

Section 3.0

Affected Environment

This section discusses the existing conditions for the following environmental resources: water resources, biological resources, cultural resources, land use, aesthetics, air quality, transportation, noise, and environmental justice.

3.1 General Setting

Otay Water District is located in southwestern San Diego County, inland from the cities of San Diego, Chula Vista, and National City. The District is approximately 125 square miles in size and includes an additional area of approximately 14 square miles in its area of influence. Topography within the District is diverse, consisting of ridge, canyon, mountain, and valley formations in two major river drainages: the Sweetwater River in the north and the Otay River to the south. The District includes the urbanizing fringe of development spreading east from the Pacific coast, with the western and northern parts of the District consisting of established urban development and the eastern and southern portions generally less developed. Approximately 70 percent of the District is either undeveloped or undergoing significant development activity.

Undeveloped areas in the District contain rich and varied natural and cultural resources. Prehistoric archaeological sites are common, and the varied topography, soils, and microclimates support diverse biological habitats and plant and animal species. Sensitive biological areas persist in the form of vernal pools and other sensitive vegetation such as coastal sage scrub.

3.2 Water Resources

3.2.1 Water Supply

The District currently obtains its potable water supply from the SDCWA flow control facilities (FCF) serving the North and South Districts and a supply is available from the Helix Water District R.M. Levy Water Treatment Plant (WTP) serving the North District. The current District system wide annual average day demand for potable water is approximately 22.44 mgd. Based on population projections, this demand is expected to increase to 40.31 mgd by the year 2016, and 56.29 mgd at ultimate build-out.

The supply of recycled water is currently only available from the District's RWCWRF. The RWCWRF currently produces approximately 1.0 mgd, which is not sufficient to meet the current demand of greater than 2 mgd, so recycled water is supplemented with potable water. The District projects a recycled water ultimate annual average day demand of 8.23 mgd, and 17.77 mgd during the peak summer months at ultimate build-out.

3.2.2 Water Quality

In order to protect water quality in reservoirs, recycled water use is prohibited by RWQCB within any watershed tributary to surface water storage reservoirs used as a potable water supply. Therefore, recycled water use is restricted to the South District area (Central Area System and Otay Mesa System). Two principle documents that regulate recycled water use are the "Comprehensive Water Quality Control Plan Report, San Diego Region (9)" (Basin Plan by RWQCB), and the "Wastewater Reclamation Criteria, an excerpt from the California Administrative Code, Title 22, Division 4, Environmental Health" (Title 22 by Department of Health). The Basin Plan requirements vary by hydrographic subunits. Title 22 requirements are uniformly applied wastewater treatment requirements based on the intended use of the produced recycled water.

The RWCWRF and the SBWRP will provide tertiary treated recycled water. This recycled water meets the Title 22 requirements pertaining to oxidized, coagulated, filtered, and disinfected effluent requirements for non-restricted impoundments, spray irrigation of food crops, and the broadest category of landscape irrigation. Demineralization of recycled water effluent is not anticipated to be necessary as long as total dissolved solid levels do not exceed current limitations. As long as the recycled water use complies with the following conditions, use within Otay's Southern District is permitted:

- Effluent limitations shall be not less than the imported water supply constituent concentrations plus incremental increases attributable to typical domestic usages;
- Recycled water effluent concentrations must be less than the groundwater quality allowances;
- Recycled water effluent concentrations must protect the beneficial uses for the basin;
- Effective source control measures for the control of salinity must be implemented.

3.2.3 Hydrology

The District area lies within the Sweetwater, Otay, and Tijuana watersheds. In the northern part of the District, a very small part of the District is within the San Diego River watershed. In the Sweetwater watershed, the major watercourse is the Sweetwater River. A portion of this river is within the District. Reservoirs in this watershed include the Loveland Reservoir to the east of the District, and Sweetwater Reservoir to the west. In the Otay watershed, the main watercourses are Dulzura Creek and the Otay River. A portion of these watercourses flows through the District. Water flows from the east along Dulzura Creek, into the Lower Otay Reservoir, and the Otay River flows from the same reservoir westward to the Pacific Ocean. Reservoirs in this watershed include the Upper Otay and Lower Otay Reservoirs, east of the District boundary. A small part of the Tijuana watershed is in the southern portion of the District. Watercourses in this watershed include Cottonwood Creek and the Tijuana River; however, these watercourses are not within the District's service area. In general, the District's facilities and infrastructure do not alter nor impact the existing hydrology in these watersheds.

3.3 Biological Resources

3.3.1 Soils, Vegetation and Wildlife

The District area encompasses approximately 80,000 acres located in the western foothills of the peninsular ranges in southern San Diego County. This area is characterized by a subtropical Mediterranean climate, with annual rainfall ranging from 10 to 15 inches.

Topography in this area is varied, consisting of ridge, canyon, mountain, and valley formations in two major river drainages: the Sweetwater River to the north, and the Otay River to the south. Elevations range from approximately 100 feet above mean sea level (MSL) in the Otay River Valley to 2,565 feet MSL at the top of San Miguel Mountain. Soil associations, listed in Table 3.1, occurring in this area include Cieneba-Fallbrook, Las Posas, and Exchequer-San Miguel associations comprising most of the Central Area System. The Huerhuero-Stockpen, Redding-Olivenhain, and Diablo-Altamont associations are less common but comprise large areas in the western portion of the District. The presence of the Las Posas, Exchequer-San Miguel, Huerhuero-Stockpen, Redding-Olivenhain, and Diablo-Altamont associations are notable as they provide substrate for vernal pools and a number of sensitive plant taxa.

This combination of soils and topography supports a diversity of plant communities, which provide habitat for a vast array of plant and animal species, many of which are listed, proposed for listing, or candidates for listing by both the state and federal

governments. Table 3.2 lists vegetation communities in the District, and Tables 3.3 and 3.4 lists sensitive plants and wildlife.

**TABLE 3.1
SOIL ASSOCIATIONS IN OTAY WATER DISTRICT**

Soil Association	Description
Huerhuero-Stockpen	Moderately well-drained loams to gravelly clay loams that have a subsoil of clay or gravelly clay; 0–9 percent slopes
Redding-Olivenhain	Well-drained gravelly loams and cobbly loams that have a subsoil of gravelly clay over a hardpan or cobbly alluvium; 9–50 percent slopes
Fallbrook-Vista, rocky	Well-drained sandy loams and coarse sandy loams that have a subsoil of sandy clay loam and sandy loam over decomposed granodiorite; 9–30 percent slopes
Las Posas, stony	Well-drained stony fine sandy loams that have a clay subsoils over decomposed gabbro; 9–65 percent slopes
Cieneba-Fallbrook, very rocky	Excessively drained to well-drained coarse sandy loams and sandy loams that have a sandy clay loam subsoil over decomposed granodiorite; 9–75 percent slopes
Eschequer-San Miguel, rocky	Well-drained silt loams and stony loams over metavolcanic rock; 30–75 percent slopes
Diablo-Altamont	Well-drained clays; 15 percent slopes
Diablo-Linne	Well-drained clays and clay loams; 15–50 percent slopes
Diablo-Flores	Well-drained clays and moderately well-drained loamy fine sands that have a subsoils of sandy clay; 9–30 percent slopes
Rockland	Dominantly exposed bedrock and very large boulders

SOURCE: U.S. Department of Agriculture (1971)

3.3.2 Wetlands

3.3.2.1 U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged or fill material into waters of the U.S. (wetland and non-wetland jurisdictional waters) according to Section 404 of the Clean Water Act. Section 401 of the Clean Water Act requires that water quality certification, processed through RWQCB, be obtained in conjunction with any federal permits.

Non-Wetland Jurisdictional Waters of the U.S.

Non-wetland jurisdictional waters must have strong hydrology indicators, such as the presence of seasonal flows and an ordinary high watermark. An ordinary high watermark is defined as:

. . . that line on the shore established by the fluctuations 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 Part 328.3).

TABLE 3.2
VEGETATION COMMUNITIES IN OTAY WATER DISTRICT

Vegetation Community	Description
Maritime succulent scrub ¹	This low-lying, relatively open scrub is dominated by cacti and succulents. Maritime succulent scrub occurs in the Otay Mesa area. Characteristic species are <i>Artemisia californica</i> , <i>Rhus integrifolia</i> , <i>Agave shawii</i> , <i>Euphorbia misera</i> , <i>Ferocactus viridescens</i> , <i>Lycium californicum</i> , <i>Mammillaria dioica</i> , <i>Opuntia littoralis</i> , <i>Opuntia oricola</i> , <i>Opuntia prolifera</i> , and <i>Simmondsia chinensis</i> .
Diegan coastal sage scrub	This community is dominated by a low-lying scrub with soft-woody, drought deciduous species varying in density. This vegetation occurs around Otay Lakes, and in Proctor Valley. Characteristic species of diegan coastal sage scrub are <i>Artemisia californica</i> , <i>Baccharis pilularis</i> , <i>Baccharis sarothroides</i> , <i>Encelia californica</i> , <i>Eriogonum fasciculatum</i> , <i>Isocoma menziesii</i> , <i>Malosma laurina</i> , <i>Nasella lepida</i> , <i>Rhus integrifolia</i> , <i>Salvia mellifera</i> , <i>Salvia apiana</i> , and <i>Viguiera laciniata</i> .
Southern mixed chaparral	This is a mid-sized to tall, woody chaparral often situated on steep north and east-facing slopes, and in somewhat more mesic circumstances than other regional chaparral types. In drier situations the understory is often not diverse; however, in shaded and more mesic conditions the understory can be varied with species of ferns, subshrubs, herbaceous perennials, bulbs, and annuals. Excellent stands of this vegetation are found in Penasquitos Canyon and on Mount Woodson. Characteristic species are <i>Arctostaphylos glandulosa</i> ssp. <i>zacaensis</i> , <i>Ceanothus tomentosus</i> , <i>Cercocarpus minutiflorus</i> , <i>Adenostoma fasciculatum</i> , <i>Rhamnus ilicifolia</i> , <i>Rhus ovata</i> , and <i>Ribes speciosum</i> .
Chamise chaparral	This is a low-growing chaparral dominated by <i>Adenostoma fasciculatum</i> with limited shrub diversity and arid understory conditions. This community occurs around Mount San Miguel. Soils are often poorly developed and rainfall run-off can be extreme. Characteristic species also include <i>Eriodictyon trichocalyx</i> , <i>Gutierrezia sarothrae</i> , <i>Rhamnus pilosa</i> , <i>Yucca schidigera</i> , and <i>Xylococcus bicolor</i> .
Coastal sage-chaparral scrub	This community contains species representative of both sage scrub and chaparral. Canopy height tends to be low to moderate (3-5 feet tall), and relatively open, resembling sage scrub, compared to the relatively tall and dense canopy of mixed chaparral. Typical plant species represented include <i>Adenostoma fasciculatum</i> , <i>Xylococcus bicolor</i> , <i>Heteromeles arbutifolia</i> , <i>Malosma laurina</i> , <i>Eriogonum fasciculatum</i> , <i>Artemisia californica</i> , <i>Salvia mellifera</i> , and <i>Salvia apiana</i> .
Native grassland ¹	Native grasslands are found on clay substrates dominated by the bunchgrass, <i>Nasella pulchra</i> , along with herbaceous perennials, annuals, and bulbs. This vegetation type is scattered throughout foothills. Characteristic species also include <i>Sisyrinchium bellum</i> , <i>Calochortus splendens</i> , <i>Uropappus lindleyi</i> , <i>Bloomeria crocea</i> , <i>Sanicula arguta</i> , and <i>Dodecatheon clevelandii</i> .
Non-native grassland	Non-native grassland is a dense-to-open cover of predominantly Eurasian grasses. This introduced grassland occupies deep loams and clays that have been graded and the topsoil removed. Characteristic species include <i>Avena barbata</i> , <i>Bromus madritensis</i> ssp. <i>rubens</i> , <i>Bromus hordaceus</i> , <i>Bromus diandrus</i> , <i>Hirschfeldia incana</i> , <i>Vulpia myuros</i> , and <i>Schismus barbatus</i> .

