San Elijo Lagoon, it is not expected to nest at this location. Thus, because no impacts are

expected to occur to nesting Vaux's swifts, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.44. Discussion of Southwestern Willow Flycatcher

The southwestern willow flycatcher is a federally listed endangered and state-listed endangered species within its breeding range and is covered under the MHCP. It is restricted to willow-dominated riparian habitats, usually in proximity to water. In the southwestern United States, this subspecies' range is limited to a few major river drainages, with the largest population in southern California located on the south fork of the Kern River in Kern County. Within the MHCP area, small breeding populations persist along the San Luis Rey River and Pilgrim Creek in Oceanside. Scattered observations have also occurred in other riparian areas, including San Elijo Lagoon. Major populations within the MHCP area occur on the San Luis Rey River near Guajome Lake and on Pilgrim Creek near Foss Lake. Both of these areas are within the city of Oceanside and are considered critical locations. Although the southwestern willow flycatcher is known to occur within San Elijo Lagoon, it is not expected to breed at this location. Thus, because no impacts are expected to occur to nesting southwestern willow flycatchers, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.45. Discussion of Vermilion Flycatcher

The vermilion flycatcher (*Pyrocephalus rubinus*) is considered a state species of concern within its breeding range. It occurs in dry country near wooded streams and rivers; bottomlands with mesquite, willow, and cottonwood trees; at the edge of wooded ponds; and in open brushy or grassy fields near water. This species breeds from southern California, southern Nevada, central Arizona, central New Mexico, and western Oklahoma south to South America. It winters from southern California and southern Nevada to the Gulf Coast, east to south-central Florida, and south to Central America. In San Diego County, the vermilion flycatcher is a rare fall migrant and winter visitor and a casual spring migrant and summer resident (Unitt 1984). Although the vermilion flycatcher is known to occur within San Elijo Lagoon, this species is not expected to breed at this location. Thus, because no impacts are expected to occur to nesting vermilion flycatchers, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.46. Discussion of California Horned Lark

The California horned lark (*Eremophila alpestris actia*) is considered a state species of concern. It inhabits sandy ocean or bay shores, grasslands, and open scrublands and woodlands with low, sparse vegetation. Although this species historically ranged from northern coastal California south to Mexico and east into the central valley, its current distribution is unknown. In San Diego County, the California horned lark is a common breeding resident and an abundant migrant and winter visitor (Unitt 1984).

4.4.46.1. Survey Results

No California horned larks were detected during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. However, the presence of suitable habitat and historical location data for the region indicate a moderate potential for this species to occur within the survey area.

4.4.46.2. Avoidance and Minimization Efforts

Impacts to habitat suitable for the California horned lark would be avoided or minimized through project design measures. If impacts are unavoidable, all construction within California horned lark habitat must avoid the breeding season (March 1 through September 30) to comply with the MBTA. Additional measures may be determined through discussions with the resource agencies.

4.4.46.3. Project Impacts

The proposed Manchester/I-5 Interchange project would result in a permanent and temporary loss of habitat suitable to support the California horned lark. The Build Alternative would result in the permanent loss of 1.74 hectares (4.30 acres) and a temporary loss of 1.40 hectares (3.44 acres) of suitable California horned lark habitat.

4.4.46.4. Compensatory Mitigation

Although this species was not detected within the BSA during the general wildlife surveys conducted for this project, the California horned lark has been recorded within San Elijo Lagoon. Because of its ability to use a diversity of intact and disturbed habitats, there is a moderate potential for this species to occur within the BSA; however, the population size is probably extremely low. Thus, mitigation measures specified for other sensitive species found within the survey area would satisfy any mitigation requirements for the California horned lark.

4.4.46.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the California horned lark. These impacts

would result in both a permanent and temporary loss of habitat suitable for this species. Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, permanent and temporary loss of Diegan coastal sage scrub and nonnative grasslands are expected within the BSA. These impacts would result in the incremental loss of suitable habitats for the species through direct habitat conversion and degradation.

4.4.47. Discussion of Purple Martin

The purple martin (*Progne subis*) is considered a state species of concern within its breeding range. It occurs in open country, farmlands, towns, agricultural areas, and wetland borders. This species breeds throughout the eastern United States and central Canada; it also breeds along the Pacific coast, from British Columbia to Mexico but is not found in North America in the winter. In San Diego County, the purple martin is a rare spring and fall migrant and a rare and localized summer resident (Unitt 1984). Although this species is known to occur within San Elijo Lagoon, it is not expected to breed at this location. Thus, because no impacts are expected to nesting purple martins, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.48. Discussion of Bank Swallow

The bank swallow is a state-listed threatened species within its breeding range. It inhabits riverbanks and gravel pits where sandy, vertical bluffs are available for the birds to dig their burrows and nest in colonies. This species breeds from western and central Alaska and central Yukon to central Quebec and southern Labrador, south to southern California, western Nevada, southern New Mexico, southern Texas, northern Alabama, eastern Virginia, and casually, northwestern North Carolina and south-central South Carolina. It winters in South America. In San Diego County, it is a rare fall migrant and a casual winter visitor and spring migrant (Unitt 1984). Although the bank swallow is known from San Elijo Lagoon, it is not expected to breed at this location. Thus, because no impacts are expected to nesting bank swallows, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.49. Discussion of Coastal California Gnatcatcher

The coastal California gnatcatcher is a federally listed threatened species and state species of concern and is covered under the MHCP. This subspecies is usually found in association with coastal sage scrub communities, particularly Diegan coastal sage scrub, occurring on gentle slopes within the maritime and coastal climate zones,

4.4.46. Discussion of California Horned Lark

The California horned lark (*Eremophila alpestris actia*) is considered a state species of concern. It inhabits sandy ocean or bay shores, grasslands, and open scrublands and woodlands with low, sparse vegetation. Although this species historically ranged from northern coastal California south to Mexico and east into the central valley, its current distribution is unknown. In San Diego County, the California horned lark is a common breeding resident and an abundant migrant and winter visitor (Unitt 1984).

4.4.46.1. Survey Results

No California horned larks were detected during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. However, the presence of suitable habitat and historical location data for the region indicate a moderate potential for this species to occur within the survey area.

4.4.46.2. Avoidance and Minimization Efforts

Impacts to habitat suitable for the California horned lark would be avoided or minimized through project design measures. If impacts are unavoidable, all construction within California horned lark habitat must avoid the breeding season (March 1 through September 30) to comply with the MBTA. Additional measures may be determined through discussions with the resource agencies.

4.4.46.3. Project Impacts

The proposed Manchester/I-5 Interchange project would result in a permanent and temporary loss of habitat suitable to support the California horned lark. The Build Alternative would result in the permanent loss of 1.74 hectares (4.30 acres) and a temporary loss of 1.40 hectares (3.44 acres) of suitable California horned lark habitat.

4.4.46.4. Compensatory Mitigation

Although this species was not detected within the BSA during the general wildlife surveys conducted for this project, the California horned lark has been recorded within San Elijo Lagoon. Because of its ability to use a diversity of intact and disturbed habitats, there is a moderate potential for this species to occur within the BSA; however, the population size is probably extremely low. Thus, mitigation measures specified for other sensitive species found within the survey area would satisfy any mitigation requirements for the California horned lark.

4.4.46.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the California horned lark. These impacts

would result in both a permanent and temporary loss of habitat suitable for this species. Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, permanent and temporary loss of Diegan coastal sage scrub and nonnative grasslands are expected within the BSA. These impacts would result in the incremental loss of suitable habitats for the species through direct habitat conversion and degradation.

4.4.47. Discussion of Purple Martin

The purple martin (*Progne subis*) is considered a state species of concern within its breeding range. It occurs in open country, farmlands, towns, agricultural areas, and wetland borders. This species breeds throughout the eastern United States and central Canada; it also breeds along the Pacific coast, from British Columbia to Mexico but is not found in North America in the winter. In San Diego County, the purple martin is a rare spring and fall migrant and a rare and localized summer resident (Unitt 1984). Although this species is known to occur within San Elijo Lagoon, it is not expected to breed at this location. Thus, because no impacts are expected to nesting purple martins, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.48. Discussion of Bank Swallow

The bank swallow is a state-listed threatened species within its breeding range. It inhabits riverbanks and gravel pits where sandy, vertical bluffs are available for the birds to dig their burrows and nest in colonies. This species breeds from western and central Alaska and central Yukon to central Quebec and southern Labrador, south to southern California, western Nevada, southern New Mexico, southern Texas, northern Alabama, eastern Virginia, and casually, northwestern North Carolina and south-central South Carolina. It winters in South America. In San Diego County, it is a rare fall migrant and a casual winter visitor and spring migrant (Unitt 1984). Although the bank swallow is known from San Elijo Lagoon, it is not expected to breed at this location. Thus, because no impacts are expected to nesting bank swallows, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.49. Discussion of Coastal California Gnatcatcher

The coastal California gnatcatcher is a federally listed threatened species and state species of concern and is covered under the MHCP. This subspecies is usually found in association with coastal sage scrub communities, particularly Diegan coastal sage scrub, occurring on gentle slopes within the maritime and coastal climate zones,

generally below 1,000 feet elevation. Often, California sagebrush and flat-top buckwheat are the dominant plant species in the area. The coastal California gnatcatcher's range is restricted to the coastal slopes of southern California, from Los Angeles County south to El Rosario, Baja California, Mexico. Within the MHCP area, significant concentrations of this subspecies are found throughout Carlsbad, southwest San Marcos, and Oceanside, with lesser concentrations in portions of Escondido, Vista, and Encinitas. Critical populations occur in northeast Carlsbad (the Calavera Lake/Calavera Highlands area), southeast Carlsbad/southwest San Marcos (the La Costa/University Commons area), and north Oceanside adjacent to Camp Pendleton. The regional stepping-stone corridor through Oceanside, east Carlsbad, and southwest San Marcos is considered a critical linkage area.

The coastal California gnatcatcher was listed as threatened by the USFWS on March 30, 1993 (58 FR 16742). Critical Habitat for the coastal California gnatcatcher was originally designated on October 24, 2000 (65 FR 653680) but was overturned by the U.S. District Court on March 8, 2002. Subsequently, the USFWS has published a new Proposed Designation of Critical Habitat, dated April 24, 2003 (68 FR 20228). The Proposed Action area is located within Unit 3 of the currently proposed Critical Habitat of the coastal California gnatcatcher. A recovery plan for the species has not been developed.

4.4.49.1. Survey Results

Focused surveys for the coastal California gnatcatcher were conducted by EDAW. The surveys were conducted following the USFWS survey protocol for the species. A total of 25 gnatcatchers were observed or detected within or adjacent to the BSA, including 10 pairs. A total of 21 coastal California gnatcatchers (9 pairs, 1 solitary male, and 2 juveniles) were observed within the BSA. Of the total, 3 pairs of coastal California gnatcatchers were observed close to the proposed temporary impact zone of the Build Alternative (Figures 8d-8e). In addition, a juvenile was observed within the temporary impact zone for the proposed alternative (Figure 8d). The locations of all coastal California gnatcatchers detected during these surveys are shown in Figures 8a through 8e. The scrub-covered slopes above San Elijo Lagoon are historically known to support the species.

4.4.49.2. Avoidance and Minimization Efforts

The coastal California gnatcatcher is known to occur within the BSA, thus the federal and state regulatory agencies recommend that construction avoid the breeding season for the species (February 15 through August 30). However, if impacts during the

breeding season are unavoidable, additional minimization efforts would include biological and/or noise monitoring in and adjacent to coastal California gnatcatcher habitat.

4.4.49.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 1.38 hectares (3.41 acres) and a temporary loss of 1.02 hectares (2.52 acres) of coastal sage scrub habitat suitable for the coastal California gnatcatcher. Out of the 25 coastal California gnatcatchers that were observed in the BSA, 3 pairs were located just adjacent to the temporary impact zone for the Build Alternative. In addition, there was one juvenile observed well into the temporary impact zone. Based on these results and the known territorial characteristics of the CAGN, temporary impacts to at least these 7 individuals need to be mitigated for as well as the habitat that will be indirectly and directly affected in the area (Figures 8d and 8e).

Indirect effects to the species would occur through increased ambient noise levels if construction could not avoid the nesting season of the species. An increase in the ambient noise levels could disrupt nesting and breeding behaviors that play an important role in the biology of the coastal California gnatcatcher.

4.4.49.4. Compensatory Mitigation

The MHCP includes the coastal California gnatcatcher as one of the species covered under the plan. As such, a threatened/endangered species "take" permit would be issued for the Manchester/I-5 Interchange project that would include all listed species covered under the MHCP that would be affected by the project. Within the MHCP area, impacts to biological resources would be compensated for through the acquisition, enhancement, or creation of habitats considered suitable for the covered species. The exact compensatory rates would be determined by the City of Encinitas once the MHCP has been approved. For impacts to the coastal California gnatcatcher in areas not covered by the MHCP, additional compensatory mitigation may be required as determined through discussions with the USFWS and CDFG.

4.4.49.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss of habitats suitable for the coastal California gnatcatcher. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Implementation of the Caltrans 10+4 I-5 Project would result in permanent and temporary loss of coastal sage scrub

habitat within the BSA. These impacts would contribute cumulative impacts to this species through habitat conversion and degradation.

4.4.50. Discussion of Bendire's Thrasher

The Bendire's thrasher (*Toxostoma bendirei*) is considered a state species of concern. It occurs in desert scrubland, farmlands, grasslands, dry open country, saltbush flats, and residential areas. This species breeds in southeastern California, southern Nevada, southern Utah, western New Mexico, and Sonora, Mexico. It winters from central-southern Arizona to Sinaloa, Mexico. It is a rare fall migrant to the southern coast of California. In San Diego County, the Bendire's thrasher is a very rare fall migrant and a casual winter visitor (Unitt 1984).

4.4.50.1. Survey Results

Bendire's thrasher is known to occur within San Elijo Lagoon, as reported by the SELC. However, no Bendire's thrashers were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Historical location data from the region and limited habitat present within the survey area indicate a low potential for this species to occur within the BSA.

4.4.50.2. Avoidance and Minimization Efforts

Impacts to suitable Bendire's thrasher habitat would be minimized through project design measures. If impacts are unavoidable, all construction activities within Bendire's thrasher habitat will be required to comply with the MBTA by avoiding the breeding season (March 1 through September 30). Additional measures may be determined through discussions with the resource agencies.

4.4.50.3. Project Impacts

Bendire's thrasher populations have experienced a steady decline due to increased urbanization and habitat destruction. The proposed Manchester/I-5 Interchange project would result in the permanent and temporary loss of marginally suitable Bendire's thrasher habitat within the proposed AE. The Build Alternative would result in the permanent loss of 0.33 hectare (0.82 acre) and a temporary loss of 0.31 hectare (0.76 acre) of nonnative grassland marginally suitable as foraging habitat for Bendire's thrasher.

4.4.50.4. Compensatory Mitigation

Although Bendire's thrasher is known to occur within the survey area, lack of evidence of occupation during the general wildlife surveys conducted for the project

and limited suitable habitat availability suggest that the population size within the BSA is extremely low. Because no major populations or critical locations for Bendire's thrasher have been identified within the region and because any impact to this species would be relatively minor in relation to the distribution of Bendire's thrasher and its habitat, no compensatory mitigation would be required.

4.4.50.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to Bendire's thrasher. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, permanent and temporary loss of nonnative grassland is expected within the BSA. These impacts would result in the incremental loss of suitable habitats for the species through direct habitat conversion and degradation.

4.4.51. Discussion of Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is considered both a federal and state species of special concern within its breeding range. It inhabits agricultural lands, desert wash, desert scrub, grasslands, and beaches with scattered bushes. It requires open ground for foraging, preferably near scattered bushes and low trees that provide nest sites and perches. This species occurs throughout most of North America, except in the northeastern United States; northern Rocky Mountains and Cascade Range; and southern Alberta, Saskatchewan, and Manitoba. In San Diego County, the loggerhead shrike is a fairly common resident, absent only from the mountain zone (Unitt 1984). Although historical location data from the region and the presence of suitable habitat onsite suggest that there is a high potential for the loggerhead shrike to occur within the survey area, this species is not expected to breed at this location. Thus, because no impacts are expected to occur to nesting loggerhead shrikes, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.52. Discussion of Least Bell's Vireo

The least Bell's vireo is a federally listed endangered and state-listed endangered species within its breeding range and is covered under the MHCP. It is limited to semi-open willow-mulefat-dominated riparian woodlands with dense shrub understory in southern California and northern Baja California, Mexico. Within the MHCP area, there is only one major population, located in Oceanside at the San Luis

Rey River and Pilgrim Creek, and several smaller populations on other drainages throughout the plan area. The San Luis Rey River/Pilgrim Creek area is considered a critical location.

4.4.52.1. Survey Results

Focused survey data for the least Bell's vireo were conducted by EDAW, and were supplemented with historic data obtained from the SELC reflecting the results of the 2002 survey season for San Elijo Lagoon. The surveys were conducted following USFWS survey protocol. No least Bell's vireo were observed or detected by EDAW. However, one migrant vireo was observed by SELC in the southern willow scrub habitat along the south side of Manchester Avenue, west of I-5. The locations of the least Bell's vireos detected by the SELC are shown in Figure 8c. Because San Elijo Lagoon is historically known to support the species and because there is suitable habitat present within the survey area, there is a moderate potential that the least Bell's vireo occurs within the BSA.

4.4.52.2. Avoidance and Minimization Efforts

The least Bell's vireo is known to occur immediately adjacent to the BSA. Thus, all impacts to suitable habitat within the BSA would be avoided to the greatest extent feasible through project design features. The USFWS would also require that construction avoid the breeding season for the species (March 15 through August 15). However, if impacts during the breeding season were unavoidable, additional minimization efforts would include biological and/or noise monitoring in and adjacent to least Bell's vireo habitat.

4.4.52.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 0.03 hectare (0.08 acre) and a temporary loss of 0.04 hectare (0.09 acre) of southern willow scrub habitat suitable for the least Bell's vireo. Indirect effects to the species would occur through increased ambient noise levels if construction could not avoid the nesting season of the species. An increase in the ambient noise levels could disrupt nesting and breeding behaviors that play an important role in the biology of the least Bell's vireo.

4.4.52.4. Compensatory Mitigation

The least Bell's vireo is one of the species covered under the MHCP. Thus, an endangered species "take" permit would be issued for the Manchester/I-5 Interchange project that would include all species covered under the MHCP that would be affected by the project. Impacts to the species within the MHCP area would be

compensated for through the acquisition, enhancement, or creation of habitats considered suitable for the covered species. Once the MHCP has been approved, the exact compensatory rates would be determined by the City of Encinitas. For impacts to the southwestern willow flycatcher in areas not covered by the MHCP, additional compensatory mitigation may be required as determined through discussions with the USFWS and CDFG.

4.4.52.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss of habitats suitable for the least Bell's vireo. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Implementation of the Caltrans 10+4 I-5 Project would result in permanent and temporary loss of southern willow scrub habitat within the BSA. These losses would contribute cumulative impacts to this species through habitat conversion and degradation.

