RECLAMATION
Managing Water in the West

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

FOR

OTAY WATER DISTRICT
PHASE II AND III
RECYCLED WATER CIP PROJECTS

Prepared for

OTAY WATER DISTRICT

Location

SAN DIEGO COUNTY, CALIFORNIA

Prepared by

RECON

RECON NUMBER 3252E
JUNE 2005

U.S. Department of the Interior
Bureau of Reclamation
Lower Colorado Region
Southern California Area Office
Temecula, California

June 2005

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Executive Summary

This Programmatic Environmental Assessment (EA) has been prepared in accordance with Bureau of Reclamation (Reclamation) requirements to evaluate the environmental impact of Otay Water District's (District) Phase II and III Recycled Water Capital Improvement Program projects (Project). The District is seeking to execute a Cooperative Agreement (Agreement) between Reclamation and the City of San Diego. A sub-agreement between City of San Diego and the District will provide reimbursement funds for up to 25 percent of the Project costs.

Proposed Federal Action

The federal action is the execution of a Cooperative Agreement between the Bureau of Reclamation and the City of San Diego. A sub-agreement between the City of San Diego and the District will provide reimbursement funds for up to 25 percent of the District's costs for implementation of the Project.

Purpose and Need for Action

The purpose of the District's recycled water program is to reduce the demand for imported water, maximize the use of local water supplies, substitute recycled water for potable water, and provide a continuous and dependable source of supplemental water for the area. The Cooperative Agreement will assist the District with implementation of the recycled water program. The Project will ultimately provide for the annual use of an estimated 9,219 acre-feet of recycled water. This Project is needed because dependable water supplies in southern California are becoming more difficult to develop and maintain as imported water sources become less reliable.

Authority

Section 1612 of Public Law 102-575 (Title XVI) specifically authorizes the Secretary of the Interior to participate in the planning, design, and construction of reclamation projects in the San Diego area, with federal financial participation limited to 25 percent of the total project costs. Execution of a Cooperative Agreement is authorized under the Reclamation Wastewater and Groundwater Study and Facilities Act of 1992 (P.L. 102-575, Title XVI, Sect. 1612).

Proposed Project

The proposed Project is the implementation of the District's Phase II and III Recycled Water Capital Improvement Program. This Project consists of three reservoirs, two pump stations, 33 pipelines, and four building upgrades, approximately $63 million in costs.

Twenty of the projects would be implemented by the District, and 22 projects would be implemented by developers, as part of the Otay Ranch development. The developer-implemented projects consist of pipelines that will be constructed as roadways are constructed. Mitigation measures are discussed in Section 4.0 for developer-implemented projects as required by the Otay Ranch General Development Plan (GDP) and associated documents. The Otay Ranch Resource Management Plans (Phase 1 and 2) form the basis for mitigation measures in the Program Environmental Impact Report (EIR) for the Otay Ranch GDP. As development proceeds, lands are conveyed into the Otay Ranch Resource Management Preserve. While the Resource Management Plan (RMP) presents policies and programs for the protection and enhancement of sensitive resources, the Program EIR provides the vehicle for assuring that the policies and programs included in the RMP are carried out.

Alternatives

No Action

Under the No Federal Action Alternative, there would be no Agreement, and no allocation of federal funding for the District's Project. The District has identified the Project as necessary to meet future recycled water demand and fulfill District, state, regional, and local policies. Therefore, the District is likely to implement the Project without the federal funds. As a result, the District would incur the entire cost of implementing the Project. This alternative would be considerably more expensive for the District.

For the No Action alternative, environmental review would occur on a project-by-project approach. This project-by-project approach would result in increased costs and time, which may hinder the District's ability to meet future recycled water demands, and compliance with policies requiring the development of recycled water sources.

No Project

Under the No Project Alternative, the District would not implement the Project. The 42 Phase II and III Recycled Water projects would not be constructed. The estimated 9,219 acre-feet per year of recycled water that the Project would produce would not be available. The use of imported, potable water to supplement the District's recycled water supply would continue.

Under this alternative, the District would not fulfill state, regional, and local policies that direct alternative water source development. In addition, the District would not follow its Water Resource Master Plan. The District's ability to meet future water demands may be hindered.

Assessment of Environmental Effects

Environmental effects of the No Action alternative would be the same as the Proposed project, since the Project would be implemented under both alternatives. The main difference would be the increased costs for the District under the No Action alternative, since there would be no federal funds for the Project.

The No Project alternative would not have the direct environmental effects from implementation of the Project, including temporary construction impacts and permanent impacts. However, this alternative would continue to rely on imported water sources to meet future water demands, which would continue to strain imported water sources, resulting in indirect impacts.

Environmental effects are summarized in Table ES-1, along with measures that will be implemented to avoid and reduce potential environmental effects to a less-than significant level. The two resources most likely to be impacted from Project implementation are Biology and Cultural Resources.