TABLE 3.2
VEGETATION COMMUNITIES IN OTAY WATER DISTRICT
(continued)

Vegetation Community	Description
Coastal freshwater marsh ¹	Freshwater marsh has saturated soils, standing water, and remains wet through much of the year. Vegetation includes stands of emergent, freshwater monocots. Marshes are common at the edges of ponds and along creeks and riverbeds. Characteristic species are <i>Typha latifolia</i> , <i>Typha domingensis</i> , <i>Scirpus californicus</i> , <i>Scirpus americanus</i> , <i>Cyperus eragrostis</i> , and <i>Eleocharis montevidensis</i> .
Southern coast live oak riparian forest and Southern cottonwood-willow riparian forest ¹	These riparian forests occur in floodplains and bottomlands, dominated by trees with a diverse understory. Mature trees and include the following: <i>Salix gooddingii</i> , <i>Salix lasiolepis</i> , <i>Salix lucida</i> ssp. <i>lasiandra</i> , <i>Populus fremontii</i> , <i>Alnus rhombifolia</i> , and <i>Quercus agrifolia</i> . Individual tree species may be locally dominant. Characteristic understory plants are <i>Rosa californica</i> , <i>Artemisia douglasiana</i> , <i>Baccharis salicifolia</i> , and <i>Urtica holosericea</i> .
Sycamore alluvial woodland and Southern sycamore-alder riparian woodland ¹	These deciduous woodlands occur in broad alluvial or rocky drainages and floodplains. <i>Platanus racemosa</i> is the dominant tree of this woodland which usually includes scattered groves of willows and occasional thickets of riparian understory components. Other characteristic species of this habitat include <i>Sambucus caerulea</i> , <i>Toxicodendron diversilobum</i> , <i>Phoradendron villosum</i> , and <i>Vitis girdiana</i> .
Mule fat scrub ¹	This riparian scrub has a mix of low-growing (less than 20 feet) riparian trees and shrubs. It is restricted to a narrow stream course or seasonal drainage. When well developed provides a linear corridor of small trees and shrub canopy, including patches of <i>Baccharis salicifolia</i> . Characteristic species also include <i>Salix lasiolepis</i> , <i>Salix laevigata</i> , <i>Salix lucida</i> ssp. <i>lasiandra</i> , <i>Salix exigua</i> , <i>Tamarisk</i> sp., <i>Oenothera elata</i> , and <i>Epilobium canum</i> .
Southern willow scrub ¹	This low-growing (less than 20 feet) vegetation occurs along stream courses and seasonal drainages. When well developed, it provides a linear corridor of small tree and shrub canopy, dominated by willow. Characteristic species also include <i>Salix lasiolepis</i> , <i>Salix laevigata</i> , <i>Salix lucida</i> ssp. <i>lasiandra</i> , <i>Salix exigua</i> , <i>Tamarisk</i> sp., <i>Oenothera elata</i> , and <i>Epilobium canum</i> .
Coast live oak woodland ¹	This evergreen woodland is dominated by <i>Quercus agrifolia</i> with an understory of perennial grasslands, annuals, and herbaceous species. The understory can be open and low-growing, or dominated by shrubs including <i>Toxicodendron diversilobum</i> and <i>Vitis girdiana</i> . Characteristic species also include <i>Symphoricarpos mollis</i> , <i>Carex spissa</i> , <i>Rhamnus californica</i> , <i>Rosa californica</i> , <i>Nasella cernua</i> , and the introduced <i>Stellaria media</i> .
Southern interior cypress forest ¹	These forests have isolated stands of <i>Cupressus forbesii</i> or <i>Cupressus arizonica</i> ssp. <i>Stephensonii</i> , found on Otay Mountain. The understory can consist of chaparral and scrub species including <i>Adenostoma fasciculatum</i> , <i>Arctostaphylos otayensis</i> , <i>Eriogonum fasciculatum</i> , <i>Heteromeles arbutifolia</i> , <i>Ceanothus otayensis</i> , <i>Pickeringia montana</i> , and <i>Chamaebetia australis</i> .
San Diego mesa claypan vernal pool ¹	These pools have basins sealed by a thick veneer of clay. They occur on marine terraces and have finer textured soils than the hardpan pools. They are often associated with mima mound topography. Characteristic species are <i>Downingia cuspidata</i> , <i>Elatine brachyspermum</i> , and <i>Isoetes orcuttii</i> , and rare species such as <i>Pogogyne abramsii</i> and <i>Eryngium aristulatum</i> ssp. <i>parishii</i> .

¹Vegetation communities considered to be sensitive

**TABLE 3.3
SENSITIVE PLANT SPECIES IN OTAY WATER DISTRICT**

Scientific Name	Common Name	Federal Status	State Status	Critical Habitat Designated	Habitat	
<i>Acanthomintha ilicifolia</i>	San Diego thornmint	<u>Threatened</u>	Endangered	No	Vertisol clay soils in chaparral, coastal sage scrub, grassland	Deleted: Category 1
<i>Ambrosia pumila</i>	San Diego ambrosia	<u>Endangered</u>	None	No	Floodplains	Deleted: Category 2
<i>Arctostaphylos otayensis</i>	Otay manzanita	Category 2	None	No	Chaparral	
<i>Astragalus deanei</i>	Dean's milk-vetch	Category 2	None	No	Open areas in coastal sage scrub and chaparral, often post-burn	
<i>Brodiaea orcuttii</i>	Orcutt's brodiaea	Category 2	None	No	Clay soils in grasslands; vernal pools	
<i>Calochortus dunnii</i>	Dunn's mariposa	Category 2	Rare	No	Gabbro and clay soils in chaparral	
<i>Cordylanthus orcuttianus</i>	Orcutt's bird's beak	Category 2	None	No	Grassland and coastal sage scrub	
<i>Cupressus forbesii</i>	Tecate cypress	Category 2	None	No	Southern interior cypress forest	
<i>Dudleya variegata</i>	Variegated dudleya	Category 2	None	No	Clay soils in coastal sage scrub and grassland	
<i>Ericameria palmeri</i> var. <i>palmeri</i>	Palmer's goldenbush	Category 2	None	No	Coastal sage scrub	
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego button-celery	Endangered	Endangered	No	Vernal pools	
<i>Ferocactus viridescens</i>	Coast barrel cactus	Category 2	None	No	Coastal sage scrub and chaparral	
<i>Fremontodendron mexicanum</i>	Mexican flannelbush	<u>Endangered</u>	Rare	No	Chaparral	Deleted: Category 2
<i>Harpagonella palmeri</i>	Palmer's grappling-hook	Category 2	None	No	Clay soils in grassland and coastal sage scrub	
<i>Hemizonia conjugens</i> (= <i>Deinandra conjugens</i>)	Otay tarplant	<u>Threatened</u>	Endangered	Yes	Clay soils in grassland and coastal sage scrub	Deleted: Proposed endangered
<i>Holocarpha virgata</i> ssp. <i>elongata</i>	Graceful tarplant	Category 2	None	No	Grassland and coastal sage scrub	
<i>Iva hayesiana</i>	San Diego marsh elder	Category 2	None	No	Riparian and floodplains	
<i>Lepechinia ganderi</i>	Gander's pitcher sage	Category 2	None	No	Chaparral, southern interior cypress forest	
<i>Lotus crassifolius</i> var. <i>otayensis</i>	Otay Mountain lotus	Category 2	None	No	Chaparral	
<i>Muilla clevelandii</i>	Cleveland's golden star	Category 2	None	No	Clay soils in grassland and coastal sage scrub	
<i>Myosurus minimus</i>	Little mousetail	Category 2	None	No	Vernal pools	
<i>Navarretia fossalis</i>	Spreading navarretia	<u>Threatened</u>	None	<u>Proposed</u>	Vernal pools	Deleted: Proposed endangered
<i>Nolina interrata</i>	Dehesa beargrass	Category 1	Endangered	No	Gabbro chaparral	Deleted: No

TABLE 3.3
SENSITIVE PLANT SPECIES IN OTAY WATER DISTRICT
(continued)

Scientific Name	Common Name	Federal Status	State Status	Critical Habitat Designated	Habitat
<i>Opuntia parryi</i> var. <i>serpentina</i>	Snake cholla	Category 2	None	No	Maritime succulent scrub
<i>Orcuttia californica</i>	California Orcutt grass	Endangered	Endangered	No	Vernal pools
<i>Pogogyne nudiuscula</i>	Otay Mesa mint	Endangered	Endangered	No	Vernal pools
<i>Ribes canthariforme</i>	Moreno currant	Category 2	None	No	Chaparral
<i>Senecio ganderi</i>	Gander's butterweed	Category 2	Rare	No	Gabbro chaparral

Category 1: Those taxa for which the USFWS has on file sufficient information to support proposals to list them as endangered or threatened.

Category 2: Those taxa for which information now in the possession of the USFWS indicates that proposing to list as endangered or threatened is possibly appropriate, but for which persuasive data on biological vulnerability and threat are not currently available to support proposed rules.

‡To be inserted.

**TABLE 3.4
SENSITIVE WILDLIFE SPECIES IN OTAY WATER DISTRICT**

Common Name	Scientific Name	Federal Status	State Status	Critical Habitat Designated	Habitat	
Riverside fairy shrimp	<i>Streptocephalus woottoni</i>	Endangered	None	<u>Yes</u>	Vernal pools	Deleted: Proposed
San Diego fairy shrimp	<i>Branchinecta sandiegonensis</i>	<u>Endangered</u>	None	Yes	Vernal pools	Deleted: Proposed e
Dun skipper	<i>Euphyes vestris harbisoni</i>	Category 2	None	No	Riparian and freshwater marsh where <i>Carex spissa</i> is found	
Hermes copper butterfly	<i>Lycaena hermes</i>	Category 2	None	No	Chaparral and coastal sage scrub where <i>Rhamnus crocea</i> and <i>Eriogonum fasciculatum</i> are found	
Quino checkerspot butterfly	<i>Euphydryas editha quino</i>	<u>Endangered</u>	None	No	Grassland and coastal sage scrub habitat occurring on gabbro clay soils; <i>Plantago</i> spp.	Deleted: Proposed e
Arroyo toad	<i>Bufo microscaphus californicus</i>	Endangered	<u>Endangered</u>	Proposed	Sandy banks of washes, streams, and arroyos with bordering riparian habitat	Deleted: SSC
Western spadefoot toad	<i>Scaphiopus hammondii</i>	Category 2	SSC	No	Vernal pools, washes, floodplains, alkali flats	
Southwestern pond turtle	<i>Clemmys marmorata palidus</i>	Category 1	<u>SSC</u>	No	Ponds, creeks with sunning sites	Deleted: FP,
Coronado skink	<i>Eumeces skiltonianus interparietalis</i>	Category 2	SSC	No	Grassland, open chaparral, and open woodland	
San Diego banded gecko	<i>Coleonyx variegatus abbotii</i>	Category 2	<u>None</u>	No	Chaparral with rocky soils and rock outcrops	Deleted: SSC
Silvery legless lizard	<i>Anniella pulchra pulchra</i>	Category 2	SSC	No	Coastal sage scrub, chaparral, and open riparian habitat	
San Diego horned lizard	<i>Phrynosoma coronatum blainvillii</i>	Category 2	SSC	No	Open areas of sandy soils in sage scrub, chaparral, grassland, and woodlands	
Orange-throated whiptail	<i>Cnemidophorus hyperythrus</i>	Category 2	SSC	No	Open coastal sage scrub and chaparral	
Coastal western whiptail	<i>Cnemidophorus tigris multiscutatus</i>	Category 2	SSC	No	Coastal sage scrub, chaparral, woodland, and riparian habitats	
San Diego ringneck snake	<i>Diadophis punctatus similis</i>	Category 2	SSC	No	Mesic habitats	
Coast patch-nosed snake	<i>Salvadora hexalepis virgultea</i>	Category 2	SSC	No	Sandy and rocky areas of grassland, coastal sage scrub, and chaparral	
Rosy boa	<i>Lichanura trivirgata</i>	Category 2	SSC	No	Rock outcrops in chaparral	
Two-striped garter snake	<i>Thamnophis hammondii</i>	Category 2	SSC	No	Intermittent streams and riparian	