4.4.53. Discussion of Virginia's Warbler

Virginia's warbler (*Vermivora virginiae*) is considered a state species of concern within its breeding range. It occurs in coniferous forests, scrubby brush, pinyon-juniper woodlands, yellow pine woodlands, ravines covered with scrub oak, and streamside thickets of willow and alder, usually at altitudes between 1,827.41-2,741.11 m (6,000-9,000 ft) amsl. Virginia's warbler breeds from east-central California, central Nevada, southeastern Idaho, and southern Wyoming south to south-central California, central and southeastern Arizona, southern New Mexico, and extreme western Texas. This species winters in Mexico. In San Diego County, it is a rare fall migrant and a casual winter visitor (Unitt 1984). Although Virginia's warbler is known to occur within San Elijo Lagoon, it is not expected to breed at this location. Thus, because no impacts are expected to nesting Virginia's warblers, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.54. Discussion of Yellow Warbler

The yellow warbler is considered a state species of concern within its breeding range. It occupies marshes, swamps, streamside groves, willow and alder thickets, open woodlands with thickets, orchards, gardens, and open mangroves. This species breeds from Alaska to Newfoundland and south to western South Carolina and northern Georgia, and west sporadically through the southwest to the Pacific Coast.

This form is highly migratory and winters in Central America and the West Indies south to northern Peru. The yellow warbler is a summer visitor in California. In San Diego County, it is uncommon and localized as a breeding species but is common and widespread as a migrant. Although this species is known to occur within San Elijo Lagoon, it is not expected to breed at this location. Thus, because no impacts to nesting yellow warblers are expected, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.55. Discussion of Yellow-breasted Chat

The yellow-breasted chat is considered a state species of concern within its breeding range and is covered under the MHCP. It is an uncommon but locally abundant resident of riparian woodland in coastal lowlands and foothills of California. Within the MHCP area, this species has been documented at the San Luis Rey River, central Oceanside, the lower Escondido creek in Encinitas, and Kit Carson Park in Escondido. It is expected to occur in most riparian habitat within the plan area. The San Luis Rey River and Pilgrim Creek support major populations and are critical locations for this species. Although the yellow-breasted chat is known to occur within San Elijo Lagoon, it is not expected to breed at this location. Thus, because no impacts are expected to occur to nesting yellow-breasted chats, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.56. Discussion of Summer Tanager

The summer tanager (*Piranga rubra*) is considered a state species of concern within its breeding range. It occurs in pine-oak and oak forests, streamside willows and cottonwood trees, and dry open woodlands. This species breeds from southeastern California and southern Nevada to central Oklahoma, and from southeastern Nebraska to New Jersey south to the Gulf Coast and northern Mexico. It winters mainly from Mexico to Bolivia. In San Diego County, the summer tanager is a rare fall migrant and winter visitor, a very rare spring migrant, and a casual visitor through summer (Unitt 1984). Although this species is known to occur within San Elijo Lagoon, it is not expected to breed at this location. Thus, because no impacts to nesting summer tanagers are expected, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.57. Discussion of Southern California Rufous-crowned Sparrow

The southern California rufous-crowned sparrow is considered a state species of concern and is covered under the MHCP. It is a fairly common, localized resident of sage scrub on steep rocky slopes of the coastal plain of southern California and Baja California, Mexico, from sea level to 548.64 m (1,800 ft) amsl. This species is found throughout the MHCP area wherever large sections of suitable coastal sage scrub habitat occur. Within the MHCP area, no major populations or critical locations have been designated.

4.4.57.1. Survey Results

The southern California rufous-crowned sparrow is known to occur within San Elijo Lagoon, as reported by the SELC. However, no southern California rufous-crowned sparrows were observed during the various general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Historical location data and small areas of suitable habitat within the survey area indicate a moderate potential for this species to occur within the BSA.

4.4.57.2. Avoidance and Minimization Efforts

Impacts to suitable southern California rufous-crowned sparrow habitat would be minimized through project design measures. If impacts are unavoidable, all construction activities within southern California rufous-crowned sparrow habitat are required to comply with the MBTA by avoiding the breeding season (March 1 through September 30). Additional measures may be determined through discussions with the resource agencies.

4.4.57.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 1.38 hectares (3.41 acres) and a temporary loss of 1.02 hectares (2.52 acres) of coastal sage scrub habitat suitable for the southern California rufous-crowned sparrow.

4.4.57.4. Compensatory Mitigation

The draft MHCP proposes to include the southern California rufous-crowned sparrow as one of the species covered under the plan. As a habitat-based conservation plan, impacts to individual species are compensated for by mitigation with habitat acquisition, enhancement, or creation that would be considered suitable for the species impacted. Once the MHCP is approved, impacts to the southern California rufous-crowned sparrow will be mitigated through a habitat-based compensation ratio

to be determined by the City of Encinitas. For areas within the AE that are not covered by the MHCP, additional compensatory mitigation may be determined through discussions with the CDFG.

4.4.57.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss of habitats suitable for the rufous-crowned sparrow. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Implementation of the Caltrans 10+4 I-5 Project would result in permanent and temporary loss of coastal sage scrub within the BSA. These impacts would contribute cumulative impacts to this species through habitat conversion and degradation.

4.4.58. Discussion of Bell's Sage Sparrow

Bell's sage sparrow (*Amphispiza belli belli*) is considered a state species of concern and is covered under the MHCP. It occupies dense coastal sage scrub and open chaparral habitats. This subspecies ranges from the Cascade Mountains to Baja California, Mexico, but is uncommon in San Diego County. Within the MHCP area, Bell's sage sparrows have been observed in north and southeast Carlsbad, east Encinitas, north and south San Marcos, and south Escondido. There are no major populations or critical locations within the MHCP area.

4.4.58.1. Survey Results

No Bell's sage sparrows were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Limited habitat availability within the survey area and historical location data for the region indicate a low to moderate potential for this species to occur within the BSA.

4.4.58.2. Avoidance and Minimization Efforts

Impacts to suitable Bell's sage sparrow habitat would be minimized through project design measures. If impacts are unavoidable, all construction activities within Bell's sage sparrow habitat are required to comply with the MBTA by avoiding the breeding season (March 1 through September 30). Additional measures may be determined through discussions with the resource agencies.

4.4.58.3. Project Impacts

Bell's sage sparrow populations have experienced a steady decline due to increased urbanization and habitat destruction. The proposed Manchester/I-5 Interchange

project would result in the permanent and temporary loss of marginally suitable Bell's sage sparrow habitat within the proposed AE. The Build Alternative would result in the permanent loss of 1.41 hectares (3.48 acres) and a temporary loss of 1.09 hectares (2.68 acres) of Diegan coastal sage scrub and southern maritime chaparral vegetation suitable for Bell's sage sparrow.

4.4.58.4. Compensatory Mitigation

Bell's sage sparrow is known to occur within the survey area; however, limited suitable habitat within the BSA and lack of evidence of occupation during the general wildlife surveys conducted for the project suggest that the population size within the BSA is extremely low. Because no major populations or critical locations for Bell's sage sparrow have been identified within the region and because any impact to this species would be relatively minor in relation to the distribution of Bell's sage sparrow and its habitat, no compensatory mitigation would be required.

4.4.58.5. Cumulative Impacts

The projects listed in Table 8 would contribute to the cumulative impacts to Bell's sage sparrow. These impacts would contribute to development resulting in the incremental loss of habitats suitable for this species through habitat conversion and degradation. Implementation of the Caltrans 10+4 I-5 Project would result in the permanent and temporary loss of coastal sage scrub and southern maritime chaparral habitat suitable for this species.

4.4.59. Discussion of Belding's Savannah Sparrow

Belding's savannah sparrow is a state-listed endangered species and is covered under the MHCP. It is restricted to salt marsh, mudflats, and low coastal strand vegetation, especially where pickleweed dominates. This species occurs along the coast from Santa Barbara County south to northern Baja California, Mexico, and is a year-round resident in San Diego County. Within the MHCP area, most salt marshes support this species. In Encinitas and Carlsbad, Agua Hedionda, Batiquitos, and San Elijo Lagoons are considered major populations and critical locations.

4.4.59.1. Survey Results

Belding's savannah sparrow is known to occur within San Elijo Lagoon, as reported by the SELC. The locations of the Belding's savannah sparrows detected by the SELC are shown in Figure 8c. Surveys conducted by EDAW between August 23 and September 4, 2002, confirmed its presence within the BSA. Eight pairs of Belding's savannah sparrows were observed within the BSA.

4.4.59.2. Avoidance and Minimization Efforts

Belding's savannah sparrow is known to occur within and adjacent to the BSA. Design modifications would minimize or avoid impacts associated with the proposed project to the greatest possible extent. Any unavoidable impacts to estuarine habitats dominated by pickleweed vegetation would require efforts to avoid and minimize impacts to the Belding's savannah sparrow. Avoidance and minimization efforts would include avoiding construction in and adjacent to Belding's savannah sparrow habitat during the species' breeding season (April 1 through July 31). If construction within and adjacent to suitable habitat cannot avoid the breeding season, then an additional measure would include biological and/or noise monitoring in and adjacent to Belding's savannah sparrow habitat.

4.4.59.3. Project Impacts

The Build Alternative would result in a permanent loss of 0.02 hectare (0.04 acre) and a temporary loss of 0.14 hectare (0.35 acre) of salt marsh habitat. Indirect shading impacts due the proposed extension of the Manchester/I-5 Bridge would permanently impact 0.02 hectare (0.05 acre) of salt marsh habitat suitable for the Belding's savannah sparrow.

Indirect effects to the species would occur through increased ambient noise levels if construction could not avoid the nesting season of the species. Indirect effects to the species would occur through increased ambient noise levels if construction could not avoid the nesting season of the species. An increase in the ambient noise levels could disrupt nesting and breeding behaviors that play an important role in the biology of Belding's savannah sparrow.

4.4.59.4. Compensatory Mitigation

The MHCP proposes to include Belding's savannah sparrow as one of the species covered under the plan. As such, an endangered species "take" permit would be issued for the Manchester/I-5 Interchange project that would include all listed species covered under the MHCP that would be affected by the project. Impacts to biological resources within the MHCP area would be compensated for through the acquisition, enhancement, or creation of habitats considered suitable for the covered species. The exact compensatory rates would be determined by the City of Encinitas once the MHCP has been approved. For areas within the AE that are not covered by the MHCP, additional compensatory mitigation may be determined through discussions with the CDFG.

4.4.59.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss or degradation of habitats suitable for Belding's savannah sparrow. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. However, because the proposed Manchester/I-5 Interchange project would include the maximum build-out of the bridge, implementation of the Caltrans 10+4 I-5 Project would not directly impact any additional habitat suitable for this species.

4.4.60. Discussion of Large-billed Savannah Sparrow

The large-billed Savannah sparrow (*Passerculus sandwichensis rostratus*) is considered a state species of concern within its wintering range and is covered under the MHCP. It inhabits salt marshes, mudflats, and low coastal strand vegetation. This species, which has remained scarce since the 1980s, occurs in small numbers along the coast of southern California and at the Salton Sea. Within the MHCP area, documented locations for this subspecies are lacking. Although there are no major populations within the MHCP area, the Agua Hedionda, Batiquitos, and San Elijo Lagoons are considered critical wintering locations for this subspecies.

4.4.60.1. Survey Results

The large-billed savannah sparrow is known to occur within San Elijo Lagoon, as reported by the SELC. However, no large-billed savannah sparrows were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. As this species is known to winter in the coastal lagoons, it may not have been detected during these late spring surveys. Based on historical location data for the region and presence of suitable habitat within the survey area, this species has a moderate potential to occur within the BSA during the winter.

4.4.60.2. Avoidance and Minimization Efforts

Impacts to suitable large-billed savannah sparrow habitat would be minimized through project design measures. If impacts are unavoidable, all construction activities within large-billed savannah sparrow habitat are required to comply with the MBTA by avoiding the breeding season (March 1 through September 30). Additional measures may be determined through discussions with the resource agencies.

4.4.60.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 0.12 hectare (0.27 acre) and the temporary loss of 0.37 hectare (0.92 acre) of freshwater marsh, saltwater marsh, and brackish marsh habitat. Indirect shading impacts due the proposed extension of the Manchester/I-5 Bridge would permanently impact 0.02 hectare (0.05 acre) of salt marsh habitat and 0.11 hectare (0.28 acre) of brackish marsh habitat suitable for the large-billed savannah sparrow.

4.4.60.4. Compensatory Mitigation

The draft MHCP proposes to include the large-billed savannah sparrow as one of the species covered under the plan. As a habitat-based conservation plan, impacts to individual species are compensated for by mitigation with habitat acquisition, enhancement, or creation that would be considered suitable for the species impacted. Once the MHCP is approved, impacts to the large-billed savannah sparrow will be mitigated through a habitat-based compensation ratio to be determined by the City of Encinitas. For areas within the AE that are not covered by the MHCP, additional compensatory mitigation may be determined through discussions with the CDFG.

4.4.60.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the large-billed savannah sparrow. These impacts would result in the incremental loss or degradation of habitats suitable for this species. However, because the proposed Manchester/I-5 Interchange project would include the maximum build-out of the bridge, implementation of the Caltrans 10+4 I-5 Project would not directly impact any additional habitat suitable for this species.

4.4.61. Discussion of Grasshopper Sparrow

The grasshopper sparrow (*Ammodramus savannarum*) is covered under the MHCP. It is restricted to grasslands, typically those dominated by native grasses and forbs. This species occurs throughout the continental United States, with San Diego County representing the southern extent of the species' west coast breeding range. It is a rare winter resident in the county. Within the MHCP area, grasshopper sparrows have been documented around Buena Vista and San Elijo Lagoons, north Carlsbad, north and south San Marcos, south and east Encinitas, and south Escondido. There are no major populations within the MHCP area; however, the grassland areas with appropriate habitat are considered critical locations.

4.4.61.1. Survey Results

The grasshopper sparrow is known to occur within San Elijo Lagoon, as reported by the SELC. However, no grasshopper sparrows were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Although there is a limited amount of suitable habitat within the survey area, historical location data indicate a moderate potential for the species to occur within the BSA.

4.4.61.2. Avoidance and Minimization Efforts

Impacts to suitable grasshopper sparrow habitat would be minimized through project design measures. If impacts are unavoidable, all construction activities within grasshopper sparrow habitat are required to comply with the MBTA by avoiding the breeding season (March 1 through September 30). Additional measures may be determined through discussions with the resource agencies.

4.4.61.3. Project Impacts

Grasshopper sparrow populations have experienced a steady decline due to increased urbanization and habitat destruction. The proposed Manchester/I-5 Interchange project would result in the permanent and temporary loss of marginally suitable grasshopper sparrow habitat within the proposed AE. The Build Alternative would result in the permanent loss of 0.33 hectare (0.82 acre) and a temporary loss of 0.31 hectare (0.76 acre) of nonnative grassland habitat for the grasshopper sparrow.

4.4.61.4. Compensatory Mitigation

The grasshopper sparrow is known to occur within the survey area; however, lack of evidence of occupation during general wildlife surveys conducted for the project and limited suitable habitat availability suggest that the population size within the BSA is extremely low. Although critical habitats have been identified elsewhere within the MHCP area, any impact by the project to this species would be relatively minor in relation to the distribution of the grasshopper sparrow and its habitat. Thus, no compensatory mitigation would be required.

4.4.61.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the grasshopper sparrow. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, permanent and temporary loss of nonnative grasslands are expected within the BSA.

These impacts would result in the incremental loss of suitable habitats for the species through direct habitat conversion and degradation.

4.4.62. Discussion of Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) is considered a state species of concern within its nesting colonies and is covered under the MHCP. It nests in large, dense colonies in freshwater marsh and riparian scrub habitats and forages in agricultural areas, lakeshores, and damp lawns. This species' distribution is centered in the Sacramento/San Joaquin valleys of California. It is a common to abundant localized resident in San Diego County. Within the MHCP area, tricolored blackbird observations have been documented near the San Luis Rey River and Pilgrim Creek; Kit Carson Park in Escondido; and Buena Vista, Batiquitos, and San Elijo Lagoons. Although there are no known major populations or critical locations within the MHCP area, this species is nomadic and colonies occur sporadically, making major populations and critical locations difficult to identify. Although it is known to occur within San Elijo Lagoon, the tricolored blackbird is not expected to breed at this location. Thus, because no impacts are expected to tricolored blackbird nesting colonies, no additional avoidance, minimization, or compensatory mitigation measures would be required for this species.

4.4.63. Discussion of San Diego Black-tailed Jackrabbit

The San Diego black-tailed jackrabbit is considered a state species of concern and is covered under the MHCP. It is found in open coastal sage scrub, early stages of chaparral, and grasslands near the edge of brush throughout coastal San Diego County, from sea level to 1,828 m (6,000 ft) amsl. Within the MHCP area, scattered observations occur throughout natural habitats, including sightings in Buena Vista, Batiquitos, and San Elijo Lagoons. No major populations or critical locations have been designated within the MHCP area.

4.4.63.1. Survey Results

No San Diego black-tailed jackrabbits were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Presence of suitable habitat within the survey area and historical location data from the region indicate a moderate to high potential for this species to occur within the BSA.

4.4.63.2. Avoidance and Minimization Efforts

Impacts to the San Diego black-tailed jackrabbit will be avoided and minimized to the greatest extent feasible through project design modifications. For unavoidable impacts within the MHCP planning area, the City of Encinitas will determine if any additional measures are required once the MHCP is approved. In areas not covered by the MHCP, appropriate avoidance and minimization measures would be determined through discussions with the CDFG.

4.4.63.3. Project Impacts

Within the AE for the proposed Manchester/I-5 Interchange project, the Build Alternative would result in the permanent loss of 1.74 hectares (4.30 acres) and a temporary loss of 1.40 hectares (3.44 acres) of coastal sage scrub, southern maritime chaparral, and nonnative grassland habitat suitable for the San Diego black-tailed jackrabbit.

4.4.63.4. Compensatory Mitigation

The draft MHCP proposes to include the San Diego black-tailed jackrabbit as one of the species covered under the plan. As a habitat-based conservation plan, impacts to individual species are compensated for by mitigation with habitat acquisition, enhancement, or creation that would be considered suitable for the species impacted. Once the MHCP is approved, impacts to the black-tailed jackrabbit will be mitigated through a habitat-based compensation ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, compensatory mitigation would be determined through input by the CDFG.

4.4.63.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss of habitats suitable for the San Diego black-tailed jackrabbit. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Implementation of the Caltrans 10+4 I-5 Project would result in permanent and temporary loss of coastal sage scrub, southern maritime chaparral, and nonnative grassland habitat within the BSA. These losses would contribute cumulative impacts to this species through habitat conversion and degradation.

4.4.64. Discussion of Northwestern San Diego Pocket Mouse

The northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) is considered a state species of concern and is covered under the MHCP. It is found in arid habitats with coastal sage scrub, chaparral, oak woodlands, and annual grasslands and in sandy herbaceous areas in association with rocks or coarse gravel. The subspecies occurs from near San Bernardino south into Baja California, Mexico, and west of the inland deserts to the coast. Within the MHCP area, the northwestern San Diego pocket mouse has been detected in Agua Hedionda and San Elijo Lagoons; however, this lack of data could reflect a lack of survey effort for this species. No major populations or critical locations occur in the MHCP area.

4.4.64.1. Survey Results

No northwestern San Diego pocket mice were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Because of the limited amount of suitable habitat available within the survey area, there is a low potential for this species to occur within the BSA.

4.4.64.2. Avoidance and Minimization Efforts

Impacts to the northwestern San Diego pocket mouse will be avoided and minimized to the greatest extent feasible through project design modifications. For unavoidable impacts within the MHCP planning area, the City of Encinitas would determine if any additional measures are required once the MHCP is approved. In areas not covered by the MHCP, appropriate avoidance and minimization measures would be determined through discussions with the CDFG.