TABLE ES-1
ENVIRONMENTAL EFFECTS SUMMARY AND ALTERNATIVE COMPARISON

Resource	No Action	No Project	Proposed Action	Measures to Minimize and Reduce Potential Impacts	Significance After Measures
Water Resources	Same as proposed project	Direct, significant impact on local water supplies including groundwater. Indirect impact on imported water sources.	Impacts to water quality during construction. Less than significant impact to groundwater from dewatering during construction.	1. Comply with all current federal, state, regional, and city water quality regulations. Obtaining all necessary permits (NPDES and General Construction). 2. Prepare and implement a project-specific Stormwater Pollution Prevention Plan 3. Implement an inspection program to assure the effectiveness of BMP control measures.	Less than significant with mitigation.
Biological Resources	Potentially significant effects.	Indirect significant impact on biological resources that depend on local water supplies.	Direct and indirect impacts to gnatcatcher, quino checkerspot butterfly, least bell's vireo, Otay tarplant and other sensitive species. Habitat and critical habitat loss from project implementation.	1. Construction of projects in the vicinity of critical and native habitat would occur outside the avian breeding season (February 15th to August 30th). If construction must occur during avian breeding season, a qualified biologist would be present to monitor the effect of noise on breeding activities. If the noise level is affecting the breeding activities, a sound barrier will be constructed to reduce noise effects to breeding pairs. 2. When appropriate, conduct biological surveys on land that may be disturbed during construction of facilities. 3. Avoid, to the extent practicable through design or site selection, special-status species, sensitive habitats, and wetland areas. 4. Initiate consultation with the appropriate State or Federal jurisdictional agency if the potential for special-status species disturbance exists. 5. When applicable comply with permits and conditions for USACE Section 404 of CWA, RWQCB Section 401 of CWA, and CDFG Section 1600 Streambed Alteration Agreement. 6. When applicable, as recommended by wildlife agencies, the District shall use its mitigation credits for the San Miguel Habitat Management Area for mitigation for its projects.	Less than significant with mitigation, and implementation of the District Biology Procedures.
Cultural Resources	Potentially significant effects.	No significant impact.	Potential direct impacts to archaeological sites.	Implementation of Programmatic Agreement between Reclamation, State Historic Preservation Officer (SHPO), and District.	Less than significant with implementation of Programmatic Agreement.

TABLE ES-1
ENVIRONMENTAL EFFECTS SUMMARY AND ALTERNATIVE COMPARISON
(continued)

Resource	No Action	No Project	Proposed Action	Measures to Minimize and Reduce Potential Impacts	Significance After Measures
Land Use	No significant impact	No significant impact.	No significant impact.	1. The District will follow applicable land use policies addressing sensitive lands when appropriate. This will reduce potential conflicts with environmentally sensitive lands regulations. 2. The District will coordinate project construction with other utilities that may exist in utility rights-of-way in order to minimize disruption of service.	Less than significant.
Aesthetics	Same as proposed project	No significant impact.	No visual impact from pipelines. Potential adverse impact from reservoirs and pump stations.	1. The District will coordinate with affected viewer groups during project design to minimize aesthetic impacts. 2. Where possible, projects shall be sited in topographically screened locations, in locations screened by vegetation, or adjacent to existing facilities and surface disturbance to reduce visual contrast with adjacent undisturbed areas. 3. Design elements of the facility will incorporate surrounding features and vegetation. 4. Landscaping and/or fencing that screens facilities will be used when feasible to reduce aesthetic impacts. 5. Scenic resource, such as mature trees and rock outcroppings, will be avoided when feasible. When unavoidable, the removal of trees will be mitigated by replacement ratios determined by wildlife agencies. 6. Projects requiring night lighting will include a lighting plan to reduce glare, light spill, and containment of stray light. 7. Ground disturbance from construction will be revegetated with appropriate native vegetation to minimize aesthetic impacts.	Less than significant with mitigation.
Air Quality	Same as proposed project	No significant impact.	Indirect impacts during construction from fugitive dust and vehicle emissions. Less than significant impact from operation of generators at pump stations.	1. Maintain construction equipment engines to minimize emissions. 2. Adhere to APCD regulations and grading ordinances to minimize fugitive dust by applying water or chemical dust suppressants to disturbed areas and unpaved roadways to maintain a stabilized surface. 3. Vehicles hauling dirt or fill will be covered to minimize fugitive dust and PM_{10}.	Less than significant with mitigation.

TABLE ES-1
ENVIRONMENTAL EFFECTS SUMMARY AND ALTERNATIVE COMPARISON
(continued)

Resource	No Action	No Project	Proposed Action	Measures to Minimize and Reduce Potential Impacts	Significance After Measures
Noise	Same as proposed project	No significant impact.	Temporary construction noise impacts.	1. At pump stations identify sensitive receivers within 250 feet and conduct noise analysis. Incorporate feasible engineering measures into facility design to reduce noise levels. Criteria for successful mitigation shall be the reduction of noise levels affecting sensitive receivers to 65 dB(A) CNEL from normal facility operation. 2. Implement noise barriers in sensitive areas. 3. For projects adjacent to sensitive wildlife habitat, such as least bell's vireo, prepare site-specific study by qualified biologists. 4. District and contractors will comply with local ordinances and regulations specifying sound control and noise level rules. 5. Construction work shall be conducted Monday through Friday between the hours of 7:00 A.M. and 5:00 P.M. No construction shall occur outside these days and times except in an emergency. 6. Construction equipment, and equipment at facilities will have mufflers. 7. No equipment shall create noise levels in excess of 75 dB(A) at the nearest residential property line for any eight-hour period.	Less than significant with mitigation.
Transportation	Same as proposed project	No significant impact.	Temporary traffic disturbance during project construction.	1. Develop and submit Traffic Control Plan prior to the start of construction. This plan shall specify temporary traffic control zones, posting of appropriate signage, and speed limits for control zones. 2. For projects in public roadways, the District shall coordinate with local jurisdictions and conform to the Caltrans Traffic Control Manual. 3. Implement traffic management measures including marking temporary traffic lanes, use of barricades and lights at excavations and crossings. 4. When feasible, during pipeline construction maintain both directions of traffic flow.	Less than significant with mitigation.
Environmental Justice	No significant impact	No significant impact.	No significant impact.	None.	No significant impact.