TABLE 3.4
SENSITIVE WILDLIFE SPECIES IN OTAY WATER DISTRICT
(continued)

Common Name	Scientific Name	Federal Status	State Status	Critical Habitat Designated	Habitat	
Northern red diamond rattlesnake	<i>Crotalus ruber ruber</i>	Category 2	SSC	No	All	
Osprey	<i>Pandion haliaetus carolinensis</i>	None	SSC	No	Sweetwater and Otay Reservoirs	
White-tailed kite	<i>Elanus caeruleus</i>	None	FP	No	Nests in riparian woodland, forages over open grassland, coastal sage scrub, and chaparral	Deleted: Black-shouldered
Northern harrier	<i>Circus cyaneus</i>	None	SSC	No	Grasslands and coastal marsh	
Sharp-shinned hawk	<i>Accipiter striatus</i>	None	SSC	No	Woodlands	
Cooper's hawk	<i>Accipiter cooperi</i>	None	SSC	No	Riparian woodland	
Golden eagle	<i>Aquila chrysaetos</i>	GBEPA	FP, SSC	No	Nests on cliffs, ledges, rocky bluffs; forages over open grassland, sage scrub, and chaparral	
Peregrine falcon	<i>Falco peregrinus</i>	De-listed	Endangered	Yes	Nests on cliff faces; forages over open grassland, sage scrub, and chaparral	Deleted: Endangered Deleted: No
Prairie falcon	<i>Falco mexicanus</i>	None	SSC	No	Nests on cliffs, ledges, rocky bluffs; forages over open grassland, sage scrub, and chaparral	
Western burrowing owl	<i>Athene cunicularia hypugea</i>	Category 2	SSC	No	Grassland, coastal dune, agricultural fields, open sage scrub	
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered	Endangered	Proposed	Mature riparian woodland	Deleted: No
Coastal California gnatcatcher	<i>Poliophtila californica californica</i>	Threatened	SSC	Proposed	Coastal sage and maritime succulent scrub	Deleted: Yes
Cactus wren	<i>Campylorhynchus brunneicapillus cousei</i>	None	SSC	No	Maritime succulent scrub or cactus thickets in coastal sage scrub	
Loggerhead shrike	<i>Lanius ludovicianus</i>	None	SSC	No	All	
Least Bell's vireo	<i>Vireo pusillus bellii</i>	Endangered	Endangered	Yes	Riparian scrub and woodland	
Yellow warbler	<i>Dendroica petechia brewsteri</i>	None	SSC	No	Riparian woodland	
Yellow-breasted chat	<i>Icteria virens</i>	None	SSC	No	Riparian woodland	
Southern California rufous-crowned sparrow	<i>Aimophila ruficeps canescens</i>	Category 2	SSC	No	Rocky areas within sage scrub	

TABLE 3.4
SENSITIVE WILDLIFE SPECIES IN OTAY WATER DISTRICT
(continued)

Common Name	Scientific Name	Federal Status	State Status	Critical Habitat Designated	Habitat
Bell's sage sparrow	<i>Amphispiza bellii bellii</i>	Category 2	SSC	No	Chaparral and coastal sage scrub
Tri-colored blackbird	<i>Agelaius tricolor</i>	Category 2	SSC	No	Freshwater marsh
Pallid bat	<i>Antrozous pallidus</i>	None	SSC	No	Roosts in caves, tunnels, attics
Greater western mastiff bat	<i>Eumops perotis californicus</i>	Category 2	SSC	No	Roosts in rocky crevices
Pocketed free-tailed bat	<i>Nyctinomops femorosacca</i>	None	SSC	No	Roosts in rocky crevices
Big free-tailed bat	<i>Nyctinomops macrotis</i>	Category 2	SSC	No	Roosts in rocky crevices
Townsend's western big-eared bat	<i>Plecotus townsendii townsendii</i>	Category 2	SSC	No	Mesic sites
California leaf-nosed bat	<i>Macrotus californicus</i>	Category 2	SSC	No	Roosts in caves or mine shafts
San Diego black-tailed jackrabbit	<i>Lepus californicus bennettii</i>	Category 2	SSC	No	All
Dulzura California pocket mouse	<i>Perognathus californicus femoralis</i>	Category 2	SSC	No	Chaparral
Northwestern San Diego pocket mouse	<i>Perognathus fallax fallax</i>	Category 2	SSC	No	Open coastal sage scrub and grassland
Pacific little pocket mouse	<i>Perognathus longimembris pacificus</i>	Endangered	SSC	No	Coastal strand, coastal dune, grassland, coastal sage scrub
Southern grasshopper mouse	<i>Onychomys torridus ramona</i>	Category 2	SSC	No	Grassland, coastal sage scrub, and chaparral
San Diego desert woodrat	<i>Neotoma lepida intermedia</i>	Category 2	SSC	No	Coastal sage scrub and chaparral
Mountain lion	<i>Felis concolor</i>	None	<u>None</u>	No	Large tracts of chaparral, woodlands

Deleted: SP

- Category 1** = Those taxa for which the USFWS has on file sufficient information to support proposals to list them as endangered or threatened.
- Category 2** = Those taxa for which information now in the possession of the USFWS indicates that proposing to list as endangered or threatened is possibly appropriate, but for which persuasive data on biological vulnerability and threat are not currently available to support proposed rules.
- SSC** = California species of special concern.
- FP** = California fully protected species.
- SP** = Specially protected in California.
- GBEPA** = Golden and Bald Eagle Protection Act.
- ‡To be inserted.

Non-wetland jurisdictional waters within the District would include, but are not limited to, rivers, streams, creeks, and drainages.

Jurisdictional Wetlands

Wetlands are delineated characterized by three parameters: hydrophytic vegetation, wetland hydrology, and hydric soils. Positive indicators for all three parameters must be present to qualify as a USACE jurisdictional wetland. According to the 1987 USACE manual, wetlands are defined as “those areas that are inundated or saturated by surface or groundwater 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” (USACE 1987).

3.3.2.2 California Department of Fish and Game

Under Sections 1600–1607 of the Fish and Game Code, the California Department of Fish and Game (CDFG) regulates activities that would divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFG has jurisdiction over riparian habitats, such as southern willow scrub, associated with watercourses. Jurisdictional waters are delineated by the outer edge of riparian vegetation or at the top of the bank of streams or lakes, whichever is wider. CDFG may take jurisdiction over isolated wetlands and streambeds in cases where USACE may not.

Riparian habitats within the District would include coastal freshwater marsh, mule fat scrub, San Diego mesa claypan vernal pool, southern coast live oak riparian forest, southern cottonwood-willow riparian forest, southern sycamore-alder riparian forest, and sycamore alluvial woodland.

3.3.3 Applicable Habitat Conservation Plans

The City of San Diego and other land use jurisdictions began development of the MSCP to meet the Metropolitan Wastewater Department’s needs to mitigate the direct biological impacts of mandated improvements to the region’s sewage treatment facilities. The MSCP effort was also directed toward mitigating the secondary biological impacts associated with projected growth in the region, connected to the provision of sewer service that improving the treatment system would allow. The MSCP was a plan and process for the issuance of permits under the federal and state Endangered Species Acts and the state’s Natural Community Conservation Planning Act of 1991.

The MSCP is intended to allow participating local land use jurisdictions and other agencies to maintain development flexibility by actively planning a regional preserve system to meet future public and private land development project biological mitigation

needs. The MSCP approach emphasizes the protections and management of habitats rather than focusing preservation efforts on one species at a time. The objective of the program is to develop and implement a program for the conservation and management of habitats of federally endangered, threatened, or key candidate species in the MSCP study area, which contains the entire District. The process would result in take authorizations for the species concerned, as defined the federal Endangered Species Act (ESA). The MSCP objective would be realized through the establishment of a preserve system to address the impacts of regional growth on wildlife and habitats within the study area.

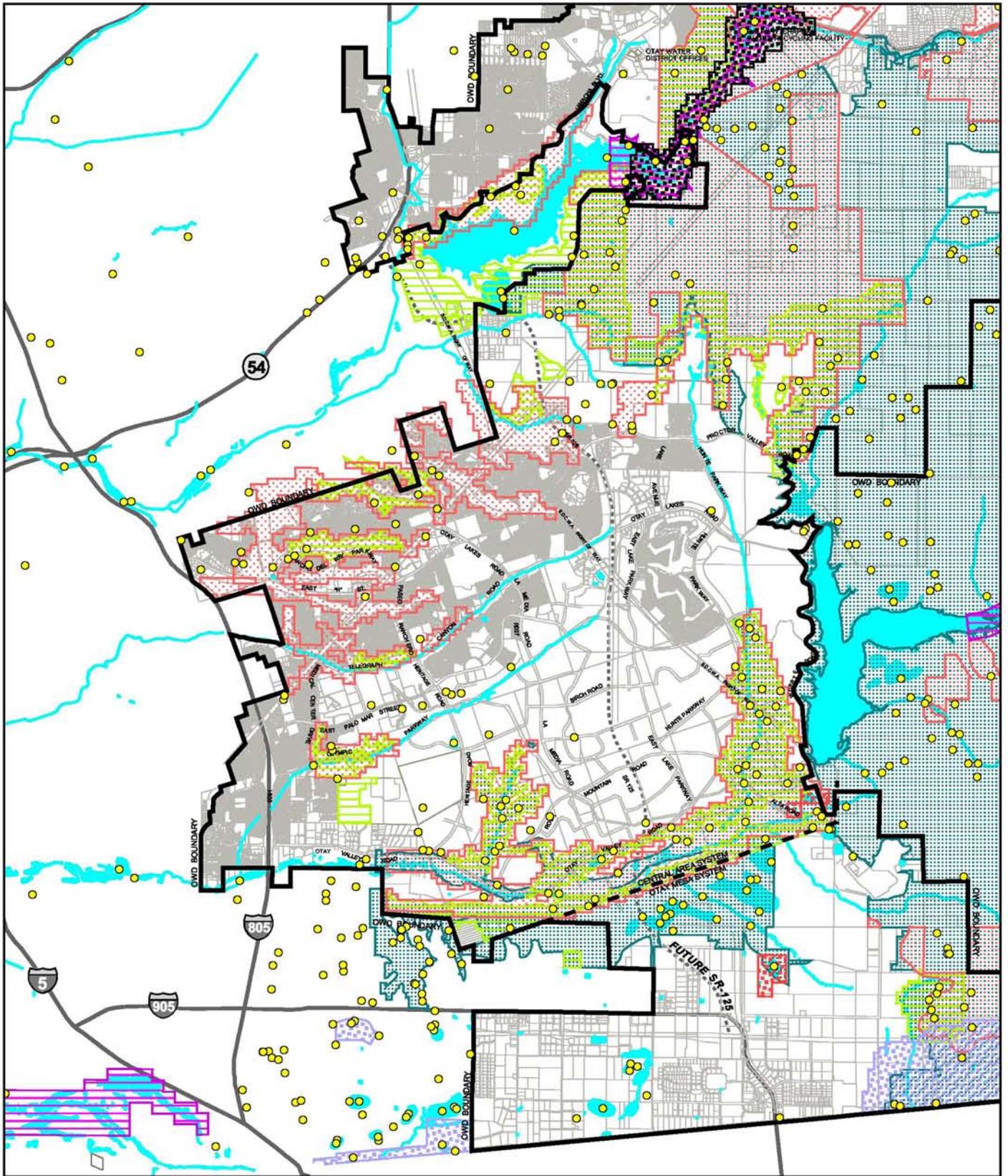
Part of the implementation process for the MSCP is the concept of subarea plans prepared by local agencies, using the MSCP plan as a framework and incorporating the MSCP biological preserve design standards and guidelines along with other land use, economic, and management recommendations. Once a local agency's subarea plan is approved by the agency, USFWS, and CDFG, take authorizations would apply to the subarea as specifically described in an implementing agreement containing the authority of the participants, the MSCP plan's relationship to state and federal laws, and specific permit actions and obligations of all parties. The MSCP implementing agreement is the vehicle by which the state and federal resource agencies convey permits and take authorizations to the local agencies.