4.4.64.3. Project Impacts

Northwestern San Diego pocket mouse populations have experienced a steady decline due to increased urbanization and habitat destruction. The proposed Manchester/I-5 Interchange project would result in the permanent and temporary loss of marginally suitable northwestern San Diego pocket mouse habitat within the proposed AE. The Build Alternative would result in the permanent loss of 1.74 hectares (4.30 acres) and a temporary loss of 1.40 hectares (3.44 acres) of coastal sage scrub, southern maritime chaparral, and nonnative grassland habitat marginally suitable for the Northwestern San Diego pocket mouse.

4.4.64.4. Compensatory Mitigation

The draft MHCP proposes to include the San Diego pocket mouse as one of the species covered under the plan. As a habitat-based conservation plan, impacts to

individual species are compensated for by mitigation with habitat acquisition, enhancement, or creation that would be considered suitable for the species impacted. Once the MHCP is approved, impacts to the pocket mouse will be mitigated through a habitat-based compensation ratio to be determined by the City of Encinitas. In areas not covered by the MHCP, compensatory mitigation would be determined through input by the CDFG.

4.4.64.5. Cumulative Impacts

The projects listed in Table 8 would contribute to the cumulative impacts to the northwestern San Diego pocket mouse. These impacts would contribute to development resulting in the incremental loss of habitats suitable for this species through habitat conversion and degradation. Implementation of the Caltrans 10+4 I-5 Project would result in the permanent and temporary loss of coastal sage scrub, southern maritime chaparral, and nonnative grassland habitats suitable for this species.

4.4.65. Discussion of Dulzura California Pocket Mouse

The Dulzura California pocket mouse (*Chaetodipus californicus femoralis*) is considered a state species of concern. Ecological and distribution data for this subspecies are known to be incomplete. However, habitat requirements are assumed to be similar to the California pocket mouse (*Chaetodipus californicus*). This species inhabits a variety of habitats year-round, including coastal scrub, chamise-redshank and montane chaparral, sagebrush, annual grassland, valley foothill hardwood, valley foothill hardwood-conifer, and montane hardwood habitats. It ranges in elevation from sea level to 2,400 m (7,900 ft amsl). Although distribution data are incomplete for the Dulzura California pocket mouse, it is known to occur from the southwestern and southern portions of Riverside County south, probably into Mexico.

4.4.65.1. Survey Results

No Dulzura California pocket mice were detected during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002, although no formal live-trapping studies were conducted. However, presence of suitable habitat within the survey area and historical location data from the region suggest a moderate potential for this species to occur within the BSA.

4.4.65.2. Avoidance and Minimization Efforts

Within the AE, impacts to habitats suitable for the Dulzura California pocket mouse will be avoided or minimized to the greatest extent feasible through project design

modifications. Should impacts to suitable habitat be unavoidable, additional avoidance and minimization measures recommended for similar sensitive species would satisfy requirements for this species, as well.

4.4.65.3. Project Impacts

The proposed Manchester/I-5 Interchange project would result in the permanent and temporary loss of habitat suitable for the Dulzura California pocket mouse within the AE. The Build Alternative would result in the permanent loss of 1.71 hectares (4.23 acres) and the temporary loss of 1.33 hectares (3.28 acres) of coastal sage scrub and nonnative grassland habitat suitable for this species.

4.4.65.4. Compensatory Mitigation

Although the Dulzura California pocket mouse is not covered under the MHCP, it occupies the same habitats as several similar sensitive species that are covered under the plan. Thus, any impacts to this species would be compensated for through the mitigation requirements for those similar species, which would include habitat acquisition, enhancement, or creation at a compensation ratio to be determined by the City of Encinitas.

4.4.65.5. Cumulative Impacts

The proposed project, as well as other projects within the region, would contribute to development resulting in the incremental loss of habitats suitable for the Dulzura California pocket mouse. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Implementation of the Caltrans 10+4 I-5 Project would result in permanent and temporary loss of coastal sage scrub and nonnative grassland habitat within the BSA. These losses would contribute cumulative impacts to this species through habitat conversion and degradation.

4.4.66. Discussion of Southern Grasshopper Mouse

The southern grasshopper mouse (*Onychomys torridus*) is considered a state species of concern. It nests in abandoned burrows of other rodents, usually in dry, friable soil with low to moderate shrub cover. This subspecies ranges from San Fernando south along the more arid coastal lowlands to northwestern Baja California.

4.4.66.1. Survey Results

No southern grasshopper mice were observed during the general wildlife surveys conducted within the BSA between March 28 and June 28, 2002. Because there is a

limited amount of suitable habitat available within the survey area, there is a low potential for this species to occur within the BSA.

4.4.66.2. Avoidance and Minimization Efforts

The Build Alternative will be designed to avoid and minimize impacts to potential southern grasshopper mouse habitat within the AE. Due to the relatively low probability that this species occurs within the BSA, no other avoidance or minimization measures are necessary.

4.4.66.3. Project Impacts

Southern grasshopper mouse populations have experienced a steady decline due to increased urbanization and habitat destruction. The proposed Manchester/I-5 Interchange project would result in the permanent and temporary loss of marginally suitable southern grasshopper mouse habitat within the proposed AE. The Build Alternative would result in the permanent loss of 1.74 hectares (4.30 acres) and a temporary loss of 1.40 hectares (3.44 acres) of coastal sage scrub, southern maritime chaparral, and nonnative grassland habitat suitable for the southern grasshopper mouse.

4.4.66.4. Compensatory Mitigation

Because no major populations or critical locations for the southern grasshopper mouse have been identified within the region and because any impact to this species would be relatively minor in relation to the distribution of the southern grasshopper mouse and its habitat, no compensatory mitigation would be required.

4.4.66.5. Cumulative Impacts

Implementation of the proposed project, as well as other projects within the region, would contribute cumulative impacts to the southern grasshopper mouse. These impacts would result in both a permanent and temporary loss of habitat suitable for this species. Based on the preliminary design plan for the Caltrans 10+4 I-5 Project, permanent and temporary loss of coastal sage scrub, southern maritime chaparral, and nonnative grassland are expected within the BSA. These impacts would result in the incremental loss of suitable habitats for the species through direct habitat conversion and degradation.

5. Results: Permits and Technical Studies for Special Laws or Conditions

There are several federal and state regulations that require obtaining permits from the jurisdictional agencies if the proposed project meets certain criteria. The potential regulatory requirements are discussed below.

5.1. Regulatory Requirements

Federal Endangered Species Act. Under FESA, *take* (defined as *hunt, pursue, catch, capture, harm, or kill; or attempt to hunt, pursue, catch, capture, harm, or kill*) of listed species is prohibited unless authorized by the USFWS. The project has the potential to affect federally listed endangered or threatened species, species proposed for listing, and candidate species (refer to Chapter 4). Therefore, the Federal Highway Administration (FHWA) would be required to consult with the USFWS, pursuant to Section 7 of the FESA, to determine if the project would jeopardize the continued existence of any of these federally regulated species. As part of the Section 7 consultation process, a Biological Assessment is required to be submitted to the USFWS outlining the potential impacts to federally listed, proposed, and candidate species and would also suggest mitigation measures for unavoidable impacts to these species. The USFWS would issue a Biological Opinion (BO) to document the effects of the proposed project on the long-term viability of the species affected and any incidental *take* provisions. The BO *take* statement is referred to as the "incidental *take* permit."

Migratory Bird Treaty Act. The MBTA restricts the killing, taking, collecting, and selling or purchasing of native bird species or their parts, nests, or eggs. Certain gamebird species are allowed to be hunted for specific periods determined by federal and state governments. The intent of the MBTA is to eliminate any commercial market for migratory birds, feathers, or bird parts, especially for eagles and other birds of prey. Although no permit is issued under the MBTA, if vegetation removal within the project area occurs during the breeding season for raptors and migratory birds (February 15 through September 15), the USFWS requires that surveys be conducted to locate active nests within the construction area. If active raptor or migratory bird nests are detected, project activities may be temporarily curtailed or halted.

Magnuson-Stevens Fishery Conservation and Management Act (Essential Fish Habitat). In 1996, Congress added new habitat conservation measures to the Magnuson-Stevens Fishery Conservation and Management Act (Act), the federal law that governs U.S. marine fisheries management. Recognizing the importance of fish habitat to the productivity and sustainability of U.S. marine fisheries, the amended Act sanctions the identification of Essential Fish Habitat (EFH) for managed species as well as provisions to conserve and enhance the habitat necessary to fish for spawning, breeding, feeding, and growth to maturity – a species' full life cycle. Protecting these aquatic resources and their associated biological, chemical, and physical properties promotes the preservation of habitat necessary to maintain a sustainable fishery and to allow the managed species' to contribute to a healthy ecosystem. The entire San Elijo Lagoon has been designated as EFH because it has historically supported large schools of anchovies and topsmelt, two species that are considered crucial to maintaining viable populations of species that are fished both commercially and recreationally. The proposed project, specifically construction associated with the modifications to the bridge, will have both temporary and permanent impacts (i.e., installation of pilings, increased shading effect, etc.) on EFH. These impacts are discussed in further detail in this chapter.

California Endangered Species Act. The California Endangered Species Act (CESA) parallels the FESA. As a responsible agency, the CDFG has regulatory authority over state-listed endangered and threatened species. Since the proposed project may affect species that are listed as threatened or endangered under both the CESA and FESA, Caltrans and the FHWA should encourage the CDFG to participate to the greatest extent practicable in the FESA Section 7 consultation process. The state legislature encourages cooperative and simultaneous findings between state and federal agencies. Further, the General Counsel for the CDFG has issued a memorandum to CDFG regional managers and division chiefs, clarifying the CESA consultation process. This clarification states that if a federal BO has been prepared for a species, the CDFG must use the BO in lieu of its own findings unless it is inconsistent with the CESA. Participation in the federal consultation and adoption of a federal BO is authorized by CDFG Code Section 2095. By adopting the federal BO, the CDFG need not issue a taking permit per Section 2081 of the state code. If the federal BO is consistent with the CESA, the CDFG would complete a 2095 form in finalizing the adoption of the BO. If the federal BO is found to be inconsistent with the CESA, the CDFG would issue its own BO per Section 2090 of the state code and may issue a 2081 take permit with conditions of approval.

General Bridge Act of 1946. The Coast Guard administers the Bridge Administration permit process. A Coast Guard bridge permit is needed for the construction, reconstruction, or modification of any bridge or causeway across navigable waters of the United States. A bridge is usually defined as the entire span plus footings, typically from abutment to abutment. For the purposes of bridge permitting, a navigable waterway is defined as any waterway that is subject to tidal action or is presently used or could be used for the transport of interstate or foreign commerce. The Coast Guard issues bridge permits under the authorities of both Section 9 of the Rivers and Harbors Act of 1899, and the General Bridge Act of 1946.

The purpose of these acts is to preserve the public right-of-way and to prevent interference with interstate and foreign commerce. Therefore, the primary concern of the Coast Guard is the effect of the bridge on navigation. The capacity of a tidal waterway to be navigated by a vessel as small as a kayak could potentially render that waterway navigable. Although they do not regulate wetlands per se, the Coast Guard may still consider environmental issues in their review and approval of bridge plans and location. The Coast Guard will make a navigability determination and determine the proper course of action after preliminary project information is submitted to them. The Coast Guard often issues an advanced approval letter for projects with little effect on navigation.

The Coast Guard bridge permit covers not only the bridge, but all work in navigable waters associated with the construction of the bridge. This can be somewhat confusing because the Corps regulates work in navigable waters (as defined below) under Section 10 of the Rivers and Harbors Act. The Corps' jurisdiction under Section 10 of the River and Harbors Act does not, however, apply to bridges or the work associated with bridges. There is no need to obtain a Section 10 permit for work associated with the construction of a Coast Guard-approved bridge. A rare exception to this general rule occurs when construction of the bridge involves dredging and dredge operations. In this special case, the Coast Guard may request that the Corps regulate the dredging component of the bridge construction. The term "work" refers to activities such as the placement of scaffolding and sheet piles, and the operation of workboats and barges. In the absence of an authorization, the Corps may try to regulate work in navigable waters under Section 10, even if an advanced approval has been issued. There is some disagreement between the agencies on this point.

The Coast Guard bridge permit does not authorize the discharge of dredged or fill material. The Corps, not the Coast Guard, regulates the discharge of dredged or fill material into waters of the U.S. under Section 404 of the Clean Water Act of 1977 (described below). If the construction of the bridge results in a discharge of dredged or fill material into waters of the U.S., then a Section 404 permit is required. Waters of the U.S. are broadly defined and include navigable waters, tributaries to navigable waters, as well as special aquatic sites such as wetlands.

Section 10 of the Rivers and Harbors Act. Pursuant to Section 10 of the Rivers and Harbors Act of 1899, the Corps regulates work in navigable waters of the U.S. The term "navigable waters of the U.S." generally describes those waters that are subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. The term "work" typically includes any dredging or disposal of dredged material, excavation, filling, or other modification of navigable waters of the U.S. "Structure" typically refers to any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial reef, permanent mooring structure, power transmission line, or any other obstacle or obstruction.

This act prohibits the unauthorized obstruction or alteration of any navigable waters of the U.S. and requires approval prior to the accomplishment of any work in or over navigable waters of the U.S., or work that affects the course, location, condition, or capacity of such waters. Typical activities requiring Section 10 permits are construction of piers, wharves, bulkheads, dolphins, marinas, ramps, floats, intake structures, and cable or pipeline crossings, as well as dredging and excavation.

Section 404 of the Clean Water Act. Pursuant to Section 404 of the Clean Water Act, the Corps regulates the discharge of dredged or fill material into waters of the U.S. Waters of the U.S. have been defined as:

"...(1) all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including such waters: (i) which are or

could be used by interstate or foreign travelers for recreational or other purposes; or (ii) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) which are used or could be used for industrial purposes by industries in interstate commerce; (4) all impoundments of waters otherwise defined as waters of the United States under the definition; (5) tributaries of waters identified in paragraphs (1) through (4) of this section; (6) the territorial seas; and (7) wetlands adjacent to waters identified in paragraphs (1) through (6) …" (33 CFR 328.3[b]; 40 CFR 230.3[t]).

However, as a result of a recent U.S. Supreme Court decision (*Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers,* No. 99-1178, January 9, 2001), the Corps no longer has direct regulatory authority over many isolated intrastate waters, including wetlands.

The Corps defines wetlands as:

"Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR 328.3[b]; 40 CFR 230.3[t]).

The Corps has developed standard methods (*Corps of Engineers Wetland Delineation Manual*, Environmental Laboratory 1987) to identify and delineate wetland boundaries for the purpose of Section 404 regulation. A wetland determination is based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. The Corps' delineation manual uses primarily field-based indicators to determine whether the three parameters are present. The presence of positive indicators of all three parameters is necessary for a site to qualify as jurisdictional wetlands.

In the absence of wetlands, the limits of Corps jurisdiction in nontidal waters, such as rivers, streams, lakes, and ponds, extends to the OHWM, which is defined as:

"…that line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR 328.3[e]).

A Regulatory Guidance Letter issued by the Corps on June 27, 1987, further clarified the definition:

"The OHWM is the physical evidence (shelving, debris lines, etc.) established by normal fluctuations of water level. For rivers and streams, the OHWM is meant to mark the within-channel height flows, not the average annual flood elevation that generally extends beyond the channel" (RGL No. 88-6).

The OHWM can also be conceptualized as the lateral extent of the active channel, usually the area just below the first terrace. The criteria for frequency and duration for OHWM, however, have not been defined under the Clean Water Act or any guidance from the Corps for field delineators.

Section 1600 of the California Fish and Game Code. Under Sections 1600-1607 of the California Fish and Game Code, the CDFG regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFG jurisdiction are defined in the code as the "bed, channel or bank of any river, stream or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit." The California Code of Regulations (14 CCR 1.72) defines a stream as:

"[A] stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

In practice, the CDFG usually extends its jurisdictional limit to the top of a stream or lake bank, or outer edge of the riparian vegetation, whichever is wider. Riparian habitats do not always have identifiable hydric soils, or clear evidence of wetland hydrology as defined by the Corps. Therefore, CDFG wetland boundaries often extend beyond Corps wetland boundaries, which sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Jurisdictional boundaries under Sections 1600-1607 may encompass an area that is greater than that under the jurisdiction of Section 404 (Cylinder et al. 1995).

Section 401 of the Clean Water Act. The RWQCB has primary authority for permit and enforcement activities under the Porter-Cologne Water Quality Control Act (Cal. Water Code 13000-13999.10) and the Clean Water Act. Section 401 of the Clean Water Act requires certification from the California RWQCB that the proposed

project is in compliance with established water quality standards. Projects that have the potential to discharge pollutants are required to comply with established water quality objectives.

Under Section 401 of the Clean Water Act, the RWQCB implements the water quality certification process for any activity that requires a federal permit or license and that may result in the discharge of pollutants into waters of the U.S., including wetlands. The RWQCB reviews the proposal to determine whether the activity would comply with state water quality objectives and, subsequently, either issues a certification with conditions or denies the certification. Water quality standards, according to the Clean Water Act (40 CFR 131), include beneficial uses, water quality objectives, and the antidegradation policy.

No license or permit may be issued by a federal agency until certification required by Section 401 has been granted. Under the Clean Water Act, Corps Section 404 permits are subject to RWQCB Section 401 water quality regulation. The Corps cannot issue an individual or nationwide 404 permit until a 401 certification has been obtained from the RWQCB.

In terms of the nexus between Sections 404 and 401 of the Clean Water Act, if waters of the U.S. (e.g., creek, drainage with or without water flow, wetland) are present within the project area, and the proposed project would discharge dredge or fill material into waters of the U.S., then a 401 water quality certification is required. For the 401 certification process, the RWQCB typically uses the delineation verified by the Corps as the basis for determining impacts to waters of the U.S.

5.2. Federal Endangered Species Act Consultation Summary

The FESA Section 7 consultation process has not been initiated. The FHWA, as the federal project proponent lead agency, must make a formal request to the USFWS to initiate the consultation.

5.3. California Endangered Species Act Consultation Summary

The CESA consultation process has not been initiated. Caltrans, as the state project proponent lead agency, must make a formal request to the CDFG to initiate the consultation and participate in the federal consultation process.

5.4. Wetlands and Other Waters Coordination Summary

Wetland delineation methods are described in Section 2.

5.4.1. Results and Conclusions

In all instances, the results and conclusions presented in this section are based upon the application of standard delineation techniques, the data collected, and the delineators' knowledge of wetland science. This delineation will need to be reviewed and verified by the Corps and CDFG before it can be considered final.

Sample point locations and vegetation communities are displayed in Figure 10. Results of the wetland delineation are summarized by sample point in Table 9. The mapped results of the delineations and jurisdictional determinations are displayed in Figure 11.