Acronyms and Abbreviations

Agreement	Cooperative Agreement under Title XVI
APCD	Air Pollution Control District
APE	Area of potential effect
BMP	Best Management Practice(s)
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CE	Categorical Exemption
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Registrar
CIP	Capital Improvement Project
CNDDB	California Natural Diversity Database
CRHR	California Register of Historic Resources
CNEL	Community Noise Equivalent Level
CRI	Cultural Resource Inventory
District	Otay Water District
EA	Environmental Assessment
EIR	Environmental Impact Report, pursuant to CEQA
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESL Ordinance	Environmentally Sensitive Lands
FCF	flow control facilities
FONSI	Finding of No Significant Impact
GDP	Otay Ranch General Development Plan
GIS	Geographic Information System
gpd	gallons per day
HMA	Habitat Management Area
I-5	Interstate 5
I-805	Interstate 805
ITAs	Indian Trust Assets
LBV	least Bell's vireo
mgd	million gallons per day
MWD	Metropolitan Water District
MSCP	Multiple Species Conservation Program
MSCP-CV	City of Chula Vista Multiple Species Conservation Program Subarea Plan
MSCP-SCS	County of San Diego Multiple Species Conservation Program Subarea Plan, South County Segment

MSL	mean sea level
NCCP	California Natural Community Conservation Plan Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollution Discharge Eliminator System
NRHP	National Register of Historic Places
POM	Preserve Owner/Manager
Project	Phase II and III of the Recycled Water Capital Improvement Program
QCB	quino checkerspot butterfly
Reclamation	U.S. Bureau of Reclamation
RMP (I, II)	Otay Ranch Resource Management Plan
RWCWRF	Ralph W. Chapman Water Recycling Facility
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SBWRP	South Bay Water Reclamation Plant
SCAQMP	South Coast Air Quality Management District
SDCWA	San Diego County Water Authority
SHPO	State Historic Preservation Officer
SPA	Specific Area Plan
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
Tribes	Native American Tribes
USFWS	U.S. Fish and Wildlife Service
Villages	Villages proposed for development as part of Otay Ranch
WRMP	Water Resources Master Plan
WTP	Water Treatment Plant

Section 1.0
Purpose and Need

1.1 Purpose and Need

The purpose of the Otay Water District (District) recycled water program is to reduce the demand for imported water, maximize the use of local water supplies, substitute recycled water for potable water, and provide a continuous and dependable source of supplemental water for the area. The recycled water program is needed because dependable water supplies in southern California are becoming more difficult to develop and maintain as continuance of traditional imported water sources, such as the Colorado River and northern California, become increasingly less reliable. Section 1612 of Public Law 102-575 (Title XVI) authorizes the Secretary of the Interior to participate in the planning, design, and construction of reclamation projects in the San Diego area.

The District implemented Phase I of the recycled water program, and is currently embarking on Phase II and III of the Recycled Water Capital Improvement Program (Project). As part of the Phase II and III recycled water program, the District is seeking to execute a Cooperative Agreement (Agreement) with the U.S. Bureau of Reclamation via a sub-agreement with the City of San Diego. Section 1612 of Public Law 102-575 (Title XVI) authorizes the Secretary of the Interior to participate in the planning, design, and construction of reclamation projects in the San Diego area, with federal financial participation limited to 25 percent of the total project costs. The Agreement is authorized under the Reclamation Wastewater and Groundwater Study and Facilities Act of 1992 (Title XVI of the Federal Water Projects Authorization and Adjustments Act of 1992, Public Law 102-575).

The Agreement provides federal funding for up to 25 percent of the costs for the planning, design, and construction of the District's Project. The Project will ultimately provide for the annual use of an estimated 9,219 acre-feet of recycled water in the District's service area.

1.2 Purpose of the Programmatic EA

The purpose of an Environmental Assessment (EA) is to provide analysis for the NEPA process. This EA contains data, analysis, and explanations that demonstrate that Reclamation has made a good faith effort to identify and disclose reasonably foreseeable potential environmental effects that may result from implementation of the Project or

alternatives. A Programmatic EA is warranted for this project since the proposed action has common locations, project elements, and stages.

As specific project details are determined, further environmental review may be warranted if the proposed measures will not effectively reduce potential effects to less-than significant levels. This procedure is discussed in Section 4.0. Further environmental review may include, but is not limited to, revisions or additions to proposed measures to minimize and avoid potential effects, and Agency consultation.

The EA process and the information it generates will be used for the following purposes:

- To outline expected program-related environmental effects
- To outline procedures and develop measures that reduce or eliminate these environmental effects
- To assist Reclamation and other agencies in the decision-making process pursuant to National Environmental Policy Act (NEPA)
- To serve as a starting point for evaluation of site-specific environmental impacts

1.3 Background

The District is seeking Reclamation funds for its Projects. The execution of the Agreement and allocation of federal funds is the federal action. It is anticipated that the Projects will be eligible for the issuance of grants by Reclamation pursuant to Title XVI. This federal action is needed to assist the District in fulfilling state, regional, and local policies that direct the development of alternative water sources, including recycled water.

Title XVI authorizes Reclamation to participate in the planning, design, and construction of reclamation projects that are part of the San Diego Area Water Reclamation Program. The District's Projects are part of this program. Under Title XVI, the City of San Diego is the only agency authorized to receive federal funds. Reclamation enters into a Cooperative Agreement with the City with the understanding that the City and the District will enter into a sub-agreement. The Agreements will provide federal funding for up to 25 percent of the cost for the District's Projects, depending on annual congressional funding authorization for Title XVI. The District's Projects will be implemented by the District, or by local developers.

Development in the District's Central Area System, known as Otay Ranch, is guided by the Otay Ranch GDP, as designed and implemented by the County of San Diego and City

of Chula Vista. The GDP requires that developers build infrastructure as they go, so developers typically install pipeline infrastructure, such as recycled water pipes. Once constructed, the District takes over operation and maintenance of the recycled water infrastructure.