The District began preparation of a subarea plan under the MSCP process. The District has set aside and gained concurrence for the use as a mitigation bank of about 230 acres in its "Use Area." Part of this acreage has already been specified as mitigation for specific projects in the WRMP. This mitigation has been agreed to by USFWS under Section 7 of the federal ESA. In addition, the District is a participating agency with entitlement to a share of mitigation credit in the acquisition of undeveloped parts of the Rancho San Diego Specific Plan Area for preservation as a mitigation bank.

Figure 3.1 shows critical habitat for listed species, species occurrences, wetland and riparian areas. Species with critical habitat includes the Arroyo toad, coastal California gnatcatcher, least Bell's vireo, Quino checkerspot butterfly, Riverside fairy shrimp, San Diego fairy shrimp, and Otay tarplant.

The following conservation documents have or will be implemented in the proposed project area:

- **City of San Diego MSCP, South County Segment.** This conservation plan was adopted in 1998 by the City of San Diego. The applicable area is the western portion of the Otay Mesa System, and particularly CIP projects R022 (pipeline from SBWRF to the District's Central Area System) and R075 (Brine Disposal pipeline).



- Otay Water District boundary
- Sensitive species location (Source: CNDDDB, 2004)
- National Wetlands Inventory (Source: USFWS, 1985)
- Rivers
- Wetlands

- USFWS designated critical habitat
- Arroyo toad (proposed)
- Coastal California gnatcatcher
- Least Bell's vireo (proposed)
- Otay tarplant
- Quino checkerspot butterfly
- Riverside fairy shrimp (proposed)
- San Diego fairy shrimp

0 Miles 1.55 N

FIGURE 3.1
Critical Habitat,
Species Occurrences,
Wetland and Riparian Areas

- **County of San Diego Southern Area MSCP.** This plan was adopted in 1997 by the County of San Diego to comply with the City of San Diego’s MSCP. The applicable area is the eastern portion of the District’s Otay Mesa System.
- **City of Chula Vista Multiple Species Conservation Program Subarea Plan (MSCP-CV), February 2005.** This plan has been adopted by the City of Chula Vista, and has been officially approved by USFWS. The plan’s applicable area is the majority of the District’s Central Area System, which is where the majority of the Phase II projects will occur.
- **Otay Water District Multiple Species Conservation Program Subarea Plan.** This plan was developed by the District, and reviewed by USFWS, but it has not been implemented at this time.

3.3.4 Otay Water District San Miguel Habitat Management Area

The San Miguel Habitat Management Area (HMA) is a 230-acre biological reserve that was created to serve as a mitigation bank for impacts associated with the construction and operation of the District’s projects and facilities. The reserve was created in partial fulfillment of mitigation requirements established as a result of an ESA Section 7 consultation with USFWS regarding potential impacts to the coastal California gnatcatcher (USFWS 1994, BO 1-6-94-F-42). Annual reports (Otay Water District 2004b) summarize and discuss the biological resources, potential threats, maintenance and management issues, restoration activities, and mitigation bank credit summary (Table 3.5).

**TABLE 3-5
SAN MIGUEL HABITAT MANAGEMENT
AREA MITIGATION CREDIT SUMMARY**

Vegetation community	Mitigation credits
Coastal sage scrub	168.12
Chamise chaparral	0.38
NNG/Sage Ecotone	0.74
Native grassland	0.96
Nonnative grassland	14.18
Nonnative woodland	12.48
Southern willow scrub	0.63
Tamarisk scrub	2.81
Ponds	2.66
Dry marsh/riparian scrub	2.53
Freshwater marsh	0.64
Agriculture field/disturbed	1.43
Developed	0.14
TOTAL	207.68

SOURCE: 2003 Annual Report for the Otay Water District, San Miguel Habitat Management Area

The HMA is located within the District's 509-acre Use Area. During 2003 a high level of maintenance and biological monitoring were conducted throughout the HMA (Otay Water District 2004b). Maintenance activities resulted in reduced levels of invasive plant infestation such as tamarisk, and restoration of ruderal fields and nonnative grassland to native grassland and freshwater marsh/riparian scrub. These actions increase native vegetation cover as well as wildlife habitat values.

Sensitive rare plants were surveyed in the HMA. For Otay tarplant, population boundaries were mapped and population counts conducted in the eastern HMA. Coastal California gnatcatcher surveys revealed a stable population trend within the HMA. Surveys were conducted for least bell's vireo and quino checkerspot butterfly. Although these species were not observed, least bell's vireo have previously been observed, but not documented. In addition, high quality suitable habitat for quino checkerspot butterfly exists within the HMA, and the species has been observed on the ridgeline directly east of the HMA.

3.4 Cultural Resources

Cultural resource record searches were conducted at the South Coastal Information Center, and the San Diego Museum of Man. Recorded archaeological and historical sites were identified in the search region to establish a cultural resource map and summarize archival information for reference purposes.

The existing conditions within the District range from large undeveloped tracts of land to dense urban settings. Within the Central Area System, where this Project will occur, a number of major development projects are underway. In these areas, residential land uses are mixed with commercial uses along the principal road corridors. These areas have generally been surveyed for cultural resources or are developed to the point where intact cultural resource sites or features are no longer an issue. However, historic-era sites and features can be elements of concern in these areas. The Central Area System contains hundreds of sites ranging in age from as much as 8,000 years old to 50 years old. The prehistoric era in San Diego County goes back some 9,000 years before the present and is generally considered to have terminated with the coming of Spanish Colonial forces in 1769, although several earlier contact episodes are known. The Late Prehistoric Period encompasses approximately 2,000 years prior to contact in 1769 and is followed by developments during the region's Historic Period. The scope of the Historic Period is generally from 1769 through approximately 1954.

3.4.1 Prehistory

San Dieguito and La Jolla

Time periods associated with these patterns are between 10,000 BP and 2,000 BP. Artifacts associated with early coastal sites typically include tools for processing seeds, fibers, and shellfish. Some decorative items, such as shell or stone beads, have been found; however, these items are somewhat unusual in San Diego County assemblages. Cutting and crushing tools of flaked stone are also found at these coastal locations. Cutting tools are made from stones gathered locally and fashioned to provide a functional tool for short-term use, rather than a specialized tool designed to become part of a specialized tool kit, as is often the case in inland sites.

Stone tools recovered from inland sites appear to be elements of well-made, specialized tool kits. This differs from what appear to be expediently made and generalized tools that are associated with coastal midden sites. Differences between sites in the two geographic areas are evident in material selection and tool form. These differences suggest a preconceived idea of the finished tool, rather than utilization of a random flake or core that may fulfill a need without requiring extensive reworking.

Finer, flaked cutting tools and tools for creating them are found more often in sites located inland. These artifacts are different in both material and manufacture from more recent Late Prehistoric and Historic period stone tools. San Dieguito/La Jolla tool kits are almost exclusively composed of local volcanics and metavolcanics. Typical inland sites consist of scattered tools, flakes, and flake waste. Occasionally, grinding surfaces on bedrock outcrops are associated with early inland sites, but these suggest opportunistic use, as opposed to the well-used grinding tools from many coastal sites.

Late Prehistoric

Late Prehistoric sites date from around 1,500 BP to contact. Ceramics are the most obvious indicator of the Late Prehistoric culture pattern. Fragments of ceramic vessels are extremely durable and indicate a clear difference between the aceramic San Dieguito/La Jolla pattern and the Late Prehistoric period. As a clear point of difference, they may also be used as an element for establishing a relative stratigraphic date for an archaeological deposit.

Differences in the lithic tool kit mentioned earlier are another identifiable characteristic of the Late Prehistoric. Flaked stone tools, especially projectile points, are made of high-quality local materials such as quartz and fine-grained metavolcanics. Imported materials from outside the county are often used and include obsidian from Coso and Obsidian Butte, as well as chalcedony from many areas of southern California.

A difference in ground stone tools (including the addition of bedrock mortars) is also typical of Late Prehistoric sites. These special-use grinding or processing locales are often associated with oak woodlands. Used to process plant materials, the bedrock

elements described as slicks, basins, and mortars are easily identified by their pocked and polished surfaces.

3.4.2 Historic

The beginning of the Historic period for San Diego County is generally accepted as 1769. Although there was contact with Spanish explorers as early as 1542, it was not until 1769 that colonial forces occupied this territory and claimed it for Spain. This action brought about the beginning of the Spanish period and saw the gradual acculturation of all aboriginal peoples in this area. Through the development of a series of missions and presidios, Spain laid claim to virtually all of California. The first of the Alta California missions was founded on July 16, 1769, on a hill overlooking the San Diego Bay. This mission later moved east, into present-day Mission Valley, to the site of a large Kumeyaay village known as Nipaguay. The Presidio remained at the original location, above the area, which would later be known as Old Town.

The Spanish period spans the years from 1769 to 1822 with the Presidio and Mission San Diego de Alcala, the Mission San Luis Rey, Padre Dam and Flume, and several poorly preserved adobe structures within the county representing this period. It is known that a number of family ranchos were established during this period; however, little remains of these early settlements. It is also possible that elements of Spanish period sites and structures were incorporated into later building efforts.

The Mexican period (1822–1848) follows the Spanish period with Mexican independence from Spain. One of the early changes was the granting of land to private citizens and the secularization of vast Mission holdings. The Union Title Company shows 30 ranchos between Oceanside and Otay and the Pacific Ocean and the Laguna Mountains. Generally, these ranchos constituted vast land holdings over which cattle and sheep were grazed. The practice of utilizing natural valleys and slopes as open range for live stock is a typical practice for this region, well into the American period. Political responsibility for the region was transferred to the United States with the signing of the Treaty of Guadalupe Hidalgo on February 2, 1848. However, the economic and demographic makeup of the San Diego area remained almost unchanged until years after California became a state on September 9, 1850.