Table 9: Summary of Jurisdictional Determinations

Sample Point	Vegetation Community	Wetland Criterion			Jurisdiction	
		Hydrophytic Vegetation	Wetland Hydrology	Hydric Soils	Corps	CDFG
1	Salt Marsh	+	*	+	yes	yes
2	Ruderal	–	0	0	no	no
3	Mulefat Scrub	+	+	+	yes	yes
4	Coastal Sage Scrub (D)	+	–	0	no	no
5	Southern Willow Scrub	+	+	+	yes	yes
6	Ornamental	–	0	0	no	no
7	Southern Arroyo Willow Woodland	+	+	+	yes	yes
8	Coastal Brackish Marsh	+	+	*	yes	yes
9	Freshwater Marsh	+	+	*	yes	yes
10	Southern Willow Scrub	+	+	+	yes	yes
11	Coastal Brackish Marsh	+	+	*	yes	yes

+ = present
– = absent
* = not sampled, assumed to be present
0 = not sampled

Based on observations and data collected at San Elijo Lagoon, four general trends were identified for mapping jurisdictional boundaries. First, areas located above the lagoon on the road bank (sample point 2) lacked hydrophytic vegetation indicators (Table 9); these areas were, therefore, determined to be outside the boundaries of the Corps and CDFG jurisdiction. Secondly, additional areas immediately adjacent to the road bank did not meet the hydrophytic vegetation and/or hydrology criteria (sample points 4 and 6); these areas were also determined to be outside the boundaries of the Corps and CDFG jurisdiction. Thirdly, sample points located in wetland plant

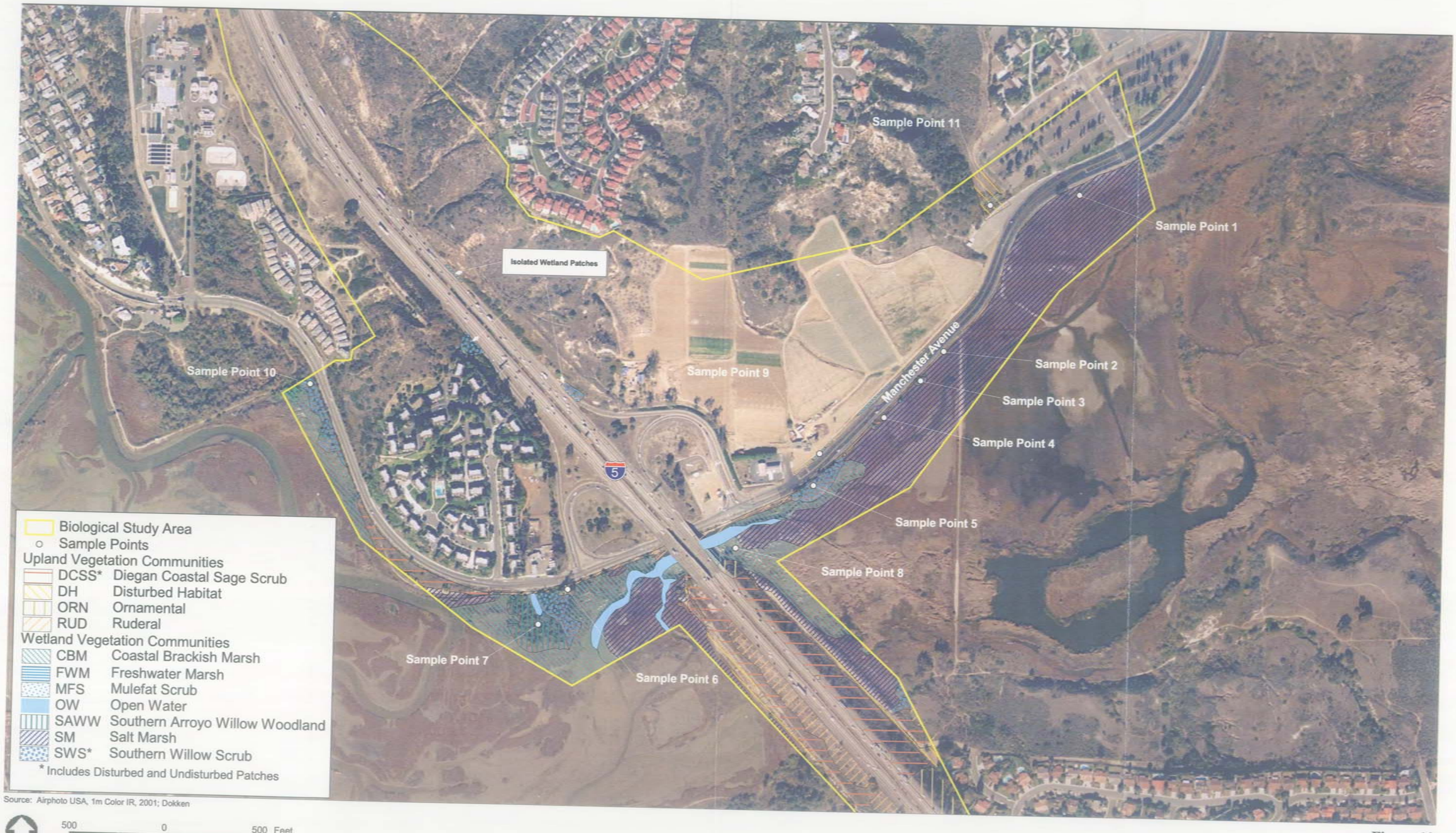


Figure 10
Wetland Vegetation Communities and Delineation Sample Point Locations

Source: Airphoto USA, 1m Color IR, 2001; Dokken

500 0 500 Feet

Scale: 1 : 6000; 1 inch = 500 feet

Figure 11
Wetland and Other Waters Boundaries

communities associated with storm drains, detention basins, road runoff, or within the OHWM of drainage ditches had sufficient wetland indicators (sample points 3, 5, 7, 9, 10, and 11); these areas were mapped as Corps jurisdictional wetlands and CDFG wetlands. Finally, many drainage ditches and portions of drainage ditches were predominately unvegetated, or sparsely vegetated with predominantly nonhydrophytic vegetation within the OHWM. These areas were mapped as Corps nonwetland waters (the area between the OHWM) and CDFG unvegetated streambed (top of bank across the width of the channel). These soft-bottomed drainages appear to be man-made (as opposed to a modification of a natural drainage), but adjacent and hydraulically connected to the lagoon, and are considered to be jurisdictional for the purposes of this report (see Section 5.4.5 for further discussion of the jurisdictional status of the drainage north of Manchester Avenue). While no sample point was established within the small patch of freshwater marsh adjacent to the east shoulder of I-5 north of Manchester Avenue, it was mapped as jurisdictional wetland based on its vegetation composition and the presence of an outflow channel indicating a probable hydraulic connection to navigable waters downstream.

The area of Corps and CDFG jurisdiction within the BSA is summarized in Table 10.

Table 10: Extent of Corps and CDFG Jurisdiction within the BSA[1]

Jurisdiction	Area
Corps	16.13 (40.22)
CDFG	16.18 (40.34)

[1]All measurements are in hectares (acres).

U.S. Army Corps of Engineers. A total of 16.13 hectares (40.22 acres) of Corps jurisdiction occurs within the BSA. Corps wetlands occurs predominately within San Elijo Lagoon, but small patches of wetland were delineated within the small drainage ditch east of I-5 and north of Manchester Avenue (Figures 10 and 11). Vegetation communities (disturbed and undisturbed) qualifying as Corps jurisdictional wetlands include southern willow scrub, southern arroyo willow woodland, mulefat scrub, freshwater marsh, coastal brackish marsh, and southern coastal salt marsh. Southern willow scrub areas along the east and west shoulder of the freeway north of Manchester Avenue are not associated with an established streambed, did not appear to have a hydraulic connection to navigable waters or their tributaries, and are not adjacent to regulated water bodies. These areas were therefore

determined to be isolated and outside the jurisdiction of the Corps and CDFG. The RWQCB may regulate these areas pursuant to the Porter-Cologne Act.

For much of the length of the drainage ditch on the north side of Manchester, east of I-5, Corps jurisdiction is confined to a narrow strip of wetland habitat corresponding to the drainage channel proper (i.e., the area between the OHWM). This area constitutes 0.18 hectare (0.45 acre) of Corps jurisdictional wetland within the BSA.

California Department of Fish and Game. A total of 16.18 hectares (40.34 acres) of CDFG jurisdiction occurs within the BSA. The Corps jurisdictional wetlands and waters described above are also CDFG jurisdictional streambed. In addition to the areas described above, any areas with hydrophytic vegetation associated with a drainage channel, but lacking soil and hydrology indicators, would be mapped as CDFG jurisdiction. This situation does not occur within the BSA. Corps and CDFG jurisdictional areas show considerable overlap. The difference between the two jurisdictional areas results from measurement of jurisdiction within drainages (Corps limit is OHWM; CDFG limit is top of the channel banks).

Regional Water Quality Control Board. As stated earlier, the area within the jurisdiction of the RWQCB is considered to be the same as the area within the jurisdiction of the Corps, with the possible exception of the isolated patches of southern willow scrub along the shoulder of I-5 north of Manchester Avenue. These isolated wetland areas may be subject to regulation pursuant to the Porter-Cologne Act.

5.4.2. Impact Analysis

Jurisdictional resources may be either directly or indirectly impacted by a project. Direct and indirect impacts may furthermore be either permanent or temporary in nature. These impacts are defined below.

Direct: Any alteration, disturbance, or destruction of biological resources that would result directly from project-related activities is considered a direct impact. Examples include clearing vegetation and placing fill into wetlands.

Indirect: As a result of project-related activities, biological resources may be affected in a manner that is not direct. Examples include shading effects, elevated noise and dust levels, soil compaction, increased human activity, decreased water quality, and the introduction of invasive animals (domestic cats and dogs) and plants.

Permanent: All impacts that result in the irreversible removal of jurisdictional resources are considered permanent. For the purposes of this project, impacts are irreversible when the placement of fill results in a permanent elevation change or the creation of an impervious surface. Examples include constructing a building or permanent road on an area containing biological resources.

Temporary: Any impacts considered to have reversible effects on biological resources can be viewed as temporary. For the purpose of this project, if preconstruction contours are maintained and the original characteristics of the area can be reestablished in place, then the impact is considered temporary. Examples include removing vegetation for underground pipeline trenching activities and either revegetating or allowing the natural vegetation to recolonize the recontoured impact area, and placing and subsequently removing fill for the purpose of temporary construction access.

The impacts to jurisdictional wetlands and nonwetland waters as a result of the proposed alternative is presented in Table 11 and described below. Impacts to native riparian and wetland communities and other waters would require mitigation (see Section 5.4.3).

Table 11. Impacts to Corps and CDFG Jurisdictional Resources

Impacts	Build Alternative	
	Corps in hectares (acres)	CDFG in hectares (acres)
Permanent	0.35 (0.85)	0.39 (0.95)
direct[1]	0.18 (0.44)	0.22 (0.54)
indirect[2]	0.17 (0.41)	0.17 (0.41)
Temporary[3]	0.03 (0.08)	0.03 (0.08)

[1] Includes impacts associated with the bridge piles and drainage ditch parallel to Manchester Avenue.
[2] Includes impacts from shading.
[3] All temporary ground disturbances occur within the footprint of the shading zone and are thus not considered additive to the permanent indirect effect of shading.

It is assumed that the placement of bridge piles and temporary ground disturbance within the jurisdictional wetlands and other waters would be the nexus for Corps and CDFG involvement. The Build Alternative would not change the calculated indirect permanent impacts (i.e., shading effects) to wetlands and other waters at San Elijo Lagoon (Table 11). Permanent indirect impacts and temporary impacts shown in

Table 11 would not be additive because the temporary impacts associated with the bridge would result from grading that occurs within the shading footprint (i.e., permanent indirect impact) of the bridge.

Impacts to Corps and CDFG Jurisdictions. As illustrated in Table 11, the Build Alternative would permanently impact 0.35 hectare (0.85 acre) of Corps and 0.39 hectare (0.95 acre) of CDFG jurisdictional waters. This includes permanent direct impacts to 0.17 hectare (0.42 acre) of Corps and 0.21 hectare (0.52 acre) of CDFG jurisdiction within the drainage running parallel to Manchester Avenue and 0.01 hectare (0.02 acre) of Corps and CDFG jurisdiction along the shoulder of I-5. A portion of the CDFG jurisdiction along the drainage is nonwetland, ruderal habitat that occupies the banks of this drainage, which explains the difference in area between CDFG jurisdiction and the total area of wetland habitats impacted. The widened bridge would result in permanent indirect impacts to 0.19 hectare (0.46 acre) to Corps and CDFG jurisdictions as a result of shading effects.

All drainage designs will need to be presented to the CDFG, Corps, and RWQCB for permitting consideration pursuant to Section 1601 of the California Fish and Game Code, Section 404 of the Clean Water Act, and Section 401 of the Clean Water Act, respectively. Minimum compensatory mitigation requirements for impacts to wetlands and other waters are discussed below.

5.4.3. Wetland Mitigation

The direct impacts to federal and state jurisdictional waters and streambed, including wetlands, as a result of permanent road fill and bridge structures will require mitigation. All temporary impacts will be mitigated in-place at a 1:1 ratio.

Compensatory mitigation ratios for permanent impacts to wetland communities reflect the ecological complexity of the community being affected (i.e., relative structural and species diversity), the condition of the community (disturbed or undisturbed, and mature versus young growth), the rarity of the community and, based on precedent, the difficulty in re-creating the community (i.e., uncertainty of success) and the time necessary to regain the lost value of the community (i.e., temporal loss). The impacts to nonwetland waters, unvegetated streambed, and nonnative dominated plant assemblages such as Arundo stands and disturbed wetlands, will be mitigated out-of-kind at a 1:1 ratio.

Mitigation Strategies. Compensatory mitigation for permanent and temporary impacts to wetlands may include a combination of the strategies described below. For any permanent impact to wetlands, however, mitigation must include enough wetland creation to offset the permanent loss of wetland function and area; typically a minimum ratio of 1:1 creation/restoration. The definitions below use the term "wetland" generically to refer to either Corps or CDFG jurisdictional wetlands.

Restoration: Reestablishment of wetland characteristics and functions at a site where they have ceased to exist, or exist in a substantially degraded state. This is the Corps' preferred strategy (U.S. Environmental Protection Agency and U.S. Army Corps of Engineers 1990). This strategy can be used to mitigate the minimum 1:1 ratio for permanent losses of wetland function.

Creation: The establishment of a wetland in an area that was not historically, and is not currently, a wetland. This strategy can be used to mitigate the minimum 1:1 ratio for permanent losses of wetland function. The resource agencies typically give the same credit for creation as they do for restoration.

Enhancement: Activities conducted in existing wetlands resulting in an increase in one or more wetland functions. This usually involves removal of nonnative invasive plants followed by replanting with native species.

Preservation: The process of obtaining lands not previously preserved for the purpose of preservation of high quality habitat. These lands should have functions and quality similar to or better than the functions and quality of the lands to be impacted.

Compensatory wetland mitigation requirements can be satisfied through a combination of wetland creation/restoration, enhancement, and possibly preservation. Direct impacts (both temporary and permanent) to vegetated wetlands should be compensated at a minimum 1:1 mitigation ratio. Temporary impacts to wetlands will be mitigated in place at a 1:1 mitigation ratio. Mitigation for all permanent impacts to wetlands will include a minimum 1:1 creation/restoration component. Minimum wetland mitigation requirements are discussed below. Compensatory mitigation ratios must be reviewed and approved by the resource agencies before being considered final.

Minimum Compensatory Mitigation Requirements. The Corps' policy of no net loss applies specifically to wetlands. "No net loss of wetlands" refers to a no net loss of both wetland area and function (U.S. Environmental Protection Agency and the

U.S. Army Corps of Engineers 1990). The CDFG also requires replacement of impacted habitat, typically at ratios similar to the Corps. The CDFG will likely require a minimum ratio of 1:1 creation for all permanent impacts to habitats within their jurisdiction.

Unavoidable permanent and temporary direct and indirect impacts to Corps and CDFG wetlands would require compensatory mitigation. Temporary impacts to Corps and CDFG jurisdiction would be mitigated in place, in kind. All direct and indirect permanent impacts to Corps and CDFG jurisdictional wetlands would be mitigated in kind at an offsite mitigation area(s) through some combination of the four mitigation strategies. In Table 12, proposed mitigation for permanent impacts to jurisdictional wetlands would include a minimum 1:1 creation/restoration ratio component. The acquisition of high quality in-kind habitat at an offsite location may be considered at the agencies' discretion. The use of mitigation credits at an approved mitigation bank, such as Caltrans' Pilgrim Creek Mitigation Bank, would be possible if the project is located in one of the bank's service areas and the appropriate habitat credits are available. All direct and indirect permanent impacts to nonwetland waters/unvegetated streambeds can be mitigated onsite within the lagoon and the newly constructed drainage ditch.

Table 12. Mitigation Compensation for Impacts to Jurisdictional Areas

		Build Alternative	
Habitat	**Mitigation Ratio**	**Impacts**	**Compensation**
Coastal brackish marsh	2:1	0.10 (0.25)	0.20 (0.50)
Saltwater marsh	3:1	0.01 (0.03)	0.03 (0.09)
Freshwater marsh[1]	1:1	0.17 (0.43)	0.17 (0.43)
Open water[2]	1:1	0.06 (0.14)	0.06 (0.14)

[1] Impacts to this community would occur within relocated ditch (i.e., self-mitigating)
[2] Impacts to open water would occur through reestablishment of the open water channel

Implementation of the Build Alternative would result in increased shading and loss of salt marsh or coastal brackish marsh habitat in the bridge crossing area. Mitigation ratios for salt marsh or coastal brackish marsh habitat are typically no less than 3:1 and 2:1, respectively (Table 12). Relocation of the drainage ditch under the Build Alternative would impact a small amount of freshwater marsh vegetation, which would be mitigated within the relocated ditch at a ratio of 1:1. For the realigned drainage ditch, permanent impacts to Corps wetlands and nonwetland waters and CDFG wetlands and unvegetated streambed would be mitigated onsite in a portion of the newly constructed soft bottom drainage (i.e., the project would be "self

mitigating" for those impacts). The small impact to freshwater marsh as a result of the northbound I-5 auxiliary lane north of Manchester Avenue (0.17 hectare [0.43 acre] for the Build Alternative) would be mitigated within the relocated ditch (Table 12).

To compensate for the permanent indirect impacts to salt marsh and coastal brackish marsh wetlands, the selection of the Build Alternative would require at least 0.23 hectare (0.59 acre) of wetland mitigation. At least 0.11 hectare (0.28 acre) of the wetland mitigation should be wetland creation and/or restoration to accomplish no net loss of wetland area. The remaining 0.12 hectare (0.31 acre) of wetland mitigation could be accomplished with any of the strategies, either singly or in combination, as approved by the Corps and CDFG. Impacts to nonwetland waters (i.e., open water)/ unvegetated streambed within the lagoon would be mitigated at a 1:1 ratio through the reestablishment of the open water channel (Table 12).

Potential temporary indirect impacts such as unauthorized construction-related trespass, construction-generated fugitive dust, erosion, and sedimentation would be mitigated through standard BMPs such as temporary construction fencing and signage, dust abatement measures, and implementation of an approved erosion control plan and an approved SWPPP.

Mitigation Site Selection and Design. A qualified wetland and restoration ecologist should conduct the selection, design, implementation, and monitoring of the offsite mitigation site(s). It would be preferable that the selected site(s) be situated in proximity to existing native habitat to maximize habitat connectivity and interspersion functions.

The habitats created, restored, enhanced, and preserved should result in no net loss of wetland function and area. A functional assessment methodology, such as the hydrogeomorphic (HGM) approach to the assessment of wetland function (Brinson et al. 1995; Smith et al. 1995; Lee et al. 1997; Brinson and Rheinhardt 1996) could be used to evaluate the replacement of functional capacity at the mitigation site relative to the loss of functional capacity at the construction site. HGM-based performance standards could be used in conjunction with standard wetland mitigation performance standards to evaluate the success of the wetland mitigation program.

A draft mitigation plan will be prepared prior to construction. The final mitigation plan must be reviewed and approved by Caltrans, the FHWA, and the resource agencies prior to the initiation of construction. A 5-year maintenance and monitoring

plan shall also be prepared and implemented to measure success of the mitigation and allow sign-off by the resource agencies upon completion of the monitoring period.