1.4 Otay Water District

The District is responsible for delivering potable and recycled water to customers within its jurisdictional area of approximately 80,320 acres (125.2 square miles), and includes an additional 8,960 acres (14 square miles) in its area of influence. The District is located in southwestern San Diego County, inland from the cities of San Diego, Chula Vista, and National City as shown in Figure 1.1. The District is a member agency of the San Diego County Water Authority (SDCWA), who is a member of the Metropolitan Water District (MWD) of Southern California. The District receives imported potable water from the aqueduct systems owned and operation by SDCWA and MWD of southern California. The District is active in reducing demands through conservation measures while pursuing other sources of supply to increase its system reliability and flexibility, such as interagency agreements, recycled water, and groundwater wells.

In southern California, dependable water supplies are difficult to develop and maintain. In order to facilitate better use of existing water supplies, the District has been actively pursuing water recycling to maximize the use of local water. The District's 2002 Water Resources Master Plan (WRMP) predicts future water demands and identifies the necessary capital facilities needed to meet those demands. The WRMP established phased Capital Improvement Projects (CIPs) that will be needed to provide an adequate, reliable, flexible, and cost effective water system, including Phase II and III projects of the District's Recycled Water CIP.

Lands in the District are in three jurisdictions: the unincorporated County of San Diego and the cities of Chula Vista and San Diego (see Figure 1.1). Approximately 70 percent of the District is either undeveloped or undergoing development activity. Land use and population expectations provided by the San Diego Association of Governments (SANDAG), the regional planning agency, anticipates that the District will ultimately serve approximately 84,000 dwelling units in comparison to about 44,000 today. The current District average water demand is approximately 22.44 million gallons per day (mgd). This demand is expected to increase to 56.29 mgd at ultimate build-out.

The District is located in the southern California region east of San Diego (see Figure 1.1). The District is comprised of five water service areas (Figure 1.2). The District's service area spans approximately 80,320 acres (125.2 square miles) and an 8,960-acre (14 square miles) area of influence. Currently the District supplies an average