During the American period, in addition to cattle and sheep ranches, a growing number of farms appeared. A rural community cultural pattern existed in the study area from approximately 1870 to 1930. This pattern consisted of communities made up of population aggregates who lived within well-defined geographic boundaries, shared common bonds, and cooperated to solve shared problems. They lived on farmsteads, tied together by a common school district, church, post office, and country store. These farmsteads and dispersed farming communities gave way to horse ranches, dairies, and

nurseries, which in turn were replaced by the establishment of the roadside service complex. The roadside service industry thrived in the highly mobile, mechanized pre- and post-war society, which was linked by state and federal roadways.

3.4.3 Site Specific Setting

A cultural resource site record and report search for the District and its area of influence was completed at the South Coastal Information Center and at the San Diego Museum of Man. The record search included information on the entire District planning area and in seven U.S. Geological Survey quadrangles: Otay Mesa, Jamul Mountain, Dulzura, National City, Imperial Beach, Alpine, and El Cajon. A Class I survey for cultural resources, as defined by Reclamation guidelines, was conducted. Recorded archaeological and historical sites were identified. Additional historical map and photograph sources were also searched for historic period resource locations.

The review of existing cultural resource records and sources is consistent with historic property identification efforts called for in 36 CFR 800.4. The proposed project encompasses a large land area and includes the possibility that specific alignments for proposed improvements may change during project planning. The review of known resources was conducted to establish the likely presence of historic properties in the project area. The cultural resources in the study area exhibit attributes that have a greater or lesser potential to meet National Register of Historic Places (NRHP) eligibility criteria. The attributes reported on site records are considered along with the context of discovery to provide an indication of a site's NRHP potential. The following discussions provide examples of how the NRHP potential is derived for each of the known site types in the study area.

The following types of sites occur within the Project area:

Historic Site. Sites of this type date to the region's Historic Period between 1769 and circa 1954. Typically these are more recent ranching, farming, and early farmstead community buildings, structures, and systems such as roads, fields and landscaping. The most common historic sites present in the search area are trash deposits. Most of these are secondary accumulations of household/ranchstead refuse dating to the early decades of the 20th century. It was around this time that municipal waste systems effectively ended the use of privies and local ordinances governing on-site trash disposal lead to local dumps and encouraged their use. Prior patterns of waste disposal did not generate extensive refuse deposits due to continued use of privies, trash burning, and slower rates of refuse discard/accumulation. Refuse removal occurred earlier in populated areas than in rural settings. Most of the historic period sites consist of limited numbers of artifacts in highly disturbed contexts. Such disturbance lessens the ability for these deposits to

satisfy NRHP eligibility under Criterion D. Where associations with recognized individuals or events can be established these deposits may meet Criterion A.

Isolate. Isolates, or isolated occurrences, may date to any period, but are almost always one or two items. There are examples of recorded isolates that consist of three or more items, but these are usually multiple fragments of the same object, such as ceramic fragments. In general, isolates are not eligible for listing as they lack data that would satisfy the eligibility criteria.

Lithic Scatter. These sites are defined by the presence of only flaked artifacts and/or debitage (flaking debris, flakes and angular waste) generated during tool creation and maintenance. A lithic scatter can include as few as three flakes or thousands. Those in the study area are typically less than one hundred with a moderate to low density. The defining criterion is generally that the site provides evidence of only the activities associated with making or modifying flaked lithic artifacts. Most lithic scatters are documented with a combination of surface collections and limited excavation to identify and assess subsurface deposits and overall content. In general lithic scatters are small or sparse and typically lack the kinds or amount of evidence needed to address regionally important research questions and often lack indications of age or function. As such they reflect the general use of an area for resource collection and tool modification/use without providing specific data needed to refine local patterns within a general trend through time. Lithic scatters in the study area are exposed sites. Intrasite patterning in these circumstances is very fragile and very often highly disturbed by modern uses such as agriculture, trails, and weed abatement. The integrity of lithic scatters in the study area is very poor, and further reduces the likelihood that these sites meet NRHP criteria.

Artifact Scatter. Sites in this grouping tend to represent a wider range of activities than Lithic Scatters. Artifact Scatters include artifacts from two or more classes (e.g., debitage and ground stone implements or native ceramics), or may include artifacts from one class along with food remains such as marine shell fragments. This site type is believed to have served as temporary occupation centers from which individuals ventured to collect and hunt for their food and other resources. These sites tend to lack midden soils. Although they may have some depth of deposit, they have generally a small amount of subsistence debris and the artifacts tend to represent a narrow range of activities. Artifacts may include knapped stone, ground stone, native ceramics, bone, and shell. Artifact scatters identified in the study area also tend to be exposed sites with deposits that are very susceptible to damage. In 11 of 13 examples, site integrity has been compromised to such an extent that the recovery of sufficient information to meet NRHP eligibility criteria is very low. In the remaining examples there is some potential for the deposit to satisfy Criterion D.

Quarry. This is a site that is created by a specific special-use event: the extraction and initial reduction of stone material that is suitable for the production of flaked lithic or

ground stone implements. Interpretation of quarrying activities is based on patterned alteration of the focus raw material in ways that are known to be the result of direct human action. Quarry locations are strewn with discarded materials from the selection and reduction steps. Occasionally the hammerstones that were used are found, as are items that have been reduced to a nearly completed state. None of the sites in the study area are identified as quarry sites. However, quarry sites are represented in the surrounding region and differ from lithic scatters in both content and function. A quarry site has a potential to meet NRHP eligibility Criterion D as an indicator of raw material selectivity, tool creation and regional distribution.

Milling Site. A site may include features such as bedrock milling stations. Milling stations include evidence of grinding. This evidence is most often one of the three types of grinding elements defined in this region: slick, basin, or mortar. These grinding elements are generally found on the upper surfaces of flat or low-profile boulders that can range in size from less than a square meter to several square meters. Granite is the most common material selected for processing surfaces, although some metavolcanics and sandstone have also been identified. Milling features were used to process primarily plant materials using a grinding technology with a hand-held stone pushed over the plant material in the middle. The underlying boulder surface was modified in different ways depending on the type and amount of processing that was done. These sites are often found in association with a source of fresh water and plant materials that require some processing to be usable. Milling sites have a very low potential to meet NRHP eligibility criteria. The most likely criterion to meet would be Criterion D, but the site components that most effectively address the criterion are lacking in milling sites.

Milling Site with Artifacts. Sites of this type are defined following the same methods for Milling Sites, but also include food remains, artifacts, or other evidence of use or occupation. Milling sites with artifacts have a higher potential to retain the kinds of data needed to answer important research questions and typically require testing to assess the range and integrity of archaeological data within these sites and their eligibility. Milling sites with artifacts exhibit a moderate potential to meet NRHP eligibility criteria, usually Criterion D. These sites have a greater likelihood of containing information that would satisfy the criterion.

Habitation Site. This type of site is proposed to be the result of long-term habitation by a relatively large population. These sites may contain a relatively large amount of food refuse as indicated by shell and bone and a comparatively large number and variety of flaked lithic and ground stone tools, as well as the debris from the manufacturing of these implements. These sites are also expected to produce items that can be interpreted as ornamental or related to rituals or ceremonial activities. Features such as fire hearths and storage areas and evidence of structures may also occur. Habitation sites have a high potential to meet NRHP eligibility criteria, most often Criterion D.

Prehistoric Archaeological Sites

Fifty prehistoric cultural resources are recorded within the Project. These include 13 artifact scatters, 21 lithic scatters, two habitation sites, and 14 isolates. There are 10 scatters containing knapped stone and ground stone, two scatters contain bedrock milling and knapped stone, and one consisting of knapped stone and shell. The two habitation sites are eligible for listing in the NRHP. One artifact scatter has not been evaluated for eligibility for listing in NRHP. The remaining 47 sites are not eligible for listing under NRHP. Isolates do not meet the criteria for eligibility.

Historic Sites

Two historic sites are recorded within the Project. One consists of a historic scatter and the other contains a foundation and trash scatter.

Sacred Sites

No locations known to be sacred to Native Americans or other individuals or groups have been identified in the study area.

Other Culturally Sensitive Areas/Sites

There are no culturally sensitive areas or sites identified within the study area at this stage of the investigation.

3.5 Land Use

The District's facilities must integrate with land use planning to provide adequate and well-designed infrastructure to support planned and developed land uses. As a public water supplier, the District is exempt from local agency planning and zoning requirements (Section 53091 of the California Government Code). However, the District relies on local planning, zoning, and land use decisions to guide its own planning. In addition, District policy is to coordinate its programs with local jurisdictions and conform to local planning procedures and zoning to the maximum extent possible.

The District serves a variety of land uses, with some portions undergoing and planned for intense development. In the residential areas, land uses are generally mixed with commercial uses, primarily on the principal road corridors. Schools, churches, parks and other recreational uses typically occur with residential land uses.

Current major development projects within the District include Highlands Ranch/The Pointe San Diego, Hillsdale Ranch, Hidden Valley Estates, Simpson Farm, Honey Springs Ranch, Rancho Jamul Estates, Rancho Jamul Grande, Sunbow II, Otay Ranch

Village 1, Otay Ranch Village 5, San Miguel Ranch, Vista Mother Miguel, Rolling Hills Ranch, Bella Lago, EastLake Trails and Land Swap Areas, EastLake Woods, EastLake Vistas, EastLake Business Center II, Otay Ranch Village 6, Otay Ranch Village 11, Otay Ranch Freeway Commercial, and Bonita Meadows.