5.4.4. Wetland Functional Assessment

The interest in functional assessment methods is largely driven by the goal of no net loss of wetland functions[a] (Kusler and Niering 1998). Functional assessment can be utilized in this context to estimate the level of hydrological, biogeochemical, and ecological processes performed by a natural or mitigation wetland (Brinson and Rheinhardt 1996; Rheinhardt et al. 1997; Hauer and Smith 1998).

The HGM approach is a collection of concepts and methods for developing functional indices, and subsequently using them to assess the capacity of a wetland to perform functions relative to similar wetlands in a region. The approach was initially designed to be used in the context of the Clean Water Act Section 404 Regulatory Program permit review sequence to consider the Build Alternative, minimize impacts, assess unavoidable project impacts, determine mitigation requirements, and monitor the success of mitigation projects (Smith et al. 1995; Brinson and Rheinhold 1996). Implementation of the HGM approach has been a multi-agency effort involving the Corps, EPA, FHWA, National Resources Conservation Service, and USFWS (U.S. Army Corps of Engineers et al. 1997).

The HGM approach is a scientifically based procedure for estimating the capacity of a wetland to perform hydrologic, biogeochemical, and habitat functions (Smith et al. 1995). Components of the HGM approach include (1) classification of wetlands by geomorphic setting, water source, and dominant hydrodynamics; (2) use of reference wetlands to represent the range of function exhibited by wetlands in a specified area; and (3) development of assessment methods using structural variables as indicators of ecosystem function. The HGM approach provides an ecologically sound framework for "rapidly" gathering information in the field on, or in this case qualitatively analyzing, a range of hydrologic, biogeochemical, and habitat functions (Whigham et al. 1999).

The goal of HGM classification is to identify wetlands that function similarly (Brinson 1993). To date, seven general HGM classes of wetlands have been identified and described, including tidal fringe wetlands. These general classes can

[a] Smith et al. (1995) defined functions as "the normal or characteristic activities that take place in wetland ecosystems or simply the things wetlands do." Alternately, functions are the physical, chemical, and biological processes naturally performed by a self-sustaining wetland.

be further modified to distinguish specific regional subclasses. For example, the tidal fringe wetland class could be further defined by geographic location, water chemistry, and vegetation (Shafer and Yozzo 1998). Because the classification emphasizes the position of the wetland in the landscape, the HGM approach is implicitly landscape-based (Bedford 1999).

The use of reference wetlands to encompass the range of function in a given subclass is a significant feature of the HGM approach (Hruby 1999). Reference wetlands are a representative sample of the regional subclass taken along a disturbance gradient, and reference standard sites are the least disturbed reference wetland sites within a given subclass. The level of function, or functional capacity, of a wetland is a measure of its ability to perform a function compared to the reference standard wetlands.

In the HGM approach, assessment methods are based on simple mechanistic models[b] that coarsely model ecosystem function by calculating a Functional Capacity Index (FCI) for each preidentified wetland function (Brinson et al. 1995). In the HGM approach, indicators[c] are measured (typically in the field) to determine the variable sub-index score used in the FCI. The model variables are scaled from 0.0 to 1.0, where 0 = variable absent and not recoverable and 1 = variable at levels characteristic of the reference standard sites.[d] The variable sub-index scores are then combined in equations that model specific functions to produce a unitless, relativized FCI. The FCI score is dependent on the scores of the input variables and the structure of the algorithm used to calculate it.

There are two basic assumptions of HGM assessment models. For any given regional subclass (e.g., low gradient, third order riparian wetlands), (1) ecological processes in the least degraded natural wetlands (i.e., reference standard sites) function at levels that are sustainable and characteristic of that particular subclass, and (2) variables derived from field measurements of structure can be combined to model ecosystem function (Brinson and Rheinhardt 1996; Rheinhardt et al. 1997).

Tidal Fringe Wetlands. The term "tidal fringe wetlands "applies only to vegetated habitats occupying the intertidal zone of marine, estuarine, or riverine systems. Specifically, these wetlands occur along the fringe of drowned river valleys, barrier

[b] Mechanistic models treat characteristics of the wetland as variables in an equation (Hruby 1999).
[c] Indicators are the observable structural characteristics of a wetland subclass that are so closely associated with particular functions that they can be used to determine the level of those functions relative to the reference sites (Brinson and Rheinhardt 1996).
[d] Typical categories for scaled variable scores are 1.0, 0.75, 0.5, 0.25, 0.1, and 0.0.

islands, lagoons, and other coastal waterways; receive their water primarily from marine or estuarine sources; and are affected by astronomical tidal action. The dominant hydrodynamic is bidirectional water flow generated by tidal action. Additional water sources may be riverine flow, groundwater discharge, and precipitation. Tidal fringe wetlands lose water by tidal exchange, by saturated overland flow to tidal creek channels, and by evapotranspiration. Organic matter normally accumulates in higher elevation marsh areas where flooding is less frequent and the wetlands are protected from shoreline wave erosion by intervening areas of low marsh. Salicornia salt marshes are a common example of tidal fringe wetlands in San Diego County.

Shafer and Yozzo (1998) developed, with input from nationally recognized experts, the national HGM guidebook for tidal fringe wetlands, which characterizes the general hydrogeomorphic and habitat functions performed by tidal fringe wetlands in the United States. The national guidebook is not an assessment manual intended for direct application in the field. Rather, the national guidebook provides a framework for developing regional models for use in the field based on data collected on a suite of variables in reference wetlands in specific physiographic regions. A regional guidebook for applying the HGM approach to the assessment of the functions of Northwest Gulf of Mexico tidal fringe wetlands has been developed (Shafer et al. 2002).

In the national guidebook, Shafer and Yozzo (1998) identified eight functions performed by tidal fringe wetlands (Table 13) and provided equations for the calculation of functional indices for each of the functions. The 13 variables identified in the national guidebook are explained below. Each functional index combines the appropriate variables in equations that define their relationship to that particular function (i.e., the functional indices are calculated based on the values of the input variables). For details on the rationale behind the identification of these functions and variables and the construction of the functional indices, the reader should refer directly to the national HGM tidal fringe wetland guidebook (Shafer and Yozzo 1998) available online at <http://www.wes.army.mil/el/wetlands/pdfs/wrpde16.pdf>.

Table 13: Definition of Tidal Fringe Wetland Functions*

FUNCTION	DEFINITION
Hydrogeomorphic	
Tidal Surge Attenuation (TSA)	The capacity of a wetland to reduce the amplitude of tidal storm surges.
Tidal Nutrient and Organic Carbon Exchange (TE)	The ability of a wetland to import and export nutrients and organic carbon (dissolved and particulate).
Sediment Deposition (SD)	Deposition and retention of inorganic and organic particulate from the water column, primarily through physical processes.
Habitat	
Maintenance of Characteristic Plant Community Composition and Structure (PCC)	The ability of a wetland to support a native plant community of characteristic species composition and structure.
Resident Nekton Utilization (RNU)	Describes potential utilization of the wetland by resident fishes and macrocrustaceans.
Nonresident Nekton Utilization (NNU)	Describes potential utilization of the wetland by nonresident (transient) fishes and macrocrustaceans.
Nekton Prey Pool (NPP)	Describes the potential for the wetland to produce and maintain a characteristic benthic and epiphytic invertebrate prey pool.
Wildlife Habitat Utilization (WHU)	Describes potential utilization of the wetland by resident and migratory avifauna, reptiles, amphibians, and mammals.

*Adapted from Shafer and Yozzo 1998

Guidelines for developing regional HGM models can be found online at <http://www.wes.army.mil/el/wetlands/guidebooks.html>. In a regional model, the variables would be measured with qualitative or quantitative indicators based on data collected at reference wetlands. The steps involved in a typical HGM assessment are shown in Table 14.

Table 14: Outline of Procedures for a HGM Assessment*

1) Office Preparation
   a) Prior to fieldwork collect and review information relevant to the site, including
      i) Local soil survey maps
      ii) USGS topographic maps
      iii) National Wetland Inventory maps
      iv) Existing environmental documents
   b) Gather supplies

2) Fieldwork
   a) Bound the assessment area
      i) Walk the site noting differences within the site in
         (1) Hydrology
         (2) Topography
         (3) Soils
         (4) Vegetation
            (a) Composition
            (b) Structure
            (c) Coverage
      ii) Determine the HGM subclass
      iii) Determine the geographic extent of each Wetland Assessment Area
   b) Determine a sampling point using random range and bearing table
   c) Measure the quantitative variables at the sample point and record on data sheets
   d) Score the qualitative variables based on predominant condition in each Wetland Assessment Area

3) Calculate the indices of function

4) Analyze data

*Adapted from Lee et al. 1997

Unfortunately, there are no regional tidal fringe guidebooks currently available for assessing the functions of tidal fringe wetlands in the field in San Diego County. What follows is a qualitative assessment of wetland functions based on the variables and functions presented in the national tidal fringe guidebook (Shafer and Yozzo 1998). The national guidebook is used in this context as a conceptual framework for the analysis of the functional capacity of the coastal brackish marsh vegetation potentially impacted by the project. This assessment should not be viewed as "hard" science. The intent of the qualitative assessment is to generally characterize the major wetland resources within the BSA (i.e., within San Elijo Lagoon) that would be impacted by the proposed project.

Variables. The assessment presented here consists of qualitatively comparing the impact site with the conditions within the larger lagoon, and then comparing the project site and lagoon with regional (San Diego County) tidal fringe conditions to estimate relative conditions. Each variable was scored based on whether the indicators were absent (0.0), low (0.1), medium (0.5), or high (1.0) based primarily on the observed condition relative to local and regional conditions. All scoring is based on the observed level of the indicator used to score the variable and best professional judgment. The rationale for scoring each variable is described below. Explanations for each variable given below are taken directly from Shafer and Yozzo (1998). Variable scores and the functions they affect are summarized in Table 15.

Table 15: Variable Subindex Scores and Functions Affected

Variable	Symbol	Score[1]	TSA	TE	SD	PCC	RNU	NNU	NPP	WHU
Aquatic Edge	V_{AE}	1.0					X	X	X	X
Distance	V_{DIST}	0.1	X							
Flooding Duration	V_{FD}	1.0		X	X		X	X	X	
Mean Plant Density	V_{DEN}	1.0		X						
Mean Plant Height	V_{HGT}	1.0		X						
Nekton Habitat Complexity	V_{NHC}	0.5					X	X		
Opportunity for Marsh Access	V_{OMA}	1.0						X		
Percent Vegetative Cover by Exotic or Nuisance Species	V_{EXOTIC}	1.0				X				

Variable	Symbol	Score[1]	TSA	TE	SD	PCC	RNU	NNU	NPP	WHU
Proximity to Source Channel	V_{PSC}	1.0			X					
Surface Roughness	V_{ROUGH}	0.5	X		X					
Total Percent Vegetative Cover	V_{COV}	1.0		X		X			X	
Upland Edge	V_{UE}	0.1								X
Wildlife Habitat Complexity	V_{WHC}	0.5								X

[1] Variables were scored as: indicators absent = 0.0; indicators at low levels = 0.1; indicators at medium levels = 0.5; indicators at high levels = 1.0.

Aquatic Edge V_{AE}

The amount of edge between the intertidal vegetated, intertidal unvegetated, and subtidal areas is considered to be an important factor governing the exchange of organisms. The measured linear edge of recognizable tidal creeks, rivulets, and ponds expressed as a function of the total area of the site is scaled against the linear edge per unit area at reference standard sites.

The majority of the area affected by the bridge is considered to be open water tidal creek and therefore would be expected to have a large amount of aquatic edge per unit area. This variable was scored as 1.0.

Distance V_{DIST}

Average measured distance from landward or upland edge of site to nearest unobstructed marsh edge.

The San Elijo project area is highly constrained and the distance from landward edge to the nearest unobstructed wetland edge is relatively small. This area is one of the most constrained spots in San Elijo Lagoon. It is also very constrained compared to many of the north county lagoons with the possible exception of the channels connecting the inner, middle, and outer basins at Agua Hedionda. The width of the marsh in this area is probably at its minimum relative to the predominant condition in south coast estuaries. Consequently, this variable was scored as low (0.1).

Flooding Duration V_{FD}

The proportion of time that the marsh surface is flooded due to tidal inundation, compared with reference standard sites in the region. An accurate determination of flooding duration requires the installation and monitoring of water level recorders. In

the absence of such data, the value of this variable is assumed to be 1.0 unless tidal restrictions such as culverts, dams, and levees are present.

Most tidal fringe wetlands in the region (with the possible exception of Tijuana Estuary) have constrained lagoon mouths, railroad fills, and other hydrologic modifications. This variable was scored as 1.0 primarily because there are no recorded data for the area, but also because the lagoon conditions, in terms of hydrologic restrictions, are consistent with (i.e., not too much worse or better than) other tidal fringe wetlands in the region (especially those in North County).

Mean Plant Density V_{DEN}

The mean density of the dominant macrophytic vegetation at a site relative to regional subclass reference standard sites. If more than one plant community type or zone occurs, estimate separate values for each zone, then combine and average.

This variable is assessed for each vegetation community present in an assessment area because each community will have different densities, structure (in terms of its physiognomy), and biomass (including seasonal differences due to dieback). Open water is not included in the analysis. Brackish marsh is the only wetland plant community within the lagoon that would be permanently impacted by the project. Density and cover of brackish marsh vegetation is rated high (1.0) for this vegetation type.

It is likely that this vegetation has displaced historical coastal salt marsh and/or mudflat due to changes in the hydrology of this area from reduced tidal flushing and increased freshwater inputs from the watershed. The San Elijo Action Plan outlines several projects intended to increase tidal flushing in the basins east of I-5, with the objective being the restoration of coastal salt marsh in these areas.

Mean Plant Height V_{HGT}

The mean height of the dominant macrophytic vegetation at a site/mean height of the dominant macrophytic vegetation at reference standard sites. If more than one plant community type or zone occurs, estimate separate values for each zone, then combine and average.

The coastal brackish marsh in this area is tall and healthy and plant vigor appears to be high. The mean plant height variable is scored as high (1.0).

Nekton Habitat Complexity V_{NHC}

A measure of the habitat heterogeneity of a site, based on the comparison of the number of subhabitat types present at a site relative to the number of possible subhabitats known to occur in the appropriate regional reference standard site.

This variable was scored as medium (0.5) due to minimal habitat complexity of the monospecific vegetation in the project area. Brackish marsh does not provide the microhabitat complexity of other marsh types within the lagoon and there was little topographic complexity on the small marsh plain within the project area.

Opportunity for Marsh Access V_{OMA}

This variable is calculated by adding the perimeters of all the tidally connected waterways (channels, ponds, and embayments), then dividing by the area of the site. The density of connected waterways across the Wetland Assessment Area (WAA) is an indirect measure of the surface of the marsh that is occupied by access routes for aquatic organisms. Unlike aquatic edge, which includes all possible interfaces (including areas that lack a tidal connection to the estuary, e.g., isolated ponds), this variable estimates the contribution that water bodies with connections to the estuary alone have on the potential access of transient organisms, thereby reflecting the assumed relative importance of this form of edge over others.

Because there are no areas within the assessment area that lack tidal connection, this variable is scored the same as V_{AE} (i.e., high, 1.0) using a similar rationale.

Percent Vegetative Cover by Exotic or Nuisance Species V_{EXOTIC}

The proportion of a site covered with exotic or other undesirable plant species.

Operationally, this variable is scored differently than the other variables. A high score means the variable is similar to reference standard conditions, which would equate to relatively low cover of exotics. The lower the score, the higher the exotic load. Although exotic species are present in the disturbed uplands bordering the assessment area, the wetlands in the assessment area are relatively exotic free. Therefore this variable is scored high (1.0).

Proximity to Source Channel V_{PSC}

The distance between the center of the site and the nearest large distributary channel, river, bay, or ocean.

The site is immediately adjacent to the large mainstem tidal channel. Therefore, the site is scored as high (1.0) for this variable.

Surface Roughness V_{ROUGH}

This variable describes the potential effects of emergent vegetation, obstructions, and microtopographic features on the hydrodynamics of tidal floodwaters.

This variable was scored as medium (0.5) because emergent brackish marsh vegetation generally is given intermediary Manning's roughness coefficient values. Furthermore, the marsh surface in the assessment area does not exhibit well-developed or heterogeneous topography compared to other areas within the lagoon and region.

Total Percent Vegetative Cover V_{COV}

The proportion of a site covered with macrophytic vegetation compared with reference standard sites in the region.

Excluding the open water portions of the site, the vegetated areas outside the current bridge shading area had relatively good cover compared to similarly vegetated areas within the lagoon and the region. This variable was scored as high (1.0).

Upland Edge V_{UE}

This variable is calculated to assign a higher value to those sites at which the upland edge is in a natural, undisturbed condition (e.g., forested uplands), and lower scores for upland edge that has been developed or disturbed (e.g., agricultural fields).

The assessment area is located in a constrained reach of the tidal creek and has little natural upland edge. Upland vegetation on the northside is primarily limited to ruderal and ornamental vegetation. On the southside, there are small patches of coastal sage scrub on the east- and west-facing slopes of the existing freeway fill. Due to the limited amount of natural upland edge in the assessment area, this variable was scored low (0.1).

Wildlife Habitat Complexity V_{WHC}

A measure of the habitat heterogeneity of a site, based on the comparison of the number of subhabitat types present at a site relative to the number of possible subhabitats known to occur in the appropriate regional reference standard site.

The assessment site is small, thereby reducing the probability of encountering a large number of subhabitat types. Brackish marsh vegetation was considered to have an

inherently moderate amount of habitat heterogeneity. The relatively low structural and species diversity of brackish marsh vegetation compared to other wetland vegetation in the lagoon resulted in a medium score (0.5) for this variable.

Functional Capacity Index Scores. The formulas and results of the functional assessment are presented in Table 16. FCI scores were generally high with the exception of Tidal Surge Attenuation (TSA) and Wildlife Habitat Utilization (WHU). The highly constrained nature and disturbed uplands adjacent to the WAA appear to limit the potential of these functions in this area.

Table 16: Functional Capacity Index Scores and Formulas

Functions	Formula	Score
Hydrogeomorphic		
Tidal Surge Attenuation	$\frac{V_{DIST}+V_{ROUGH}}{2}$	0.3
Tidal Nutrient and Organic Carbon Exchange	$\left[V_{FD}\times\left(\frac{V_{COV}+V_{DEN}+V_{HGT}}{3}\right)\right]^{\frac{1}{2}}$	1.0
Sediment Deposition	$\frac{V_{PSC}+V_{FD}+V_{ROUGH}}{3}$	0.8
Habitat		
Maintenance of Characteristic Plant Community Composition and Structure	$\frac{V_{COV}+V_{EXOTIC}}{2}$	1.0
Resident Nekton Utilization	$\frac{V_{AE}+2V_{FD}+0.5V_{NHC}}{3.5}$	0.9
Nonresident Nekton Utilization	$\left[\left(\frac{V_{AE}+V_{FD}+V_{NHC}}{3}\right)\times V_{OMA}\right]^{\frac{1}{2}}$	0.9
Nekton Prey Pool	$\frac{V_{AE}+V_{FD}+V_{COV}}{3}$	1.0
Wildlife Habitat Utilization	$\frac{V_{AE}+V_{UE}+V_{WHC}}{3}$	0.5

5.4.5. Wetland Permitting

The purpose of this subsection is to describe the wetland permit process including the types of permits and the roles of the Corps, CDFG, and the U.S. Coast Guard in relation to the proposed alternative. This discussion of the wetland permitting for the Manchester/I-5 Interchange project assumes all direct, permanent impacts to wetlands and other waters would result solely from the placement of the bridge pile(s) and the

relocation of the drainage ditch. Indirect permanent impacts to wetlands and other waters would occur as the result of shading effects from the widening of the bridge. All direct, temporary impacts to wetlands and other waters would solely result from pile construction access and implementation.