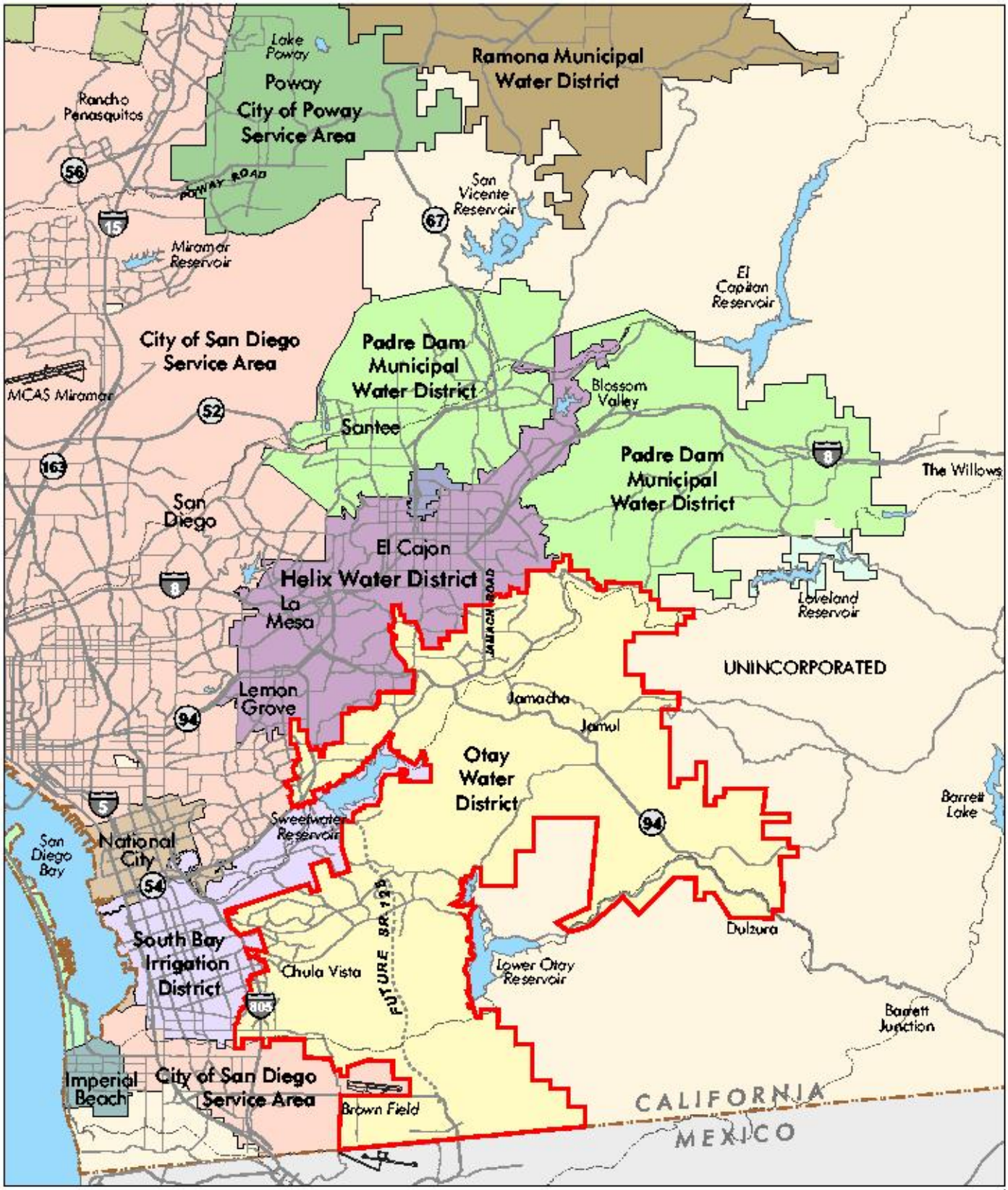

FIGURE 1.1
Otay Water District Regional Location

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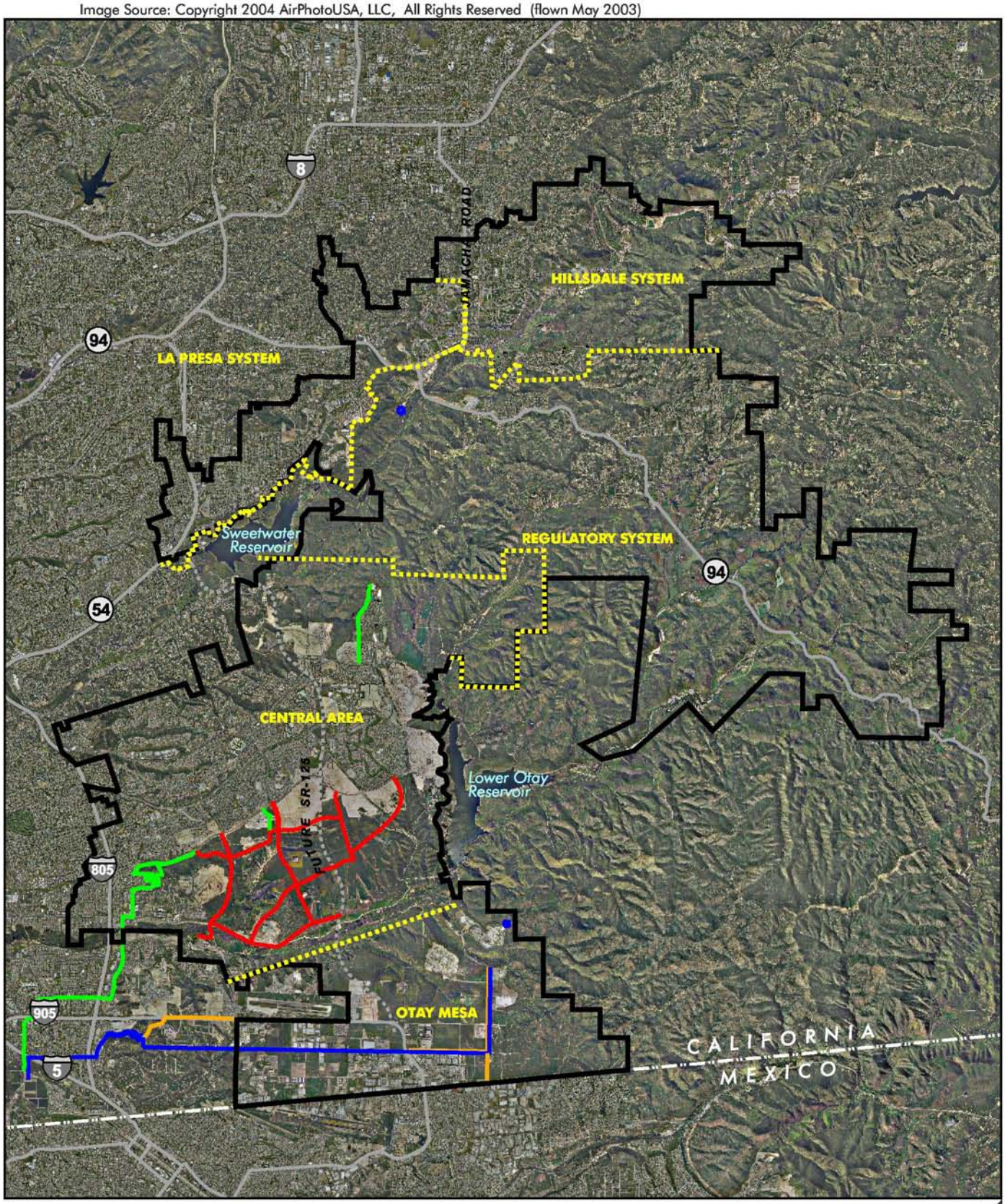

FIGURE 1.2
Otay Water District
Service Area and
Water Systems

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fig1.2 (aerial) 08/13/04

of 22.4 mgd to a population around 143,000. At build-out, anticipated demand is projected to be 56 mgd for a population of 276,600.

The District supplies potable water via five operating systems: La Presa, Hillsdale, Regulatory, Central Area, and Otay Mesa, as shown in Figure 1.2. In addition to supplying potable water throughout its service area, the District maintains and operates a recycled water system. Distribution of recycled water is restricted to the South District, which consists of the Central Area System and the Otay Mesa System. The San Diego Regional Water Quality Control Board (RWQCB) currently prohibits recycled water use in the District's northern area and a small portion of the Central Area System because it is within the watershed of the Sweetwater, Upper Otay, and Lower Otay Reservoirs.

1.4.1 Otay Water District Recycled Water Program

The Ralph W. Chapman Water Recycling Facility (RWCWRF), owned and operated by the District, supplies the District's recycled water system. The RWCWRF can produce approximately 1.0 mgd of recycled water daily. Recycled water is pumped southward to storage ponds in the District's Use Area, and is distributed throughout the Central Area System to a number of major developments. Current recycled water customers include residential developments. Future recycled water markets are developments that require landscape irrigation, including parks, golf courses, street and highway landscapes, freeways, schools, office parks, commercial and industrial areas, government facilities, health care centers, multi-family residential housing, and other common areas.