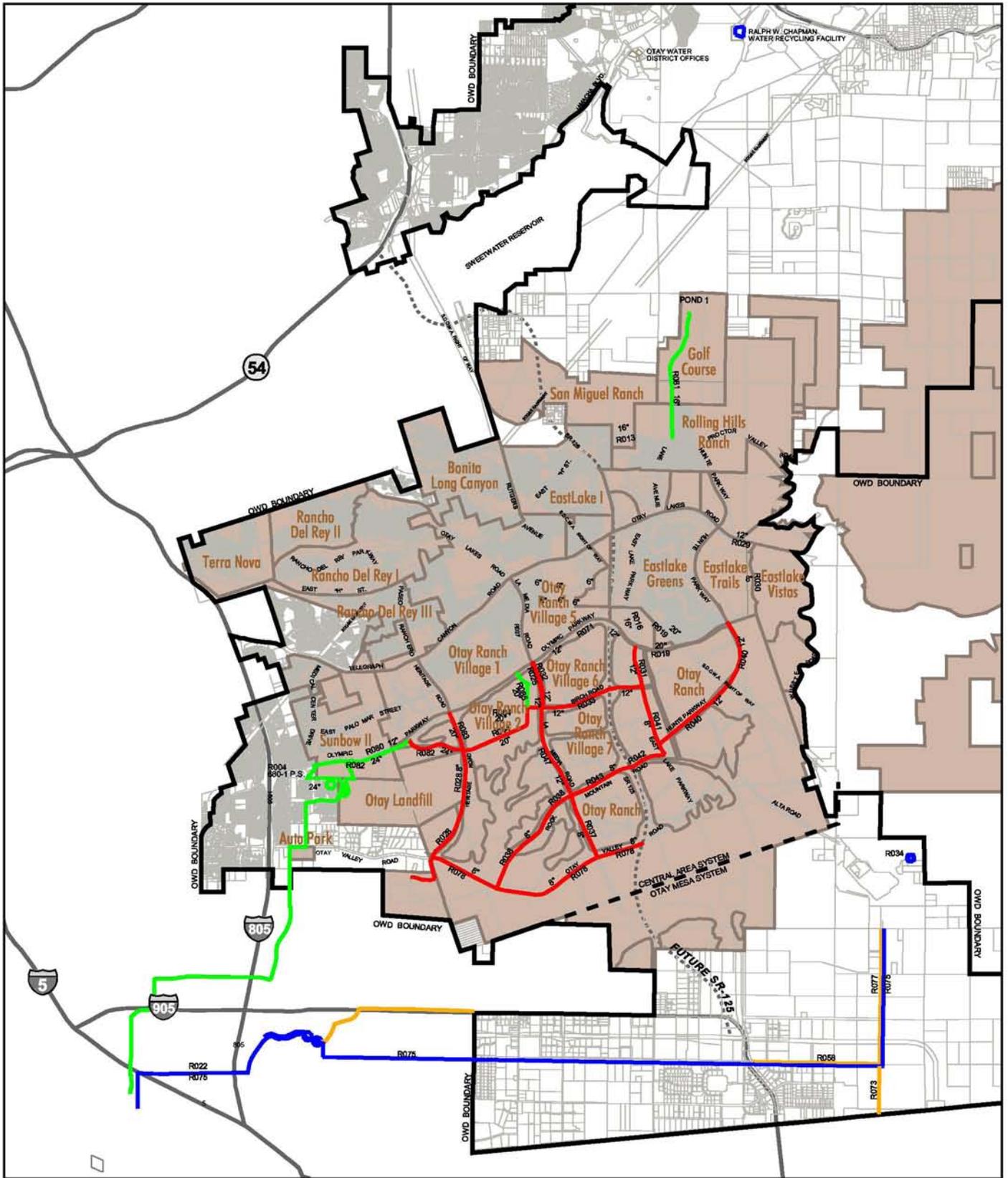
The Central Area System planning area is approximately 37,700 acres. The major development projects in the Central Area System and Otay Mesa System are shown in Figure 3.2. The Otay Ranch GDP, the largest single development project, is defined as the Otay Valley Parcel, Procter Valley Parcel, and the San Ysidro Mountains Parcel.

In the Central Area System the Otay Valley Parcel is the largest parcel of the Otay Ranch GDP. The Otay Valley Parcel is approximately 9,449 acres. Development within the Otay Valley Parcel will include 11 urban villages. The villages include mixed land use areas, parks, schools, community purpose facilities, single-family residences, multi-family dwellings, industrial, transportation, and commercial areas, along with an educational center/university, and over 4,000 acres of open space. The main open space area within the Otay Valley Parcel is a regional park planned for the river valley of the Otay River.

The District, in order to track and predict the future growth rates and development in its service area, maintains a database to project the amount of future growth planned, approved, and implemented. Sources used for growth information include the District's water meter billing system database, the District's Geographic Information System (GIS) database, and the SANDAG database. SANDAG serves as the regional, intergovernmental planning agency and maintains a regional GIS, which includes information on population and growth forecasts, along with land use, and community plan designations. The District uses the following data sources, listed in a hierarchal order, to obtain information for future growth: existing development, existing environmental reserves, Subarea Master Plans (SAMPs), Otay Ranch GDP, SPA plans, Community Plans (San Diego County Community Plan for the Crest-Dehesa, Jamul-Dulzura, Otay, Sweetwater, and Valle De Oro areas; City of San Diego's Otay Mesa Community Plan), City and County General Plans (Chula Vista General Plan), and SANDAG.

Information from the above sources was reviewed, and adjustments for specific geographic areas within the District were made. Adjustments were made based on historical land absorption trends within each of the five water systems. To determine future trends, the overall District growth rate, on an annual average basis, was established at three percent. The current growth rate of less than one percent per year was assumed for the Regulatory and Otay Mesa systems. Current growth rate of three percent per year was assumed for the La Presa and Hillside Systems. For the Central Area System, the current growth rate of seven percent per year was assumed. Utilizing the District's ultimate land use database, estimates of the ultimate number of dwelling units and population of the planning area were developed. These estimates are based on dwelling

unit densities per acre and persons per dwelling unit for residential land uses. Values for dwelling unit per acre were based on the actual development plans for SAMPs, SPAs, and the Otay Ranch GDP. All areas outside SAMPs, SPAs, and the Otay Ranch GDP were assigned appropriate dwelling unit per acre values and were based on values consistent with Community, City, County and SANDAG planning guidelines.



- Phase II District implemented project
- Phase II Developer implemented project
- Phase III District implemented project
- Phase III Developer implemented project
- Otay Water District boundary

Major development projects
(Source: City of Chula Vista, 2003)

0 Miles 1.55 N

FIGURE 3.2
Major Development Projects
in the Central Area System
and Otay Mesa System

A summary of projected population, dwelling units, and land uses within the District are listed in Tables 3.6, 3.7, and 3.8 for the existing, year 2006, year 2016, and at ultimate build-out. The Phase II and III Recycled Water CIP projects that are the subject of this Programmatic EA would occur within the Central Area System (Phase II) and the Otay Mesa System (Phase III). Based on existing development, and the projected population, dwelling units and open space at ultimate build-out, the estimated percentage of land use absorption is existing at 50 percent, year 2006 at 64 percent, year 2016 at 83 percent, and ultimate build-out at 100 percent developed.

3.6 Aesthetics

The District covers an area of varied and contrasting visual environments. Existing development ranges from older, established, urbanized communities in the north to more recent development in the central area, scattered and estate-style residential development in the northeast, and industrial development to the south. In the Central Area System, development is centered along major road corridors including Telegraph Canyon Road and East H Street. There are large areas of recent residential development in the Central Area System, along with industrial, office, commercial and recreational facilities. Mixed-use development with a predominant residential component of varied housing types has been approved for Chula Vista and Otay Ranch, which covers a large portion of the Central Area System. Commercial and industrial development, with some residential, has been approved for the Otay Mesa area.

Topography is also diverse. The range of elevations and relief in the landscape is great, and in most of the area dramatic vistas abound. Many high elevations offer views to the sea, and many other striking views as one travels eastward. Scrub-covered hillsides, riparian corridors in valleys, the lake vistas of the Sweetwater and Otay Reservoirs, grasslands on Otay Mesa, great slopes of San Miguel and Mother Miguel Mountains, along with Jamul Mountains to the northeast and San Ysidro Mountains to the southeast, all contribute to visual diversity.

Much of the undeveloped area in the District is the subject of development plans. These plans will change the visual landscape in many areas. At the same time, there are plans to preserve large areas in open space, and low-density development in some of the more rugged and picturesque areas. While development will inevitably change the appearance of much of the District in the future, large representative tracts of existing characteristic landscape will remain.

The most visually prominent facilities of this project are above ground reservoirs. Many of the pipelines will be located under roadways, and simultaneous construction of the roads and pipes will reduce temporary construction views. In order for reservoirs to function within their systems' specific operating pressures, they are required to be located

**TABLE 3.6
POPULATION PROJECTIONS FOR OTAY WATER DISTRICT¹**

Population Projections	District Total	Water Systems				
		La Presa	Hillsdale	Regulatory	Central Area ²	Otay Mesa ²
Current	143,006	44,543	15,665	8,081	74,626	91
2006	173,017	46,421	16,353	8,118	102,035	91
2016	215,717	49,023	17,514	10,678	138,502	0
Ultimate build-out	276,615	50,412	18,071	24,695	181,111	2,328

¹SOURCE: Otay Water District Water Resource Master Plan, August 2002, Table 3-3

²The majority of the Phase II Recycled Water CIP projects will occur in the Central Area System, and Phase III in the Otay Mesa System.

**TABLE 3.7
SINGLE- AND MULTI-RESIDENTIAL DWELLING UNIT PROJECTIONS FOR
OTAY WATER DISTRICT¹**

Dwelling Unit Projections	District Total	Water Systems				
		La Presa	Hillsdale	Regulatory	Central Area ²	Otay Mesa ²
Current	44,157	13,362	4,138	2,219	24,415	24
2006	54,180	14,282	4,315	2,051	33,509	24
2016	69,542	14,996	4,613	2,713	47,221	0
Ultimate build-out	84,119	15,389	4,757	6,224	57,168	582

¹SOURCE: Otay Water District Water Resource Master Plan, August 2002, Table 3-3

²The majority of the Phase II Recycled Water CIP projects will occur in the Central Area System, and Phase III in the Otay Mesa System.

**TABLE 3.8
LAND USE PROJECTIONS FOR OTAY WATER DISTRICT¹**

Land Use	District Total (acres)	Water System				
		La Presa	Hillsdale	Regulatory	Central Area ²	Otay Mesa ²
Residential	9,388.0	523.8	85.8	816.7	7,961.7	0.0
Commercial	626.0	44.0	0.0	18.5	563.5	0.0
Industrial	500.0	0.0	0.0	0.0	284.2	215.8
Community Facilities	302.9	0.0	0.0	172.5	130.4	0.0
Park Land	338.9	0.0	0.0	0.0	338.9	0.0
Schools	958.0	0.0	0.0	0.0	958.1	0.0
Resort Area	445.4	215.0	0.0	0.0	230.4	0.0
Open Space	13,998.3	38.2	0.0	4,798.9	9,161.2	0.0
Roadways	755.8	0.0	0.0	122.8	633.0	0.0
TOTAL	29,245.2	821.0	85.8	7,741.0	20,381.9	215.8

¹SOURCE: Otay Water District Water Resource Master Plan, August 2002, Table 3-3

²The majority of the Phase II Recycled Water CIP projects will occur in the Central Area System, and Phase III in the Otay Mesa System.

at appropriate elevations, usually on hillsides, hilltops, or ridges in prominent locations. Reservoirs are typically constructed out of steel or concrete and are cylindrical in shape. Because of the system requirements, they are often quite noticeable.

3.7 Air Quality

3.7.1 Meteorology/Climate

The climate of the San Diego area is generally controlled by the strength and position of the semi-permanent high-pressure center over the Pacific Ocean. This high-pressure center and weather patterns combine to limit the ability of the atmosphere to disperse air pollution. Air pollution becomes trapped in the coastal zone by a temporary inversion that prevents the transport of pollutants over the inland mountains. In addition, the abundant sunshine in the San Diego area causes reactive pollutants to undergo photochemical reactions and form smog.

3.7.2 Air Quality Standards

Emission control programs have substantially improved regional air quality over the past several decades. However, clean air standards are still often exceeded in parts of the San Diego Air Basin (SDAB). The District benefits from cleansing ocean breezes, and is distant enough from major sources of pollution to avoid areas of localized violations of clean air standards. In general, the District has good local air quality. Occasionally there is an influx of air pollution from the Los Angeles basin, which sometimes leads to surpassing of clean air standards.

The District's Otay Mesa System borders Mexico. An air quality station was established on Otay Mesa to monitor any effects of air pollutant transport from Mexico, since Mexico has less stringent pollution control laws. There have been some slight differences in ozone (O₃) distribution on Otay Mesa compared to the Chula Vista area; however, these differences are not dramatic enough to indicate any substantial cross-border pollution transport.

Nitrogen oxides (NO_x) and reactive organic gases (ROG) are the two precursors to photochemical smog formation. In San Diego County, 66 percent of ROG are emitted from mobile sources including cars, ships, planes and heavy equipment. For NO_x, 87 percent is emitted from mobile sources. In 1999, there was not a single violation of the federal ozone standard anywhere within the entire SDAB.