If the Coast Guard takes jurisdiction over the bridge work, then all discharges of dredged or fill material incidental to the construction of the bridge, including the bridge pile(s), and temporary construction and access fills, would be authorized by the Corps under Nationwide Permit (NWP) 15. The terms and conditions of NWP 15 do not require that the Corps be notified prior to construction, and therefore no verification letter is needed. For any nationwide authorization to be valid, the permittee must comply with all general terms and conditions (e.g., obtaining a 401 certification from the RWQCB).

If the Coast Guard issues an advanced approval or does not take jurisdiction, then the bridge pilings and other work (Section 10) and fill (Section 404) associated with the bridge road realignment could be authorized under NWP 14 (Linear Transportation Projects). Preconstruction notification will be required and a nationwide verification letter from the Corps will be required prior to initiating any portions of the project that impact waters of the U.S. NWP 14 would also cover the relocation of the drainage ditch.

Temporary construction access and dewatering associated with bridge construction would likely be authorized under NWP 33 (Temporary Construction, Access, and Dewatering). The terms and conditions of NWP 33 require the applicant to submit a preconstruction notification to the Corps. The preconstruction notification must include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources.

The CDFG would likely take jurisdiction over the placement of the bridge piles, the shading from the bridge, and the relocation of the drainage ditch. Their role in projects within wholly tidal waters is supposed to be limited to that of a commenting agency; however, the project area within San Elijo Lagoon is often brackish due to seasonal freshwater inputs from Escondido Creek. For the bridge crossing, the limits of CDFG jurisdiction would definitely extend to the outer limits of wetland vegetation, and the CDFG may take jurisdiction out to the limits of the mapped 100-year floodplain. CDFG jurisdiction in the drainage ditch extends to the top of the banks (i.e., from bank to bank).

The drainage appears to be man-made (as opposed to a modification of a natural drainage), but it is adjacent and hydraulically connected to the lagoon. The drainage ditch would be moved as part of the alternative. The CDFG will usually take jurisdiction over these areas, and the area would be included as part of an overall streambed alteration agreement for the project.

The Corps, on the other hand, may or may not regulate the Manchester Avenue drainage ditch depending on various factors. Typically, the Corps does not regulate regularly maintained drainage ditches that have been excavated in uplands for the sole purpose of conveying storm water. Demonstrating nonjurisdictional status, however, can be difficult because an applicant must prove that the ditch was excavated from uplands for the sole purpose of draining storm water runoff, and that the ditch has been maintained within the last 5 years. This usually requires making more than logical arguments. Typically, an applicant must locate records such as old work orders, maintenance records, and aerial photographs. These records were rarely obtained (with the possible exception of aerials), especially if the work was done decades ago. Furthermore, in this particular situation it is possible that the current road alignment and ditch are located on fill placed in historical wetlands, which may negate, strictly speaking, the "excavated from upland" clause. A site visit with the Corps should be arranged prior to submitting preconstruction notification for the applicable NWP.

For the purposes of discussing wetland permitting, it is assumed the drainage is jurisdictional. The direct permanent impact would be small (approximately 0.06 hectare [0.15 acre]), and the activity would appear to qualify alone or in combination with the bridge work for NWP 14 (Linear Transportation Projects). NWP 14 and NWP 33 would likely cover all the project impacts to wetlands and other waters as long as the permanent direct impacts to wetlands and other waters (excluding permanent direct impacts to ephemeral nonwetland portions of regulated drainages do not exceed 0.13 hectare [0.33 acre]). Because the permanent impacts would be greater than 0.04 hectare (0.10 acre), a preconstruction notification would need to be submitted to the Corps requesting verification. According to the Corps' own regulations, if the Corps does not respond within 45 days, then the project is considered authorized.

A compensatory mitigation plan (or explanation of why no mitigation is being proposed) is required as part of a complete notification package. In this case, however, relocating the ditch would likely be considered a permanent, albeit self-

mitigating, impact (personal communication between Mark Tucker, EDAW Wetland Ecologist and Shannon Bryant, Corps Project Manager, 27 August 2002). The Corps will likely not require excess (greater than 1:1 ratio) mitigation and 5 years of monitoring. Rather, the Corps will require conditions that ensure that the new ditch functions similar to the old ditch. Specifically, relocating the ditch cannot cause more than minimal changes to the hydraulic flow characteristics of the "stream," increase flooding, or cause more than minimal degradation of water quality. Pre- and postconstruction cross-sections of the ditch would likely be required to demonstrate that the new ditch functions similar to (or if appropriate, better than) the current ditch in terms of flow characteristics and capacity. The Corps may require 1 year of qualitative monitoring to ensure these conditions are met.

The required wetland permits therefore include, but are not limited to, NWP 14 and NWP 33, a streambed alteration agreement, and a water quality certification. The entire project including the wetland impacts would be within the jurisdiction of the California Coastal Commission and would require a consistency finding pursuant to the Coastal Zone Management Act.

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Appendix A Wildlife Species List

Wildlife Species Observed or Detected within and Adjacent to the Manchester/I-5 Interchange Project Biological Study Area

Scientific Name	Common Name
SQUAMATA	**LIZARDS AND SNAKES**
Iguanidae	
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard
Teiidae	
Cnemidophorus hyperythrus beldingi	orange-throated whiptail
CICONIIFORMES	**HERONS, STORKS, IBISES, AND RELATIVES**
Ardeidae	
Ixobrychus exilis	least bittern[1]
Ardea herodias	great blue heron
Casmerodius albus	great egret
Egretta thula	snowy egret
Threskiornithidae	
Plegadis chihi	white-faced ibis[1]
ANSERIFORMES	**SCREAMERS, DUCKS, AND RELATIVES**
Anatidae	
Anas platyrhynchos	mallard
Anas cyanoptera	cinnamon teal
FALCONIFORMES	**VULTURES, HAWKS, AND FALCONS**
Accipitridae	
Pandion haliaetus	osprey
Buteo jamaicensis	red-tailed hawk
GRUIFORMES	**CRANES, RAILS, AND RELATIVES**
Rallidae	
Rallus longirostris levipes	light-footed clapper rail[1]
Fulica americana	American coot

CHARADRIIFORMES	**SHOREBIRDS, GULLS, AND RELATIVES**
Charadriidae	
Pluvialis squatarola	black-bellied plover
Charadrius vociferus	killdeer
Recurvirostridae	
Himantopus mexicanus	black-necked stilt
Recurvirostra americana	American avocet
Scolopacidae	
Tringa flavipes	lesser yellowlegs
Catoptrophorus semipalmatus	willet
Limosa fedoa	marbled godwit
Calidris canutus	red knot
Calidris pusilla	semipalmated sandpiper
Calidris mauri	western sandpiper
Limnodromus griseus	short-billed dowitcher
Laridae	
Larus delawarensis	ring-billed gull
Sterna caspia	Caspian tern
Sterna forsteri	Forster's tern
Sterna antillarum browni	California least tern
COLUMBIFORMES	**PIGEONS AND DOVES**
Columbidae	
Zenaida macroura	mourning dove
APODIFORMES	**SWIFTS AND HUMMINGBIRDS**
Trochilidae	
Calypte anna	Anna's hummingbird
PICIFORMES	**WOODPECKERS AND RELATIVES**
Picidae	
Picoides nuttallii	Nuttall's woodpecker

PASSERIFORMES	PERCHING BIRDS
Tyrannidae	
Empidonax traillii extimus	southwestern willow flycatcher[1]
Myiarchus cinerascens	ash-throated flycatcher
Sayornis nigricans	black phoebe
Hirundinidae	
Stelgidopteryx serripennis	northern rough-winged swallow
Hirundo pyrrhonota	cliff swallow
Troglodytidae	
Thryomanes bewickii	Bewick's wren
Cistothorus palustris	marsh wren
Muscicapidae	
Polioptila californica californica	coastal California gnatcatcher
Chamaea fasciata	wrentit
Mimidae	
Mimus polyglottos	northern mockingbird
Vireonidae	
Vireo bellii pusillus	least Bell's vireo[1]
Emberizidae	
Geothlypis trichas	common yellowthroat
Pipilo erythrophthalmus	spotted towhee
Pipilo crissalis	California towhee
Ammodramus sandwichensis beldingi	Belding's savannah sparrow[2]
Melospiza melodia	song sparrow
Agelaius phoeniceus	red-winged blackbird
Corvidae	
Aphelocoma coerulescens	scrub jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Aegithalidae	
Psaltriparus minimus	bushtit
Emberizidae	
Dendroica petechia	yellow warbler[1]
Icteria virens	yellow-breasted chat[1]
Carpodacus mexicanus	house finch

LAGOMORPHA	**RABBITS, HARES, AND PIKAS**
Leporidae	
Sylvilagus audubonii	desert cottontail
RODENTIA	**SQUIRRELS, RATS, MICE, AND RELATIVES**
Sciuridae	
Spermophilus beecheyi	California ground squirrel
CARNIVORA	**CARNIVORES**
Canidae	
Canis latrans	coyote

[1] Observed during surveys conducted by the SELC.
[2] Observed during surveys conducted by EDAW, Inc. and by the SELC.

Appendix B Plant Species List

Plant Species Observed within the Biological Study Area

Scientific Name	Common Name
LYCOPODIAE	
Selaginellaceae - Spike-moss Family	
Selaginella bigelovii	Spike-Moss
CONIFERAE	
Cupressaceae - Cypress Family	
Cupressus macrocarpa	Monterey Cypress
Pinaceae - Pine Family	
Pinus sp.	Pine
Pinus torreyana	Torrey Pine
ANGIOSPERMAE	
Dicotyledoneae	
Aizoaceae - Carpet-Weed Family	
*Carpobrotus edulis**	Iceplant
*Mesembryanthemum crystallinum**	Crystalline Iceplant
*Mesembryanthemum nodiflorum**	Slender-Leaved Iceplant
*Tetragonia tetragonioides**	New Zealand Spinach
Amaranthaceae – Amaranth Family	
Amaranthus sp.	Pigweed
Anacardiaceae - Sumac Family	
Malosma laurina	Laurel Sumac
Rhus integrifolia	Lemonadeberry
*Schinus molle**	Peruvian Pepper Tree
*Schinus terebinthifolius**	Brazilian Pepper Tree
Apiaceae - Carrot Family	
Apiastrum angustifolium	Wild Celery
Daucus pusillus	Rattlesnake Weed
*Foeniculum vulgare**	Fennel
Asclepiadaceae – Milkweed Family	
Sarcostemma cynanchoides ssp. *hartwegii*	Climbing Milkweed
Asteraceae - Sunflower Family	
Amblyopappus pusillus	Coast Weed

Ambrosia psilostachya	Western Ragweed
Artemisia californica	California Sagebrush
Artemisia douglasiana	Mugwort
Artemisia dracunculus	Tarragon
Baccharis pilularis	Coyote Bush
Baccharis salicifolia	Mule Fat
Baccharis sarothroides	Broom Baccharis
Brickellia californica	California Brickellbush
*Centaurea melitensis**	Tocalote
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's Pincushion
*Chrysanthemum coronarium**	Annual Garland Daisy
Cirsium occidentale var. *occidentale*	Cobwebby Thistle
*Cirsium vulgare**	Bull Thistle
*Conyza canadensis**	Horseweed
Coreopsis maritima	Sea Dahlia
*Cotula australis**	Australian Brass-Buttons
Encelia californica	California Encelia
Eriophyllum confertiflorum var. *confertiflorum*	Golden Yarrow
*Filago gallica**	Narrowleaf Filago
*Gazania linearis**	Gazania
Gnaphalium californicum	Green Everlasting
Hazardia squarrosus var. *grindelioides*	Hazardia
*Hedypnois cretica**	Crete Hedypnois
Hemizonia fasciculata	Fascicled Tarplant
Heterotheca grandiflora	Telegraph Weed
Isocoma menziesii var. *vernonioides*	Coastal Isocoma
Jaumea carnosa	Salty Susan
Lessingia filaginifolia var. *linifolia*	Del Mar Mesa Sand-Aster
Osmadenia tenella	Southern Calycadenia
Pluchea odorata	Salt Marsh Fleabane
*Sonchus oleraceus**	Common Sow-Thistle
Stephanomeria sp.	Wreath-Plant
*Xanthium strumarium**	Cocklebur
Boraginaceae - Borage Family	
Amsinckia menziesii var. *intermedia*	Fiddleneck
Harpagonella palmeri	Palmer's Grappling Hook

Heliotropium curassavicum	Chinese Pusley
Pectocarya sp.	Comb-Bur
Plagiobothrys sp.	Popcorn Flower
Brassicaceae - Mustard Family	
*Brassica nigra**	Black Mustard
Caulanthus heterophyllus var. *heterophyllus*	Slender-Pod Jewelflower
Erysimum capitatum ssp. *capitatum*	Western Wallflower
*Hirschfeldia incana**	Perennial Mustard
*Matthiola incana**	Stock
*Raphanus sativus**	Wild Radish
Cactaceae - Cactus Family	
Ferocactus viridescens	Coast Barrel Cactus
Mammillaria dioica	Fish-hook Cactus
*Opuntia ficus-indica**	Indian-Fig
Opuntia littoralis	Coastal Prickly-pear
Opuntia prolifera	Coastal Cholla
Capparaceae - Caper Family	
Isomeris arborea	Bladderpod
Caprifoliaceae - Honeysuckle Family	
Sambucus mexicana	Blue Elderberry
Caryophyllaceae – Pink Family	
*Cardionema ramosissimum**	Tread-Lightly
*Silene gallica**	Windmill Pink
Silene laciniata ssp. *major*	Southern Pink
Spergularia sp.*	Sand-Spurry
Chenopodiaceae - Goosefoot Family	
Atriplex canescens ssp. *canescens*	Four-Wing Saltbush
Atriplex leucophylla	Saltbush
Atriplex pacifica	Southern Coast Saltbush
*Atriplex semibaccata**	Australian Saltbush
*Chenopodium ambrosioides**	Mexican Tea
Salicornia virginica	Pickleweed
*Salsola tragus**	Russian-Thistle, Tumbleweed
Cistaceae - Rock-Rose Family	
Helianthemum scoparium	Peak Rush Rose
Convolvulaceae- Morning-Glory Family	
Cressa truxillensis	Alkali Weed

Crassulaceae -Stone-Crop Family	
Crassula connata	Pygmy Weed
Dudleya edulis	Lady Fingers
Dudleya lanceolata	Coastal Dudleya
Dudleya pulverulenta	Chalk Lettuce
Curcurbitaceae - Gourd Family	
Marah macrocarpus var. *macrocarpus*	Wild Cucumber
Cuscutaceae – Dodder Family	
Cuscuta sp.	Dodder
Ericaceae - Heath Family	
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar Manzanita
Comarostaphylis diversifolia ssp. *diversifolia*	Summer Holly
Xylococcus bicolor	Mission Manzanita
Euphorbiaceae -Spurge Family	
Chamaesyce albomarginata	Rattlesnake Weed
Croton californicus	Croton
Euphorbia sp.*	Spurge
Euphorbia misera	Cliff Spurge
*Ricinus communis**	Castor Bean
Fabaceae - Pea Family	
Acacia sp.	Acacia
Astragalus trichopodus var. *lonchus*	Coast Locoweed
Lathyrus vestitus var. *alefeldii*	San Diego Sweetpea
Lotus scoparius var. *scoparius*	Coastal Deerweed
Lupinus bicolor	Miniature Lupine
Lupinus hirsutissimus	Stinging Lupine
*Melilotus indica**	Indian Sweet Clover
Vicia sp.	Vetch
Fagaceae - Oak Family	
Quercus agrifolia var. *agrifolia*	Coast Live Oak
Quercus dumosa	Nuttall's Scrub Oak
Frankeniaceae - Frankenia Family	
Frankenia salina	Alkali Heath
Geraniaceae – Geranium Family	
Erodium sp.*	Filaree

Hydrophyllaceae - Waterleaf Family	
Eucrypta chrysanthemifolia var. *chrysanthemifolia*	Common Eucrypta
Phacelia sp.	Phacelia
Phacelia ramosissima var. *latifolia*	Shrubby Phacelia
Lamiaceae - Mint Family	
Salvia apiana	White Sage
Salvia clevelandii	Cleveland Sage
Salvia columbariae	Chia
Salvia mellifera	Black Sage
Malvaceae – Mallow Family	
Malvella leprosa	Alkali-Mallow
Myoporaceae - Myoporum Family	
*Myoporum laetum**	Myoporum
Myrtaceae - Myrtle Family	
Eucalyptus sp.*	Eucalyptus
Nyctaginaceae - Four O'Clock Family	
Mirabilis californica	Wishbone Bush
Onagraceae - Evening Primrose Family	
Camissonia bistorta	California Sun Cup
Camissonia californica ssp. *californica*	Sun Cup
Oenothera californica	California Evening Primrose
Oenothera elata ssp. *hirsutissima*	Evening Primrose
Orobanchaceae – Broom-Rape Family	
Orobanche bulbosa	Broom-Rape
Oxalidaceae – Wood-Sorrel Family	
*Oxalis pres-caprae**	Bermuda Buttercup
Paeoniaceae – Peony Family	
Paeonia californica	California Peony
Papaveraceae – Poppy Family	
Papaver californicum	Fire Poppy
Plantaginaceae – Plantain Family	
Plantago erecta	Dot-Seed Plantain
Plumbaginaceae - Leadwort Family	
Limonium californicum	Western Marsh-Rosemary
*Limonium perezii**	Statice

Polemoniaceae - Phlox Family	
Gilia australis	Southern Gilia
Linanthus dianthiflorus	Ground Pink
Navarretia hamata ssp. *hamata*	Skunkweed
Polygonaceae - Buckwheat Family	
Chorizanthe fimbriata var. *fimbriata*	Fringed Spine-Flower
Chorizanthe procumbens	Prostrate Spine-Flower
Chorizanthe staticoides	Turkish Rugging
Eriogonum fasciculatum ssp. *fasciculatum*	Flat-top Buckwheat
Lastarriaea coricea	Lastarriaea
Pterostegia drymarioides	Granny's Hairnet
*Rumex crispus**	Curly Dock
Portulacaceae – Purslane Family	
Calandrinia ciliata	Red Maids
Calandrinia maritima	Seaside Calandrinia
Claytonia perfoliata ssp. *perfoliata*	Common Miner's Lettuce
Primulaceae – Primrose Family	
*Anagallis arvensis**	Scarlet Pimpernel
Dodecatheon clevelandii ssp. *clevelandii*	Shooting-Star
Rhamnaceae - Buckthorn Family	
Adolphia californica	California Adolphia
Ceanothus verrucosus	Wart-Stemmed Ceanothus
Rhamnus crocea	Spiny Redberry
Roseaceae – Rose Family	
Adenostoma fasciculatum	Chamise
Heteromeles arbutifolia	Toyon
Rubiaceae – Madder Family	
Galium angustifolium	Narrow-Leaf Bedstraw
Salicaceae - Willow Family	
Salix lasiolepis	Arroyo Willow
Saururaceae - Lizard-Tail Family	
Anemopsis californica	Yerba Mansa
Scrophulariaceae - Figwort Family	
Antirrhinum coulterianum	Coulter's Snapdragon
Antirrhinum kelloggii	Climbing Snapdragon
Antirrhinum nuttallianum ssp. *nuttallianum*	Nuttall's Snapdragon
Castilleja sp.	Paintbrush