Presently, the District distributes recycled wastewater treated at the RWCWRF to meet the California Title 22 Requirements for reuse. The District has acquired 6 mgd of additional recycled water to supply existing and future recycled water consumers. This supply is from the City of San Diego's South Bay Water Reclamation Plant (SBWRP). The primary potential recycled water markets are developments that require landscape irrigation.

The District's Recycled Water CIP program is being implemented in three phases:

- Phase I consisted of three projects. The first project was the lining and covering of Pond No. 4 at the District's Use Area. This project involved improvements to Pond No. 4, a transfer pipeline between Pond No. 4 and Pond No. 5, upsizing existing inlet and outlet pipelines, improving the drainage system inside and outside the reservoir, and paving the existing road around the perimeter of Pond No. 4 for erosion protection. The second project was the implementation of recycled water mains in Telegraph Canyon Road, Otay Lakes Road, Paseo Ranchero, and Rancho del Rey Parkway. The Third project was the implementation of recycled water mains in Otay Mesa Road, Cactus Road, Airway Road, Siempre Viva Road,

Britannia Boulevard, and the 905 Freeway. The Cooperative Agreement for Phase I of the Recycled Water CIP, executed in June of 1998, included three projects implemented by the District.

- Phase II projects consist of 29 projects in the Central Area System: one reservoir, one pump station, and 27 pipelines, listed in Table 1.1. Figure 1.3 shows the proposed Phase II and III CIP Project locations. These projects will be implemented over the next 25 years.

- Phase III projects consist of 13 projects in the Otay Mesa System: two reservoirs, one pump station, six pipelines, and four upgrades to the RWCWRF, listed in Table 1.1. Four of these projects for the RWCWRF include one building remodel, one effluent meter, one waste backwash water pipeline, and one load equalization tank. These projects will be implemented over the next 25 years.

The costs for the Phase II and III projects are anticipated to be approximately $67 million. Total costs of Phase II projects are estimated at $43.5 million, and Phase III at $23.5 million. These Projects will enable the distribution of approximately 8.43 mgd of annual average demand for recycled water.

The District policy (Otay Water District Code of Ordinances, Section 12, Water Reclamation Plan and Implementing Procedures) authorizes the District to use recycled water wherever it is financially and technically feasible, and consistent with legal requirements, preservation of public health, safety and welfare, and the environment. The implementation of this policy enables the District to plan, fund, and construct facilities to meet recycled water demand. The District provides recycled water to portions of its service area in fulfillment of a mandate from the State of California for water districts to develop and provide alternative water sources. Municipalities in the District's service area have required land developers to provide separate recycled water delivery systems within their subdivisions for irrigation of specific areas. The production and distribution of recycled water is encouraged by the policies of the State of California, local land use jurisdictions, local and regional water supply agencies, the District, and the federal government. The proposed Projects are part of the District's long-range plans to develop recycled water use in order to fulfill these policies.

1.5 Other Discretionary Actions

Implementation of the Projects may require actions and permits from other federal agencies, state, regional, and local jurisdictions to comply with regulations. Potential permitting issues and authorizing authority that may be required are listed in Table 1.2.