The San Diego County Air Pollution Control District (APCD), the agency responsible for air quality planning, monitoring, and enforcement in the SDAB, collects air quality

measurements in downtown Chula Vista, which is the nearest monitoring station to the Central Area and Otay Mesa Systems. Based on several years of monitoring data (80 East J Street and Otay Mesa stations), the District area shows progress toward being cleaner in almost every pollution category. The only exception is an occasional violation of the national hourly O₃ standard (one violation per year is allowed under federal guidelines). Overall air quality in Chula Vista, as representative of the District area, is comparable with or better than other areas of the SDAB.

In addition to regional air pollutants, elevated fugitive dust emissions in the District area occur from local landfill, quarrying, farming, and development operations, as well as from vehicular travel on dirt roads and surfaces.

3.8 Noise

Noise is typically expressed as the Community Noise Equivalent Level (CNEL), a standardized measure of cumulative noise exposure, calculated by weighting and averaging hourly noise levels over a 24-hour period. The CNEL is expressed in A-weighted decibels, or dB(A). The City and County of San Diego and the City of Chula Vista have sound level standards keyed to land uses, with low level noise standards for residences, schools, and hospitals, and higher noise level standards for industrial and commercial areas. San Diego County's maximum desirable noise level for residential areas is 60 dB(A) CNEL and the maximum residential standard for the cities of Chula Vista and San Diego is 65 dB(A) CNEL. In industrial and commercial areas, local government standards allow a higher level, typically up to 70 dB(A) CNEL.

The noise environments within the District vary greatly, but some general observations hold. Typical noise within inhabited areas is generated by vehicle traffic and by aircraft overflights. Aircraft overflights may occur anywhere, but tend to be concentrated on airport approach passes over the area of Sweetwater Reservoir. Aircrafts using this approach pattern for Lindbergh Field are high enough to avoid severe noise effects. In the South District, noise results from aircrafts leaving and approaching Brown Field. Another common source of noise is from construction activities.

3.9 Transportation

Transportation planning in District's Central Area System is conducted by the City of Chula Vista, and by the City of San Diego and County of San Diego in the Otay Mesa System. Regional coordination is generally provided by SANDAG and California Department of Transportation (Caltrans). Transportation plans are intended to complement anticipated population and land development and ensure that environment impacts associated with roads and vehicular travel are minimized.

The existing circulation system in the south District area is generally made up of widely spaced, winding arterial streets, collector streets, and portions of two freeways, Interstate 805 (I-805) and State Route 125 (SR-125). These transportation facilities are briefly discussed in the following paragraphs.

Freeways in the Central Area and Otay Mesa Systems in the District include I-805 in the western portion of the Central Area System, and SR-125 traveling through the center of the Central Area System. Phase II and III projects that extend outside the District boundaries include R022 and R075 (Phase III), which are proposed to cross I-805 and Interstate 5 (I-5) near the junction of I-805 and I-5. Future freeways planned for the area include State Route 905, which is tentatively planned to travel east-west through the Otay Mesa System.

Prime Arterials and Class I Collectors generally in the east-west direction include Telegraph Canyon Road/Otay Lakes Road, East Palomar Street, Olympic Parkway, East H Street, and Otay Valley Road in the Central Area System, and Airway Road and Otay Mesa Road in the Otay Mesa System. Prime Arterials and Class I Collectors generally in the north-south direction include Medical Center Drive, Brandywine Avenue, Paseo Racherero, Heritage Road, La Media Road, East Lake Parkway, and Hunte Parkway in the Central Area System. Prime Arterials and Class I Collectors generally in the north-south direction in the Otay Mesa System includes Alta Road.

3.10 Environmental Justice

Title VI of the Civil Rights Act of 1964 requires that no person, because of race, color, religion, national origin, sex, age, or handicap, be excluded from participation in, denied benefits of, or be subjected to discrimination by any federal aid activity. Executive Order 12898 broadens this requirement to require that disproportionately high and adverse health or environmental impacts to minority and low-income populations be avoided or minimized to the extent feasible.

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” requires Federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of Federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law.

No minority or low-income populations that would be adversely impacted by the proposed project have been identified in the project area. Therefore, the proposed project is not subject to the provisions of Executive Order 12898.

Section 4.0

Environmental Consequences

This EA evaluates potential environmental effects at a programmatic-level, and discusses impacts that may result from implementation of the Project or alternatives.

Measures to reduce potential effects to a less-than-significant level are outlined. As individual projects are implemented and details are determined, further environmental review may be warranted if the proposed mitigation measures will not effectively reduce potential effects to less-than significant levels.

This chapter of the Programmatic EA analyzes potential impacts, which are addressed from two perspectives: first, District implemented projects are evaluated and potential impacts are discussed. Second, developer implemented projects and potential impacts are evaluated and discussed. For District implemented projects, mitigation measures are outlined to reduce potential effects to a less-than-significant level. Mitigation for developer-implemented projects, required as part of the Otay Ranch development, is noted. These mitigation measures address large-scale development at the village level. Village development includes roadways and public rights-of-way that the Project pipelines will be located in. Because of the strong connection between the Otay Ranch development, the developer-implemented pipelines, and the Project, the discussion on Otay Ranch is included for each topic under analysis.

Environmental review of the proposed project at the program-level indicates that most projects would not have significant effects with the implementation of mitigation measures outlined for each environmental issue. When the projects are implemented and final designs are determined, additional environmental review may be necessary. Two issues that may trigger further environmental review as individual projects are implemented are Biological and Cultural Resources.

The Biological Resources section outlines the procedures that the District will follow as projects are implemented to determine if further environmental review is necessary and additional mitigation is required. The cultural resource section outlines another procedure, and references a Programmatic Agreement to be established between Reclamation, the District, and the State Historic Preservation Officer (SHPO). The Programmatic Agreement is available upon request from Reclamation.

4.1 Water Resources

4.1.1 Proposed Project

The Project would facilitate the transference and distribution of recycled water, maximize use of local water supplies, increase the District's ability to meet current and future water demands, and decrease the District's dependence on imported water.

Implementation of the project would not have an adverse significant effect on water resources including water supply, water quality, and hydrology. Water quality would not be substantially degraded, and no water quality standards or waste discharge requirements would be violated. There would be no substantial alteration of existing drainage patterns, or resulting substantial erosion or siltation. There would be no significant interference or impact on groundwater.

Water Supply

The project would increase the supply of recycled water. This would be a beneficial impact. At present, demand for recycled water is greater than the supply. The District's only source of recycled water is from the RWCWRF. The District meets the demand for recycled water by supplementing with potable water, which it imports from the SDCWA and the MWD. Implementation of the proposed project, particularly Phase II CIP projects R001, R004, and R022, will enable the transference of recycled water from SBWRP. Other pipeline projects will facilitate the distribution of this recycled water to meet current and future customer demands.

The project would not have any significant effects on groundwater or groundwater supplies. For most pipelines, excavation would not occur at a depth that would affect groundwater movement or flow. A portion of recycled water pipeline (R022) will undergo trenchless construction where it crosses the Otay River and wetland area south of Otay Valley Road and east of I-805. Implementation of this portion of R022 would require dewatering during construction. The effect on groundwater would be localized, small scale, and of short duration. Discharge from dewatering would be regulated under a Storm Water Pollution Prevention Plan (SWPPP) in accordance with SWRCB General Construction and NPDES permits.

Water Quality

This Project would facilitate the distribution of recycled water in the Central Area and Otay Mesa Systems. Recycled water from both the RWCWRF and SBWRP meets Title 22 requirements of the California Administrative Code. Recycled water distribution and use would not occur within any watershed tributary to surface water storage reservoirs

used as a potable water supply, as required the Basin Plan by the RWQCB. There would be no significant effects to water quality of surface water storage reservoirs.

During construction, bare earth surfaces may accumulate fuels or other pollutants that may be transported with storm water run-off, degrading downstream water quality. Best Management Practices (BMPs), as required and specified in the SWPPP, would be implemented to contain pollutants from construction equipment. Construction activities, such as trenching and grading, would increase erosion and siltation, which degrade water quality. BMPs would reduce water quality impacts during construction activities by minimizing erosion and siltation. Any impacts to water quality from construction activities would be short in duration, localized, and less-than-significant with implementation of BMPs.

Hydrology

Implementation of the project would have no significant effects on surface water hydrology. Construction of the reservoirs and pump stations would increase impervious surface area, however this would not significantly change absorption rates, drainage patterns, or surface water run-off. Areas surrounding the pump stations and reservoirs would be graded and restored to mimic pre-construction conditions, thereby minimizing impacts. Any impact to hydrology from reservoirs and pump station would not be significant.

Pipeline construction typically results in surface conditions being returned to pre-project conditions. For most of the pipelines, surface conditions would consist of paved roads. The road would be constructed regardless of the pipeline construction. The impervious surface would increase surface run-off, and decrease absorption rates. This impact would be less-than-significant. The project would not increase flooding hazards, except for the possibility of a pipeline rupture, which is a rare and infrequent occurrence.

4.1.1.1 District Implemented Projects

The following mitigation measures would be implemented by the District to reduce potential effects to a less-than-significant level.

Water Resource Measures to Avoid and Minimize Effects

The District will implement the following measures to reduce potential effects:

- Comply with all current state, regional, and city water quality regulations. Obtain all necessary permits (NPDES and General Construction);
- Prepare and implement a project-specific SWPPP;
- Implement an inspection program to assure the effectiveness of BMP control measures.

4.1.1.2 Developer Implemented Projects

As part of the development process, following the Otay Ranch GPD and Program EIR, developers are required to implement the following mitigation measures:

Water Resource Mitigation Measures

- Comply with all NPDES permits including integration of BMPs into SPA Plans
- Preparation of site-specific Watershed Impact and Protection Report and implement measures at the SPA level.

4.1.2 No Action Alternative

For the No Action Alternative, there would not be an Agreement and subsequent allocation of federal funds. Without federal funds, District would more than likely implement its Project in order to meet future water demands. Therefore, the environmental effects under the No Action alternative would be the same as the Proposed Project.

4.1.3 No Project Alternative

Under the No Project Alternative, the District would not implement its project. The District would continue to supplement its recycled water system with potable water.

The District would not maximize the use of local water, and the estimated 9,219 acre-feet per year of recycled water that the Project would produce would not be available. The District would become increasingly dependent on imported water sources such as the Colorado River and northern California. Continued reliability of these imported water sources is vague, and undependable. The District's ability to meet future water demands may be hindered if the District continues to rely on imported water.

The District has identified the Project as necessary to meet future recycled water demands. Without implementation of the Project, the District's ability to meet future water demands would be hindered. The District would not be able to fulfill District, state, regional, and local policies that direct the development of alternative water sources. Under this scenario, the District would be in violation of policies requiring the development of recycled water sources and local water supply.

Without the Project, additional strain would be placed on imported water supplies. The ecosystems that supply imported water, particularly the Colorado River and northern California, would continue to degrade, resulting in further environmental damage. The

imported water supply would be strained, as well as recovery and restoration efforts for the imported water supply ecosystems.

Without the Project, there would be no construction related impacts on water quality or hydrology. There would be no dewatering for project construction, so direct impacts to local groundwater levels would not occur. There would be no erosions or siltation from construction activities, and no subsequent water quality impacts.