Castilleja exserta ssp. *exserta*	Owl's Clover
Collinsia heterophylla	Purple Chinese Houses
Cordylanthus rigidus ssp. *setigerus*	Dark-Tip Bird's Beak
Mimulus aurantiacus	Yellow Bush Monkeyflower
Mimulus brevipes	Hillside Monkeyflower
Scrophularia californica ssp. *floribunda*	Bee Plant
Solanaceae - Nightshade Family	
Datura wrightii	Jimson Weed
Lycium californicum	California Box-Thorn
Nicotiana quadrivalvis	Tobacco
*Nicotiana glauca**	Tree Tobacco
Solanum xanti	Purple Nightshade
Violaceae – Violet Family	
Viola pedunculata	Yellow Johnny Jump-Up
Vitaceae - Grape Family	
Vitis girdiana	Desert Wild Grape
Monocotyledoneae	
Cyperaceae -Sedge Family	
Carex triquetra	Triangular-Fruit Sedge
Scirpus sp.	Bulrush
Iridaceae – Iris Family	
Sisyrinchium bellum	Blue-Eyed Grass
Juncaceae - Rush Family	
Juncus sp.	Rush
Juncus acutus ssp. *leopoldii*	Spiny Rush
Liliaceae - Lily Family (= Agavaceae, = Amaryllidaceae)	
Agave shawii	Shaw's Agave
Allium haematochiton	Red-Skinned Onion
Calochortus splendens	Splendid Mariposa Lily
Calochortus weedii var. *weedii*	Weed's Mariposa Lily
Chlorogalum sp.	Soap-Plant
Dichelostemma capitatum	Blue Dicks
Muilla maritima	Common Muilla
Yucca schidigera	Mojave Yucca
Yucca whipplei	Our Lord's Candle
Zigadenus fremontii	Fremont's Camas

Orchidaceae – Orchid family	
Piperia unalascensis	Rein-Orchid
Poaceae - Grass Family	
*Avena barbata**	Slender Wild Oat
*Bromus diandrus**	Ripgut Grass
Bromus madritensis ssp. *rubens**	Foxtail Chess
Cortaderia sp.*	Pampas Grass
*Cynodon dactylon**	Bermuda Grass
Distichlis spicata	Saltgrass
*Ehrharta calycina**	Veldt Grass
Leymus condensatus	Giant Rye Grass
Melica frutescens	Tall Melic
Muhlenbergia microsperma	Littleseed Muhly
Nassella pulchra	Purple Needlegrass
*Polypogon monspeliensis**	Annual Beard Grass
*Rhynchelytrum repens**	Natal Grass
Typhaceae - Cattail Family (= Sparganiaceae)	
Typha latifolia	Broad-leaved Cattail

*nonnative species

Appendix C MHCP, Species of Concern, and CNPS List Species Not Observed but Known from Vicinity of Project

Special Status Plant Species

Discussion of Shaw's Agave

The Shaw's agave (*Agave shawii*) is a CNPS List 2 species. This sensitive species is restricted to maritime succulent scrub, southern coastal bluff scrub, and coastal sage scrub ranging from San Diego County to Baja California, Mexico. On the northern Baja coast, Shaw's agave is often found abundant and sometimes dominant in volcanic soils. However, north of the border, population sizes have dramatically decreased due to coastal development in San Diego County. This sensitive succulent is almost extirpated throughout the United States. Most local populations are found in San Diego coastal preserves such as Torrey Pines State Reserve and Cabrillo National Monument, and south of Point Loma Nazarene College along the coastal bluffs.

No individuals of Shaw's agave were observed within the BSA. However, several individuals were observed within the southern maritime chaparral habitat immediately adjacent to the BSA, on the slopes south of San Elijo Lagoon and west of I-5.

Shaw's agave occurs in coastal sage scrub, maritime succulent scrub, and coastal bluff scrub habitats. Appropriate habitat for this species occurs in the upland areas throughout the BSA, but this species was not observed within the BSA during the survey. This species would have been observable during the course of the survey. This species has a low potential for occurrence within the BSA, as some small individuals may have gone undetected in areas of dense vegetation. This species is not expected to occur within the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Golden-spined Cereus

The golden-spined cereus (*Bergerocactus emoryi*) is a CNPS List 2 species. This sensitive cactus species ranges from southern San Diego County to Baja California, Mexico. It also occurs on coastal bluffs of San Clemente and Santa Catalina Island. Maritime succulent scrub is the primary habitat for this species, especially ocean-facing slopes along the coast in sandy soils. Some known populations are on the steep hillsides of Cabrillo National Monument, Otay Mesa, La Jolla Farms, and Torrey Pines State Reserve (the northern limit of this species). The limited populations of golden-spined cereus are slowly declining due to the increasing absence of required soil types and habitat.

The golden-spined cereus was not observed during the surveys. This species would have been observable at the time of these surveys. Since the northern limit of this species is well south of the BSA, this species is not expected to occur within the BSA or the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Orcutt's Brodiaea

The Orcutt's brodiaea (*Brodiaea orcuttii*)is a CNPS List 1B species. This sensitive annual occurs in chaparral, cismontane woodlands, valley and foothill grasslands, and on the periphery of vernal pools in clay or gravely loam soils. It is also found growing in meadows and streamsides. In vernal pool complexes, it typically grows in the swales feeding the pools. Ranging from southern California down to Baja California, Mexico, the Orcutt's brodiaea can be found in many locations, but in small populations. Impacts from urbanization and agriculture have limited its distribution and decreased its population size, resulting in the recent decline.

This herbaceous perennial was not observed during the April and May surveys, which were conducted during this species' traditional flowering period (April to July). In addition, due to the lack of appropriate habitat (vernal pools and swales), this species is not expected to occur within the BSA. The closest known population is approximately 11.27 km (7.0 miles) northeast of the BSA. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Appendix C MHCP, Species of Concern, and CNPS List Species Not Observed but Known from Vicinity of Project

Special Status Plant Species

Discussion of Shaw's Agave

The Shaw's agave (*Agave shawii*) is a CNPS List 2 species. This sensitive species is restricted to maritime succulent scrub, southern coastal bluff scrub, and coastal sage scrub ranging from San Diego County to Baja California, Mexico. On the northern Baja coast, Shaw's agave is often found abundant and sometimes dominant in volcanic soils. However, north of the border, population sizes have dramatically decreased due to coastal development in San Diego County. This sensitive succulent is almost extirpated throughout the United States. Most local populations are found in San Diego coastal preserves such as Torrey Pines State Reserve and Cabrillo National Monument, and south of Point Loma Nazarene College along the coastal bluffs.

No individuals of Shaw's agave were observed within the BSA. However, several individuals were observed within the southern maritime chaparral habitat immediately adjacent to the BSA, on the slopes south of San Elijo Lagoon and west of I-5.

Shaw's agave occurs in coastal sage scrub, maritime succulent scrub, and coastal bluff scrub habitats. Appropriate habitat for this species occurs in the upland areas throughout the BSA, but this species was not observed within the BSA during the survey. This species would have been observable during the course of the survey. This species has a low potential for occurrence within the BSA, as some small individuals may have gone undetected in areas of dense vegetation. This species is not expected to occur within the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Golden-spined Cereus

The golden-spined cereus (*Bergerocactus emoryi*) is a CNPS List 2 species. This sensitive cactus species ranges from southern San Diego County to Baja California, Mexico. It also occurs on coastal bluffs of San Clemente and Santa Catalina Island. Maritime succulent scrub is the primary habitat for this species, especially ocean-facing slopes along the coast in sandy soils. Some known populations are on the steep hillsides of Cabrillo National Monument, Otay Mesa, La Jolla Farms, and Torrey Pines State Reserve (the northern limit of this species). The limited populations of golden-spined cereus are slowly declining due to the increasing absence of required soil types and habitat.

The golden-spined cereus was not observed during the surveys. This species would have been observable at the time of these surveys. Since the northern limit of this species is well south of the BSA, this species is not expected to occur within the BSA or the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Orcutt's Brodiaea

The Orcutt's brodiaea (*Brodiaea orcuttii*)is a CNPS List 1B species. This sensitive annual occurs in chaparral, cismontane woodlands, valley and foothill grasslands, and on the periphery of vernal pools in clay or gravely loam soils. It is also found growing in meadows and streamsides. In vernal pool complexes, it typically grows in the swales feeding the pools. Ranging from southern California down to Baja California, Mexico, the Orcutt's brodiaea can be found in many locations, but in small populations. Impacts from urbanization and agriculture have limited its distribution and decreased its population size, resulting in the recent decline.

This herbaceous perennial was not observed during the April and May surveys, which were conducted during this species' traditional flowering period (April to July). In addition, due to the lack of appropriate habitat (vernal pools and swales), this species is not expected to occur within the BSA. The closest known population is approximately 11.27 km (7.0 miles) northeast of the BSA. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Southern Tarplant

The southern tarplant (*Centromadia parryi* ssp. *australis*)is a CNPS List 1B species. This species is almost extirpated from San Diego County and is severely declining throughout its range, which is known to extend north into Santa Barbara County. Typically, the habitat can be described as mesic areas in valley and foothill grasslands, salt marshes, drainages, and vernal pools. Local populations in the county are found in San Dieguito Lagoon (the closest known population), Ramona, and San Marcos. Due to major coastal development and alterations to coastal drainages, the southern tarplant population is severely declining and in threat of extinction.

This species was not observed during the spring and fall surveys, which were conducted during the traditional blooming period of this species. This species was not observed within the BSA though there is a low potential for its occurrence. Certain portions of San Elijo Lagoon were inaccessible to survey because of water levels and the concern of damaging the fragile resources of the lagoon from foot traffic. However, the area within the AE was easily accessible, and this species was not observed in these areas. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Long-spined Spineflower

The long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*) is a CNPS List 1B species. This sensitive annual can be found on clay openings in coastal sage scrub, chaparral, meadows, seeps, and valley and foothill grasslands, and occasionally on the periphery of vernal pools. Local populations occur in vernal pool complexes near Kearny Mesa, Cuyamaca Lake, Carmel Mountain, Point Loma, and Encinitas. Like the Orcutt's spineflower, the long-spined spineflower is threatened by development, with much of its habitat lost to urbanization.

This herbaceous perennial was not observed during the spring surveys, which were conducted during this species' traditional flowering period (April to July). Therefore, this species would have been observable if present. As there is appropriate habitat for this species within the BSA, there is a moderate potential for the occurrence of this species within the BSA. However, this species is not expected to occur within the AE because of the disturbed conditions present there. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Variegated Dudleya

The variegated dudleya (*Dudleya variegata*) is a CNPS List 1B species, an MHCP covered species, and an MHCP narrow endemic. It inhabits openings in coastal sage scrub and chaparral, as well as isolated rocky substrate in open grasslands. Its limited distribution ranges from San Diego to Baja California, Mexico. This corm-like, sprouting perennial tolerates gravel and clay loam soils and can be found in proximity to vernal pools. Typically, it is found devoid of dense shrub cover in the habitats mentioned above throughout the San Diego area. However, the species is slowly declining due to restrictions in distribution and habitat destruction.

This species was not observed during the spring surveys, which were conducted during this species' traditional blooming period. In addition, there are no known populations of this species within the immediate vicinity of the BSA; therefore, this species is not expected to occur within the BSA. There is no suitable habitat for this species within the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Sticky Dudleya

The sticky dudleya (*Dudleya viscida*) is a CNPS List 1B species and an MHCP covered species. This inconspicuous perennial can be seen dominating very steep north-facing slopes of coastal sage scrub and chaparral in San Diego, Riverside, and Orange Counties. Typically, it inhabits exposed gabbroic outcrops, shallow soils, or cracks on vertical slopes. One of the largest populations is found in Devil's Gorge located in Camp Pendleton. The closest known population of this species is along San Marcos Creek approximately 8.05 km (5.0 miles) northeast of the BSA (Reiser 2001).

This species was not observed during the spring surveys, which were conducted during this species' traditional flowering period (May-June). Appropriate habitat for this species does not occur within the BSA. This species is not expected to occur within the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Cliff Spurge

The cliff spurge (*Euphorbia misera*) is a CNPS List 2 species. This small shrub from the spurge family can be found in low-growing maritime sage scrub that has a high percentage of cactus present throughout San Diego, Riverside, and Orange Counties.

Its range extends to Baja California, Mexico, and specimens are also present on San Clemente Island. Locally, populations have been reported from Carlsbad, San Dieguito River, La Jolla, Cabrillo National Monument, and Point Loma.

This species was not observed within the BSA. However, several individuals were observed immediately adjacent to the BSA. This species is not present within the AE. Those individuals immediately adjacent to the BSA are considered far enough removed from the AE that they would not be indirectly impacted by the project. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Orcutt's Hazardia

The Orcutt's hazardia (*Hazardia orcuttii*) is a CNPS List 1B species, an MHCP covered species, and an MHCP narrow endemic. It has been reported in clay soils of open chamise chaparral and coastal sage scrub. Its distribution range is reported from San Diego to Baja California, Mexico, but there is only one known population in the United States and it is located approximately 2.5 km (1.6 miles) northeast of the project area in Encinitas (Reiser 2001). The site is impacted and the population is slowly declining.

Orcutt's hazardia was not observed during the surveys, which were conducted at a time when this species would have been observable. Given that the only U.S. population of this species is relatively close to the BSA, and that there is suitable habitat within the BSA, there is a low potential for its occurrence within the BSA. This species is not expected to occur within the AE due to the disturbed conditions present there. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Decumbent Goldenbush

The decumbent goldenbush (*Isocoma menziesii* var. *decumbens*) is a CNPS List 1B species. This species utilizes coastal sage scrub habitat or chaparral intermixed with grasslands typically in clay or sandy soils. It has been reported on San Clemente and Santa Catalina Islands as well as in Orange and San Diego Counties. Known local sites are found in Chula Vista and Miramar.

Decumbent goldenbush was not observed during the surveys, which were conducted during the traditional blooming period of this plant. Though suitable habitat for this

species is present within the BSA, decumbent goldenbush is expected to have only a low potential for occurrence within the BSA and not expected within the AE. The closest known population is approximately 12.07 km (7.5 miles) north of the BSA. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of San Diego Marsh-Elder

The San Diego marsh-elder (*Iva hayesiana*) is a CNPS List 2 species and an MHCP covered species. Sandy, alluvial embankments in riparian habitats is the preferred habitat for this inconspicuous shrub. It also inhabits intermittent streambeds, steep watercourses, creeks, playas, marshes, and swamps throughout San Diego County and Baja California, Mexico. Common in drainages of Otay Mountain, it can also be found near the Otay River, the Tijuana River, and Tecate Creek (Reiser 2001). The closest known population of this species is from Escondido Creek, approximately 7.24 km (4.5 miles) northeast of the BSA. The status of the San Diego marsh-elder is currently stable, but there are potential impacts due to modifications of drainages throughout the county.

San Diego marsh-elder was not observed during the surveys for the project. Suitable habitat exists within the marsh habitats of San Elijo Lagoon, but these areas may be a little too saline for this species. This species is not expected to occur within the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Coulter's Goldfields

The Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*) is a CNPS List 1B species. This species occurs in coastal salt marshes at the extreme upper end of tidal inundation and on the periphery of vernal pools. It can also be found in alkaline marshes inland in Riverside County. Local populations can be found in Miramar, Chula Vista, and Peñasquitos Lagoon. Due to wetland degradation, this species is severely declining in San Diego County. The closest known population is approximately 8.05 km (5.0 miles) north of the BSA.

Coulter's goldfields was not observed during the spring surveys, which were conducted during this species' traditional flowering period. Suitable habitat for Coulter's goldfields exists within the marsh habitats of San Elijo Lagoon. There is a moderate potential for the occurrence of this species within the BSA, due to the

presence of suitable habitat. This species is not expected to occur within the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of San Diego Sand Aster

The San Diego sand aster (*Lessingia filaginifolia* var. *incana*) is a CNPS List 1B species. Ranging from San Diego to Baja California, Mexico, this species can be typically found in sandy openings of coastal chaparral. Plant associates found nearby are wart-stemmed ceanothus and chamise. Local populations are found in Cabrillo National Monument and Point Loma.

This species was not observed within the BSA during the surveys, which were conducted during this species' traditional blooming period. In addition, the BSA is outside of the reported range of this species and therefore this species is not expected to occur within the BSA. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Nuttall's Lotus

Restricted to coastal dunes, the Nuttall's lotus (*Lotus nuttallianus*) is a CNPS List 1B species, an MHCP covered species, and an MHCP narrow endemic. This prostrate biennial from the pea family is found typically in the back dunes in soils mapped as beach sands and riverwash. It can be located in Torrey Pines State Reserve, Border Field, Santa Margarita River, and the San Diego Bay. Under strict protection, the Nuttall's lotus is expanding its population throughout the county. The closest population is reported in Torrey Pines State Reserve, approximately 8 km (5 miles) south of the southern terminus of the BSA (SANDAG n.d.; Reiser 2001).

Nuttall's lotus was not observed during the spring surveys for the Manchester/I-5 Interchange project, which were conducted during the traditional blooming period of this species (March-June). There is some marginal, suitable habitat for this species within the BSA, in the sandy areas of sage scrub along the periphery of San Elijo Lagoon. Much of this area is disturbed and subjected to indirect pressures. Therefore, Nuttall's lotus would have a low potential for occurrence within the BSA, and is not expected to occur within the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of San Diego Goldenstar

The San Diego goldenstar (*Muilla clevelandii*) is a small fibrous-coated perennial corm in the lily family. It is a CNPS List 1B species. The San Diego goldenstar occurs on clay soils in valley grasslands, near vernal pools, and in chaparral. Local populations are found throughout the county and in Baja California, Mexico. Some known populations are in Otay Mesa, Miramar, Sweetwater River, and San Clemente Canyon. This sensitive species is severely declining due to urbanization throughout the San Diego area. The nearest known population of this species is approximately 7.4 km (4.5 miles) northeast of the BSA.

This herbaceous perennial was not observed during the spring surveys, which were conducted during this species' traditional flowering period (May). Suitable habitat occurs within the BSA, but not within the AE. The Build Alternative would directly impact (permanent and temporary combined) 229 individuals of this species.

Discussion of Little Mousetail

Little mousetail (*Myosurus minimus*) is a CNPS List 3 species, an MHCP covered species, and an MHCP narrow endemic. This small annual is restricted to vernal pool habitats. Ranging throughout southern California, this species is known from the region, although suitable vernal pool habitat is not present within the BSA. Local populations of little mousetail are found in the eastern region of San Diego County near Peñasquitos Canyon, Otay Mesa, and Tierra Santa. Due to urbanization, this species is declining throughout California. The closest known population is the vernal pool complex on Del Mar Mesa.

This species was not observed during the spring surveys, which were conducted during this species' traditional flowering period. In addition, due to the lack of vernal pool habitat within the BSA, this species would not be expected to occur within the BSA. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Coast Woolly-Heads

This prostrate annual from the buckwheat family is a CNPS List 1B species. It resides in well-developed coastal sand dunes along the coast. Almost extirpated in San Diego, the coast woolly-head (*Nemacaulis denudata* var. *denudata*) is severely declining within San Diego County. Isolated populations are found in Peñasquitos

Lagoon, Border Field, Mission Bay, and Coronado. A historical population is reported from San Elijo Lagoon just outside of the BSA.