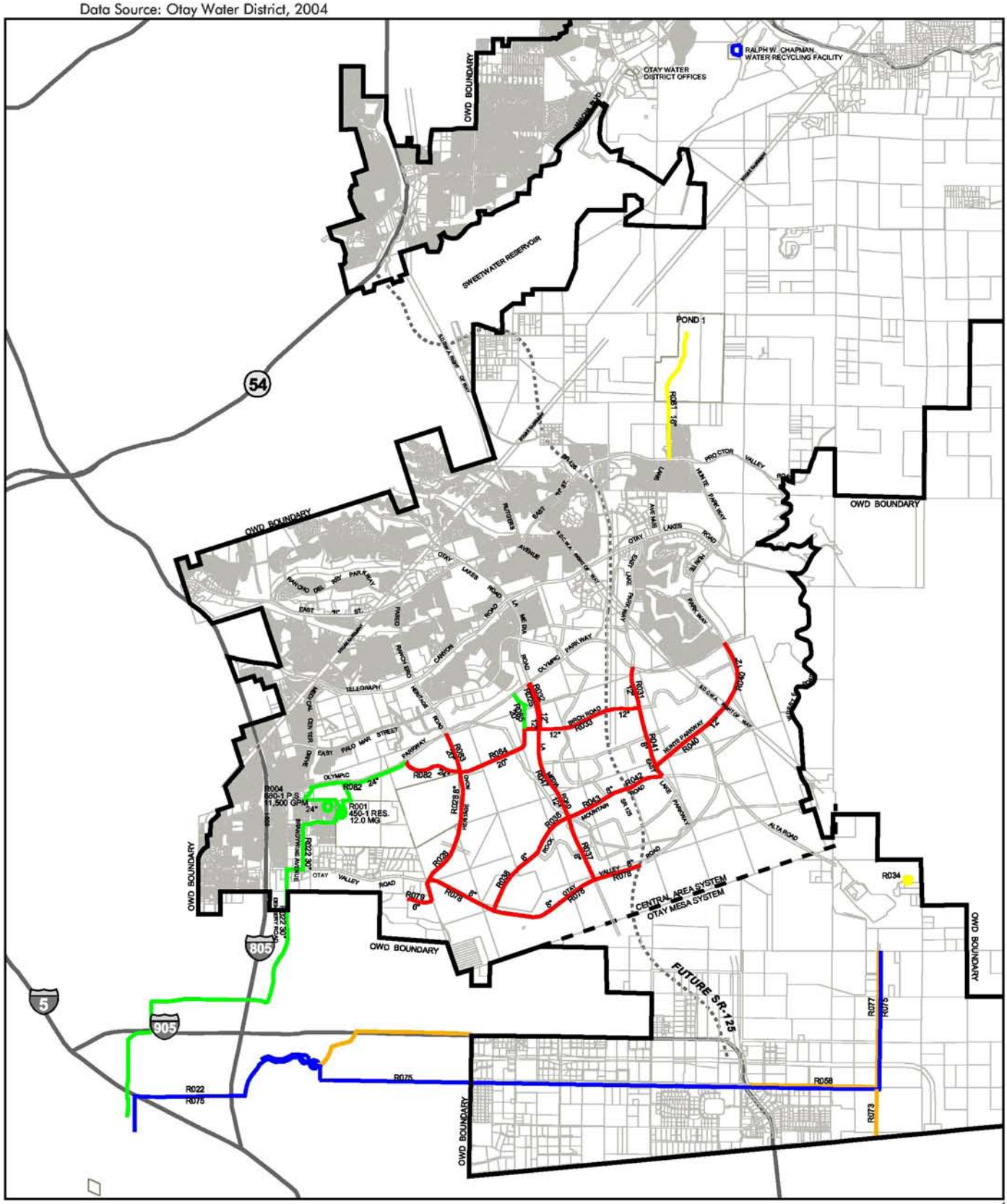
TABLE 1.1
OTAY WATER DISTRICT PHASE II AND III RECYCLED WATER CIP PROJECTS

CIP Number	Type	Description	Estimated Cost
PHASE II			
R001	Reservoir	RecRes–405-1 Reservoir 12.0 MG	$5,940,000
R004	Pump Station	RecPS–680-1 Pump Station (11,500 GPM)	$5,892,000
R022	Pipeline	RecPL–30-Inch, 450 Zone, Otay Valley–Dairy Mart/450-1 Reservoir	$19,000,000
R025	Pipeline	RecPL–12-Inch, 680 Zone, La Media Road–Olympic/Birch	$340,000
R028	Pipeline	RecPL–8-Inch, 680 Zone, Heritage Road–Olympic/Otay Village	$376,000
R031	Pipeline	RecPL–12-Inch, 944 Zone, EastLake Parkway–Olympic/Birch	$195,000
R032	Pipeline	RecPL–12-Inch, 944 Zone, La Media Road–Olympic/Birch	$252,000
R033	Pipeline	RecPL–12-Inch, 944 Zone, Birch Road–La Media/EastLake	$630,000
R037	Pipeline	RecPL–8-Inch, 680 Zone, La Media Road–Rock Mountain/Otay Valley	$164,000
R038	Pipeline	RecPL–8-Inch, 680 Zone, Rock Mountain Road–La Media/Otay Valley	$296,000
R040	Pipeline	RecPL–12-Inch, 680 Zone, Hunte Parkway–Olympic/EastLake	$900,000
R041	Pipeline	RecPL–8-Inch, 944 Zone, EastLake Parkway–Birch/Rock Mountain	$140,000
R042	Pipeline	RecPL–8-Inch, 944 Zone, Rock Mountain Road–SR-125/EastLake	$120,000
R043	Pipeline	RecPL–8-Inch, 944 Zone, Rock Mountain Road–La Media/SR-125	$130,000
R047	Pipeline	RecPL–12-Inch, 680 Zone, La Media Road–Birch/Rock Mountain	$370,000
R078	Pipeline	RecPL–8-Inch, 680 Zone, Otay Valley Road–SR-125/Heritage	$560,000
R079	Pipeline	RecPL–6-Inch, 450 Zone, Otay Valley Road–Otay Valley/Entertainment	$150,000
R081	Pipeline	RecPL–16-Inch, 944 Zone, Lane Avenue–Proctor Valley/Pond No. 1	$850,000
R082	Pipeline	RecPL–24-Inch, 680 Zone, Olympic Parkway–Village 2/Heritage	$1,485,000
R083	Pipeline	RecPL–20-Inch, 680 Zone, Heritage Road–Village 2/Olympic	$289,000
R084	Pipeline	RecPL–20-Inch, 680 Zone, Village 2–Heritage/La Media	$825,000
R085	Pipeline	RecPL–20-Inch, 680 Zone, Village 2–High School/Olympic	$359,000
PHASE III			
R023	Reservoir	RecRes–450-2 Reservoir 4.0 MG	$2,900,000
R034	Reservoir	RecRes–860-1 Reservoir 4.0 MG	$2,400,000

TABLE 1.1
OTAY WATER DISTRICT PHASE II AND III RECYCLED WATER CIP PROJECTS
(continued)

CIP Number	Type	Description	Estimated Cost
R035	Pump Station	RecPS–860-1 Pump Station (3,400 GPM)	$2,100,000
R052	Pipeline	RecPL–30-Inch, 450 Zone, Tijuana Valley–Otay Mesa Place/450-2 Res.	$5,000,000
R053	Upgrade	RWCWRF–R.O. Building Remodel	$231,000
R055	Upgrade	RWCWRF–Effluent Meter	$60,000
R058	Pipeline	RecPL–16-Inch, 860 Zone, Airway Road–Otay Mesa/Alta	$1,925,000
R067	Upgrade	RWCWRF–Waste Backwash Water Pipeline	$140,000
R068	Upgrade	RWCWRF–Load Equalization Tank	$1,000,000
R072	Pipeline	RecPL–16-Inch, 860 Zone, Otay Mesa Road–860-1 Pump station/Heritage	$1,177,000
R073	Pipeline	RecPL–24-Inch, 860 Zone, Alta Road–Airway/Border	$475,000
R075	Pipeline	Brine Disposal Pipeline Otay Mesa to Metro Sewer System	$5,000,000
R077	Pipeline	RecPL–24-Inch, 860 Zone, Alta Road–Alta Gate/Airway	$1,170,000

Data Source: Otay Water District, 2004



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

Note: CIP projects are shown with project numbers.