4.2 Biological Resources

4.2.1 Proposed Project

The goal of this impact assessment was not to identify specific impacts that would result from Project implementation, but rather to determine which project components have the potential to impact biological resources. GIS analysis was used to overlay location of the Project (some pipeline locations may change as project specifics are determined), critical habitat, sensitive species locations, and vegetation communities. As part of this impact assessment, the following resource materials were consulted:

- California Natural Diversity Database (CNDDDB), maintained by CDFG, (State of California 1995)
- Vegetation (SANDAG 1995)
- Critical habitat by USFWS for coastal California gnatcatcher (10/24/2000), least Bell's vireo (2/02/94), Otay tarplant (12/10/02), quino checkerspot butterfly (4/15/02), Riverside fairy shrimp (proposed), San Diego fairy shrimp, and arroyo toad (proposed).
- Digital data prepared by the District (CAD file) showing project locations

An impact analysis was conducted using GIS to determine the project components that may have potential impacts to biological resources. Spatial information on project location was combined with biological data including critical habitat, species occurrences, and wetland information. The assumed width of the potential area of effect for the linear elements of the project was 150 feet (approximately 1,730 acres), which is wide enough to accommodate a major roadway, such as Olympic Parkway, and associated rights-of-way. It is important to note that for the purpose of this analysis, the large area (150-foot width) used to identify potential impacts is an overestimate; however, this approach was taken to ensure that no potential impacts were overlooked. For most projects, the actual pipeline would only disturb a width of a few feet.

The analysis of potential impacts to biological resources includes assessment of potential effects on critical habitat (Figure 4.1), species occurrences (Figure 4.2) and wetlands (Figure 4.3). It is important to note that in many areas, pipelines would be constructed in roadways that pass through designated critical habitat, although no adverse effects to critical habitat would actually occur. Existing roads lack primary constituent elements of critical habitat; therefore, installation of a pipeline within a road in critical habitat will not have any direct effect on critical habitat.

Potential impacts to biological resources are discussed below. First, District implemented projects are addressed, then developer implemented projects are discussed.

4.2.1.1 District Implemented Projects

DISTRICT IMPLEMENTED PHASE II PROJECTS

CIP No. R001; Reservoir, Recycled Reservoir – 450-1 Reservoir 12.0 MG

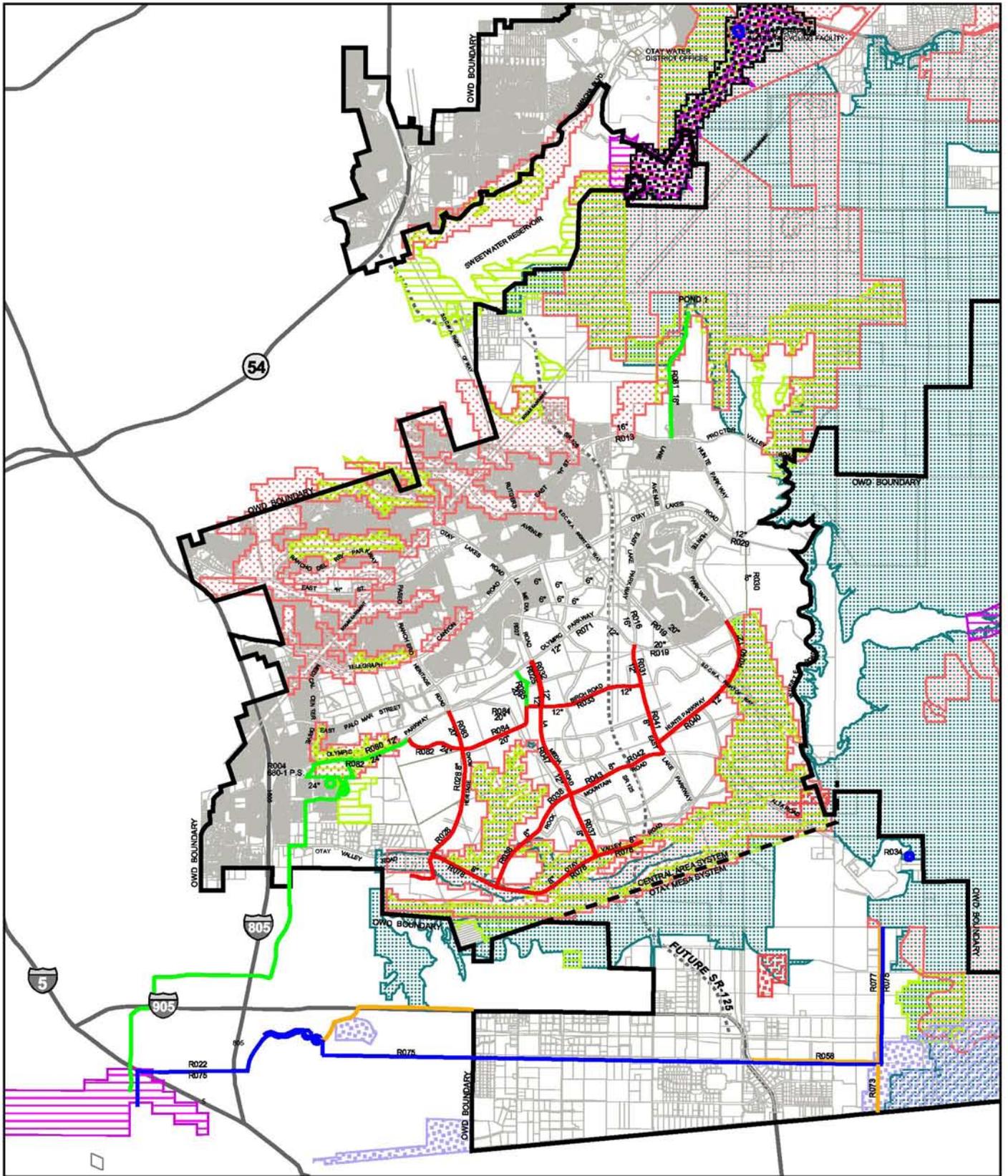
This reservoir project site is located within an area that has been designated as critical habitat for the Otay tarplant. The species is known to occur at this site. Initially, significant impacts to Otay tarplant were anticipated to occur as a result of construction of the reservoir; however, the District relocated the reservoir 60 feet to the south to avoid the majority of the potential impacts. Approximately 673 Otay tarplant individuals will be impacted with the new reservoir location; a significant reduction from the previously estimated 275,146 individuals (AMEC 2005).

CIP No. R004; Pump Station, Recycled Pump Station – 680-1 Pump Station (11,500 GPM)

Otay tarplant is known to occur in the vicinity of this project. This pump station will be constructed adjacent to and within the development footprint of R001 (recycled reservoir 450-1).

CIP No. R019; Pipeline, Recycled Pipeline – 20-Inch, 944 Zone, SDCWA R/W-944-1 Pump Station/Eastlake

The District will implement the portion of this project in Olympic Parkway. The pipeline will be installed in existing roadways and rights-of-way within the development footprint. There is no critical habitat near this pipeline.

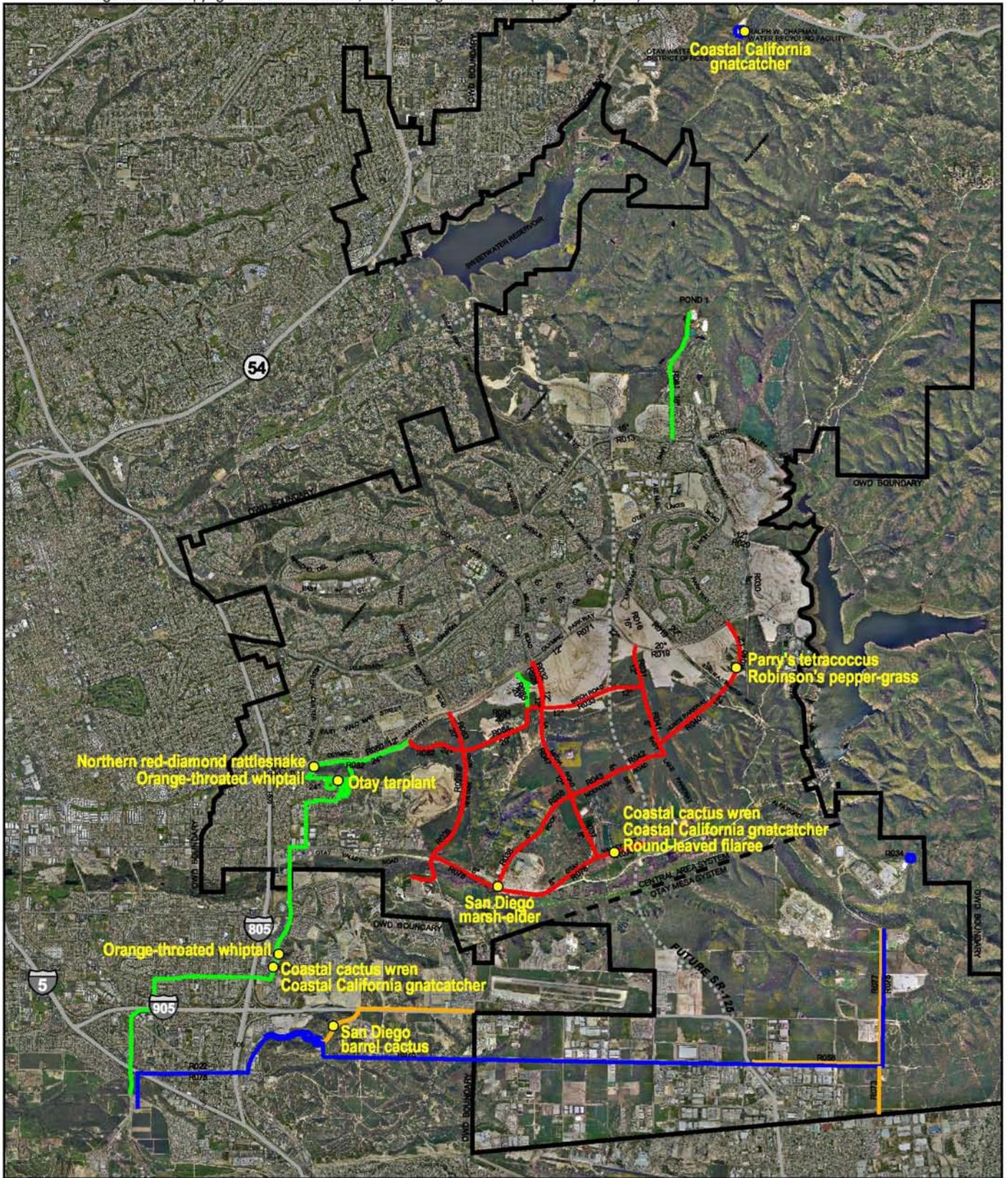


- ~ Phase II District implemented project
- ~ Phase II Developer implemented project
- ~ Phase III District implemented project
- ~ Phase III Developer implemented project
- O'Connell Water District boundary

- USFWS designated critical habitat
- Arroyo toad (proposed)
- Coastal California gnatcatcher
- Least Bell's vireo (proposed)
- O'Connell tarplant
- Quino checkerspot butterfly
- Riverside fairy shrimp (proposed)
- San Diego fairy shrimp

0 Miles 1.55 N

FIGURE 4.1
Biological
Impact Analysis
for Critical Habitat



- Phase II District implemented project
- Phase II Developer implemented project
- Phase III District implemented project
- Phase III Developer implemented project
- Otay Water District boundary

● Sensitive species location within 150 feet of CIPs (Source: CNDDDB, 2004)

0 Miles 1.55 N

FIGURE 4.2
Biological Impact Analysis
for Species Occurrences