This species was not observed during the surveys, which coincided with this species' traditional flowering period (April to September). Suitable habitat (coastal dunes) does not occur within the BSA; however, sandy areas along the edge of the lagoon could support this species, though these areas are relatively disturbed. This species would have a low to moderate potential for occurrence within the BSA but is not expect to occur within the AE. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Special Status Animal Species Occurrences

Discussion of San Diego Fairy Shrimp

The San Diego fairy shrimp (*Branchinecta sandiegonensis*) is a federally listed endangered species and is a covered species under the MHCP. Described as an obligate vernal pool species, it requires depressions that pond spring rains for periods long enough to complete its lifecycle. The San Diego fairy shrimp lays its eggs during the wet season, and these cysts lie dormant at the bottom of the vernal pool depression during the ensuing dry season. The species is known from vernal pools as far north as Orange County, south into northern Baja California, Mexico. Within San Diego County, it occurs in appropriate habitat from the coast to Ramona. The MHCP indicates that the San Diego fairy shrimp has been documented in Carlsbad north of Poinsettia Lane in the vicinity of the San Diego Northern Railway (formerly the Atchison, Topeka and Santa Fe Railroad), and San Marcos north and south of Highway 78 along Las Posas Road. This species is not expected onsite because of a lack of appropriate vernal pool habitat. Therefore, no impacts would occur to the San Diego fairy shrimp, and no avoidance, minimization, or compensatory mitigation measures would be required.

Discussion of Riverside Fairy Shrimp

The Riverside fairy shrimp (*Streptocephalus woottoni*) is listed as an endangered species at the federal level and is a covered species under the MHCP. It is restricted to deep vernal pools with long periods of inundation. This species is currently known from only five general locations within its range, including Temecula and Rancho California in Riverside County, Marine Corps Base Camp Pendleton, Marine Corps

Air Station Miramar, Otay Mesa, and Carlsbad. The only known location within the MHCP region is in Carlsbad, in the vicinity of Poinsettia Lane. The species is not expected to occur onsite because of a lack of appropriate vernal pool habitat; therefore, no impacts would occur to the Riverside fairy shrimp. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Harbison's Dun Skipper Butterfly

Harbison's dun skipper butterfly (*Euphyes vestries harbisoni*) is covered under the MHCP. The species is restricted to riparian areas, intermittent streams, and oak woodland where its host plant, San Diego sedge (*Carex spissa*), is present. The species ranges from San Diego County north to the Santa Ana Mountains in Orange County. Known populations occur in Ramona, Escondido, Fallbrook, Dulzura, and on Tecate Peak. Within the MHCP area, the species is known to occur in north and east Escondido and adjacent to south San Marcos (Elfin Forest area). The butterfly is not expected to occur onsite because habitat within the BSA is not conducive for San Diego sedge, which is essential for the survival of the butterfly; the BSA is outside of the species' current known range; and the species is typically not found within 16.1 kilometers (10.0 miles) of the coast. Therefore, no avoidance, minimization, or compensatory mitigation would be required for this species.

Discussion of Hermes Copper Butterfly

The Hermes copper butterfly (*Lycaena hermes*) is covered under the MHCP. The species is restricted to coastal sage scrub and southern mixed chaparral in west San Diego County and a small portion of Baja California, Mexico, where its larval host plant, redberry (*Rhamnus crocea*), accounts for at least 15 percent of the vegetation cover. Within San Diego County, populations have been recorded from Otay Ranch north to Fallbrook, from Mission Gorge east to Guatay, and on McGinty Mountain and Sequan Peak. Species locations within the MHCP area are lacking. No major populations or critical locations exist within the MHCP area. The species is not expected to occur onsite because of insufficient cover of its larval host plant. Therefore, no avoidance, minimization, or compensatory mitigation would be required for this species.

Discussion of Western Spadefoot Toad

The western spadefoot toad (*Scaphiopus hammondii*) is considered a state species of concern and is covered under the MHCP. The species prefers sandy or gravelly soil in grasslands, open chaparral, and pine-oak woodlands. This toad breeds during the winter months, from January to May, in the waters of quiet streams, ephemeral ponds, and vernal pools. It aestivates during the drier months in burrows in upland habitats adjacent to these pools. The species ranges west of the coastal ranges, from Point Conception to northern Baja California, Mexico, and in the Central Valley of California. Within the MHCP area, the western spadefoot toad occurs in Buena Vista Lagoon, Page Creek in northern Escondido, and San Marcos Creek in southeastern Carlsbad. It is also fairly common on Daley Ranch in northern Escondido; however, no major populations or critical locations exist within the plan area. This species is not expected to occur within the BSA because the survey area lacks appropriate vernal pool or ephemeral pond habitat for breeding; therefore, no impacts are expected to occur to the western spadefoot toad. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Arroyo Toad

The arroyo toad (*Bufo californicus*) is a federally listed endangered species; is a fully protected, state-listed species of concern; and is covered under the MHCP. The species occurs along rivers and streams that sustain a flow sufficient to allow the development of tadpoles. Eggs and larvae develop best in the waters of slow-moving, quiet streams with sandy or gravelly banks. The arroyo toad aestivates during the drier months in burrows in upland habitats up to 914 m (3,000 ft) from these pools. The species is distributed along rivers and large creeks on the coastal slope from San Luis Obispo County south to northwestern Baja California, Mexico. Within the MHCP area, documented locations are lacking. Although recorded observations exist for the San Luis Rey River near Bonsall, on Camp Pendleton, the arroyo toad may be extirpated from the MHCP area. No major populations or critical locations occur within the plan area. This species is not expected to occur within the survey area. The BSA lacks appropriate breeding habitat, and all known populations are located over a kilometer away, indicating that this area is not used by the arroyo toad for breeding or as upland wintering habitat. Because the arroyo toad is expected to be absent from the BSA, no impacts are expected to occur to this species. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Fork-tailed Storm-petrel

The fork-tailed storm-petrel (*Oceanodroma furcata*) is considered a state species of concern within its rookery sites. Although highly pelagic, it nests on islands and on grassy slopes up to a mile inland. This species uses burrows dug by other avian species, excavates its own burrows, or uses natural rock or cliff cavities for nesting. The fork-tailed storm-petrel is most abundant within its breeding range, which includes the North Pacific from southern Alaska south along west North America to islands off northern California. In San Diego County, this species is a casual visitor in the winter and spring (Unitt 1984). The fork-tailed storm-petrel is not expected to occur within the BSA not only because this area lacks suitable habitat for the species but also because the survey area is well south of the species' current range. Because no impacts are expected to occur to this species, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Black Storm-petrel

The black storm-petrel (*Oceanodroma melania*) is considered a state species of concern within its rookery sites. It is a highly pelagic species that ranges along the Pacific coast from central California south to Peru. This species nests in burrows and rock crevices on small coastal islands off of southern California, the Pacific coast of Baja California, and in the northern third of the Gulf of California. The black storm-petrel is the most abundant storm-petrel off the coast of San Diego County and ranges closest to shore. It is a very common to abundant visitor in spring, summer, and fall and is often common 3 to 5 kilometers (2 to 3 miles) from the beach (Unitt 1984). Because this species is pelagic, it is not expected to occur within the BSA, except as an extremely rare migrant. Therefore, no impacts are expected to occur to the black storm-petrel; thus, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is a federally listed threatened and a fully protected, state-listed endangered species within its breeding and wintering sites. It inhabits lakes, rivers, marshes, and seacoasts. This species breeds from Alaska east across Canada and south to California. Winters are spent along coasts and large rivers in much of the United States. The bald eagle occurs in San Diego County as a rare winter visitor, most frequently sighted at Lake Henshaw and occasionally at other lakes as well (Unitt 1984). Although this species was observed within San Elijo

Lagoon during routine general wildlife surveys by the SELC, no nesting habitat is present within the lagoon. Thus, any individuals observed in the vicinity are most likely migrants. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Greater Sandhill Crane

The greater sandhill crane (*Grus canadensis tabida*) is a fully protected, state-listed threatened species within its breeding and wintering ranges. It roosts along river channels, on alluvial islands of braided rivers, and in natural basin wetlands, often feeding and resting in fields and agricultural lands. This species breeds in open grasslands, marshes, marshy edges of lakes, and ponds, and along river banks where it nests on open tundra or in the shallow waters of large marshes, bogs, fens, or wet forest meadows. The greater sandhill crane breeds throughout the southern regions of central and western Canada and the northern half of the central and western United States. The Great Lakes population winters in Florida; the rocky mountain population along the Rio Grande in New Mexico and into northern Chihuahua, Mexico; and the westernmost breeding populations in California, including the Central and Imperial Valleys. Although it was a regular migrant in San Diego County during the nineteenth century, this species is now considered accidental. With very few observations in San Diego County within the last hundred years (Unitt 1984), the greater sandhill crane is not expected to occur within the BSA; thus, no impacts are expected to occur to this species. Accordingly, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Rhinoceros Auklet

The rhinoceros auklet (*Cerorhinca monocerata*) is considered a state species of concern within its nesting colonies. Predominantly pelagic, this species is occasionally observed along rocky seacoasts. It nests mainly on grassy or shrubby sea-facing slopes or level areas near the edge of islands, occasionally even in caves. Off the coast of San Diego County, this species is an uncommon to fairly uncommon winter visitor and a rare summer straggler, usually observed within 16 km (10 miles) of the coast (Unitt 1984). Because the rhinoceros auklet is pelagic, it is not expected to occur within the BSA; therefore, no impacts are expected to occur to this species. Accordingly, no additional avoidance, minimization, or compensatory mitigation measures would be required.

Discussion of Long-eared Owl

The long-eared owl (*Asio otus*) is considered a state species of concern within its breeding range. It inhabits open woodlands, forest edges, riparian strips along rivers, hedgerows, juniper thickets, woodlots, and wooded ravines and gullies. This species is widely distributed in North America, Eurasia, and northern Africa. It breeds from central British Columbia, southern Mackenzie, and Quebec south to California, Arkansas, and Virginia and winters in the southern part of its breeding range and in the southern tier of states. It is nearly extirpated as breeding species from San Diego County (one pair persists at Tamarisk Grove Campground, Anza-Borrego Desert State Park), and the decline began as early as 1905 (Unitt 1984). Although this species was observed within San Elijo Lagoon during routine general wildlife surveys by the SELC, no appropriate habitat is present within the lagoon. Thus, any individuals observed in the vicinity are most likely migrants. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Black Swift

The black swift (*Cpyseloides niger*) is considered a state species of concern within its breeding range. It nests and roosts behind or adjacent to waterfalls, in seacoast caves, and on rocky cliffs. This species breeds from southeastern Alaska, northwestern and central British Columbia, and southwestern Alberta south through the Pacific states and Mexico to Central America, occasionally also in northwestern Montana, Colorado, and central Utah. It winters in Mexico and Central America. The black swift breeds very locally in four regions of California: the central and southern Sierra; the coastal cliffs and mountains of San Mateo, Santa Cruz, and Monterey Counties; the San Gabriel, San Bernardino, and San Jacinto Mountains of southern California; and a limited area in the Cascade Range. In San Diego County, this species is a very rare spring migrant (Unitt 1984). Although this species was observed within San Elijo Lagoon during routine general wildlife surveys by the SELC, no appropriate habitat is present within the lagoon. Thus, any individuals observed in the vicinity are most likely migrants. As such, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of Coastal Cactus Wren

The coastal cactus wren (*Campylorhynchus brunneicapillus couesi*) is considered a state species of concern and is covered under the MHCP. It is a narrow endemic

subspecies that occurs in coastal sage scrub with tall opuntia cactus for nesting and roosting. This subspecies can be found in the coastal plain counties of southern California but has a highly fragmented distribution within San Diego County. Within the MHCP area, suitable habitat is limited because the remaining coastal sage scrub lacks stands of tall cactus necessary to support this subspecies; however, one population exists in San Pasqual Valley and extends west along the slopes above Lake Hodges in Escondido. This area of suitable habitat along the San Pasqual Valley and Lake Hodges is large enough to support a substantial number of cactus wren pairs and is considered a major population and a critical location within the MHCP area. The coastal cactus wren is not expected to occur onsite because of the absence of appropriate habitat. Therefore, no avoidance, minimization, or compensatory mitigation would be required for this species.

Discussion of Western Bluebird

The western bluebird (*Sialia mexicana*) is covered under the MHCP. It is a common, cavity-nesting songbird that breeds in oak woodland-grassland ecotone area and winters in a wide range of open habitats at elevations below 4,000 feet. This species is found throughout the western United States. Within the MHCP area, it is primarily a wintering species; however, limited breeding does occur in oak woodlands of Escondido and San Marcos. There are no major populations or critical locations within the MHCP area. The western bluebird is not expected to occur onsite because of the absence of appropriate habitat. Therefore, no avoidance, minimization, or compensatory mitigation would be required for this species.

Discussion of Townsend's Western Big-eared Bat

Townsend's western big-eared bat (*Corynorhinus townsendii pallescens*) is considered a state species of concern and is covered under the MHCP. It roosts in caves, tree hollows, mines, tunnels, buildings, and other structures in oak woodland, riparian woodland, and chaparral, with roosting areas the limiting factor. This species occurs throughout California, but information on the details of its distribution is limited. Within the MHCP area, Townsend's western big-eared bats have been detected from Escondido and north San Marcos. No major populations have been designated within the MHCP area, and, although there are no known active roosts sites, any that are found would be considered critical locations. Townsend's western big-eared bat is not expected to occur onsite because of the absence of appropriate

habitat. Therefore, no avoidance, minimization, or compensatory mitigation would be required for this species.

Discussion of Pallid Bat

The pallid bat (*Antrozous pallidus*) is considered a state species of special concern. It inhabits arid deserts and grasslands, usually near rocky outcroppings and water, and occasionally evergreen and mixed conifer woodland where it roosts most frequently in rock crevices or buildings but also uses caves, tree hollows, and mines as roosts sites. This species is found in western North America, from south-central British Columbia south through the western United States and into southern Baja California and central Mexico. There are no known roost sites within the BSA; however, should any be found, these would be considered sensitive locations. Because of a lack of suitable habitat, the pallid bat is not expected to occur within the BSA. Accordingly, no avoidance, minimization, or compensatory mitigation measures would be required for this species.

Discussion of California Mastiff Bat

The California mastiff bat (*Eumops perotis californicus*) is considered a state species of concern and is covered under the MHCP. It roosts in rugged, rocky areas and high crevices, tall buildings, reservoirs, and dams either solitarily or in small groups. It forages over open grasslands, coastal sage scrub, and chaparral. This species is distributed from north-central California south to central Mexico. Although it is a resident species in California, it likely makes localized seasonal movements. Within the MHCP area, distribution of this species is unknown. No major populations have been designated within the MHCP area; and, although there are no known active roost sites, any that are found would be considered critical locations. The California mastiff bat is not expected to occur onsite because of the absence of appropriate habitat. Therefore, no avoidance, minimization, or compensatory mitigation would be required for this species.

Discussion of Pacific Pocket Mouse

The Pacific pocket mouse (*Perognathus longimembris pacificus*) is a federally listed endangered species and a state species of concern and is covered under the MHCP. It occurs in fine, sandy soils within 2 to 3 miles of the Pacific Ocean of southern California, from Marina del Rey and El Segundo in Los Angeles County south to near the Mexican border. Only four populations of this subspecies are known, all of

which lie outside of the MHCP area. One of the largest populations is located about 1.5 miles north of Oceanside. Suitable habitat areas in north Oceanside have not been fully surveyed for the Pacific pocket mouse and have a small possibility of supporting the species. No major populations or critical locations have been designated within the MHCP area. This subspecies is not expected to occur onsite because of the absence of appropriate habitat. Therefore, no avoidance, minimization, or compensatory mitigation would be required for this species.

Discussion of Stephens' Kangaroo Rat

Stephens' kangaroo rat (*Dipodomys stephensi*) is a federally listed endangered and state-listed threatened species and is covered under the MHCP. It is found in relatively level, sparsely vegetated, open grasslands and sparse coastal sage scrub where it burrows and feeds primarily on seeds. Soils in these areas must have a low clay content to allow burrowing. This species occurs primarily in western Riverside County, but populations also occur in northern San Diego County at Camp Pendleton, Fallbrook Naval Weapons Annex, Lake Henshaw, Santa Maria Valley (Ramona), and Guejito Ranch. Within the MHCP area, this species is known recently only from Guajome Lake and Pilgrim Creek. However, based on a recent sighting near Ramona, the Stephens' kangaroo rat could occur more widely in grasslands of San Diego County than previously thought. Most of this habitat lies north and east of the MHCP area, but this species could potentially colonize grasslands or agricultural fields in Oceanside near occupied habitat on Camp Pendleton and Fallbrook Naval Weapons Annex. No major populations or critical locations have been designated within the MHCP area. Although vegetation communities occur within the BSA that are associated with Stephens' kangaroo rat habitat, the soil conditions in these areas are not suitable for burrowing by the species. Therefore, Stephens' kangaroo rats are not expected to occur onsite.

Discussion of San Diego Desert Woodrat

The San Diego desert woodrat (*Neotoma lepida intermedia*) is considered a state species of concern. It occupies rocky habitats in association with chaparral and coastal sage scrub. This subspecies is restricted to southern California from San Luis Obispo south to northwestern Baja California, Mexico. A CNDDB search shows that the subspecies is known within the BSA; however, the San Diego desert woodrat is not covered under the MHCP, thus there are no major populations or critical locations designated within the MHCP area. This subspecies is not expected to occur onsite

because of the absence of appropriate habitat. Therefore, no avoidance, minimization, or compensatory mitigation would be required for this species.

Discussion of Mountain Lion

The mountain lion (*Felis concolor*) is a state regulated game species and is covered under the MHCP. It occurs in forests and shrublands distant from heavily populated areas where deer, their primary prey, are found. This species has the largest geographical distribution of any mammal species in the western hemisphere; however, it is restricted to primarily unpopulated regions in western North America. Scattered observations have been made in and near the MHCP area, including in San Elijo Lagoon. Within coastal San Diego County, mountain lions have been detected from Camp Pendleton, Palomar, Carlsbad, San Marcos, Escondido, Laguna Indian Reservation, Los Peñasquitos Canyon Reserve, Del Mar, Torrey Pines State Park, NAS Miramar, Poway, Sweetwater River, and Otay Lakes. No major populations or critical locations have been designated within the MHCP area, although this species probably occupies some of the larger natural habitat areas. The mountain lion is not expected to occur onsite because of the absence of appropriate habitat. Therefore, no avoidance, minimization, or compensatory mitigation would be required for this species.

Discussion of Southern Mule Deer

The southern mule deer (*Odocoileus hemionus fuliginata*) is a state regulated game species and is covered under the MHCP. It occurs in large, undisturbed tracts of coastal sage scrub, chaparral, mixed grassland/scrub vegetation, riparian and oak woodlands, and coniferous forest, especially in areas with a mosaic of vegetation that provide clearings interspersed with dense brush or tree thickets. Mule deer range from the Southern Yukon and Mackenzie in Canada, south through the western United States to Wisconsin and western Texas, and throughout Baja California and northern Mexico. In California, mule deer occur throughout the state with the exception of the San Joaquin Valley and some southeastern desert areas. Most of the California population is migratory, moving to lower elevations in the fall. Mule deer in San Diego County are nonmigratory and are found in most undeveloped areas with suitable habitat. Recently, the southern mule deer has been documented from the Laguna Mountains, Camp Pendleton, Torrey Pines, Miramar, Palomar, Escondido, San Marcos, Carlsbad, Los Peñasquitos Canyon Reserve, La Jolla, Poway, Sweetwater River, and Otay Lakes. Within portions of the MHCP area, this

subspecies is fairly common where sufficient habitat is present. It has been detected in Batiquitos and San Elijo Lagoons. There are no major populations or critical locations within the MHCP area. This subspecies is not expected to occur onsite because of the absence of appropriate habitat. Therefore, no avoidance, minimization, or compensatory mitigation would be required for this species.

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