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FIGURE 1.3
Otay Water District Phase II and III Recycled Water CIP Locations

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TABLE 1.2
POTENTIAL ISSUES AND AUTHORITY

Authority	Authorizing Agency	Potential Issues
Endangered Species Act of 1973	U.S. Fish and Wildlife Service	Endangered Species
California Endangered Species Act of 1985, and Natural Community Conservation Planning Act of 1991	California Department of Fish and Game	Endangered Species
Section 404 of the Clean Water Act	U.S. Army Corps of Engineers	Dredge/Fill of Waters of the U.S.
Section 401 of the Clean Water Act	Regional Water Quality Control Board	Water Quality
Clean Water Act of 1972—National Pollutant Discharge Elimination System Permit	Regional Water Quality Control Board	Discharge to Surface Waters
Clean Water Act of 1972—General Permit for Storm Water Discharges Associated with Construction Activity	Regional Water Quality Control Board	Storm Water
Section 1601—Streambed Alteration Agreement	California Department of Fish and Game	Wetlands
Section 106 of the National Historic Preservation Act of 1966, and Native American Graves Protection and Repatriation Act	State Historic Preservation Officer; Advisory Council on Historic Preservation	Cultural Resources
Clean Air Act of 1970	San Diego Air Pollution Control District	Air Quality
Various state and local policies allowing construction, and pipeline placement in public right-of-way.	City of San Diego, City of Chula Vista, San Diego County, Caltrans	Construction, right-of-way issues
California Coastal Act of 1976	California Coastal Commission	Coastal zone protection

1.6 Other Documents

Many documents have been prepared that relate to the District's Project. All projects are subject to environmental review under California Environmental Quality Act (CEQA). This section briefly discusses the planning and environmental documents that are relevant to the Project and this EA. The following environmental documents are incorporated by reference.

- **Otay Water District Water Resources Master Plan (WRMP):** The WRMP (Otay Water District, 2002) identifies the capital facilities needed to provide an adequate, reliable, flexible, and cost effective potable and recycled water system for the delivery of water to meet approved land use development plans and growth projections. The plan identifies potable and recycled facilities and expansions to existing facilities along with required capacity, phasing, and estimated probable capital costs. This plan incorporates previous District planning efforts and ensures that the list of long-range CIP projects correlates with the recommendations in the WRMP. The District updated the WRMP in 2002.

- **Otay Water District WRMP Program Environmental Impact Report (PEIR):** An updated draft of the WRMP PEIR (Otay Water District, 2004a) was circulated for public review in June 2004. The document provides the public and agencies with information about the potential environmental effects of the proposed WRMP. The PEIR addresses the potentially significant adverse program level impacts related to implementation of the WRMP. The PEIR proposes mitigation measures to reduce the potentially significant impacts to a level of not significant. The program level analysis serves as a guidance document for subsequent site-specific evaluation of environmental impacts at the project level.

- **30-inch Recycled Water Pipeline, 450-1 Recycled Water Reservoir, and 680-1 Pump Station Project Draft EIR:** The EIR for the Phase II projects R001 (450-1 reservoir), R004 (680-1 pump station), and R022 (30-inch, 450 zone, Otay Valley to Dairy Mart Road/450-1 reservoir pipeline) was finalized and certified on February 1, 2005. This EIR evaluates the potential environmental impacts at the site-specific project level.

- **The Otay Ranch General Development Plan/Subregional Plan (GDP):** The GDP was adopted on October 28, 1993 by the San Diego County Board of Supervisors and the Chula Vista City Council. The GDP governs 23,000+ acre Otay Ranch properties. The plan contains 11 villages within the Otay Valley Parcel. The GDP has related implementation program documents that guide the development of Otay Ranch including village phasing plan, service revenue plan, facility implementation plan, and resource management plan. As each village is

implemented, subsequent development proposals, Specific Area Plan (SPA) plans, or Specific Plans are required with corresponding environmental documentation.

- **Otay Ranch Final Program EIR:** This document was prepared in December of 1992, and the purpose was to inform the public, decision makers, and regulatory agencies about the nature of the project and the extent and type of environmental impacts associated with the project and alternatives. The programmatic approach to environmental analysis allowed for tiering of future project EIRs on specific development proposals. Approval of subsequent plans (SPA or specific plans) determine the phasing of individual villages and infrastructure, road networks within individual villages, grading plans, specific public service locations and facilities, and conveyance of dedicated parcels into the Otay Ranch Preserve. Mitigation measures proposed by the program EIR identify the guidelines and performance standards that subsequent development proposals (SPA plans) shall meet in order to be considered consistent with the findings of the GDP EIR. Supplemental EIRs that tier-off of the Otay Ranch GDP EIR address the impacts that will occur from implementation of the SPA plans, along with mitigation measures and conveyance of dedicated parcels as required by the Otay Ranch RMP.

- **Otay Ranch Resource Management Plan, Phase I (RMPI):** The RMPI was adopted in the 1993 GDP in order to establish a permanent open space preserve within Otay Ranch. The plan is intended to provide long-term protection, enhancement and management of sensitive resources, and create an open space system. The RMPI identifies an open space system of 11,375 acres including wildlife corridors to connect the open space areas. The preserve boundaries from the RMPI have been incorporated into the adopted GDP. The RMPI incorporates a Preserve Conveyance Plan that outlines a transfer mechanism for preservation of high-quality resource land as villages are developed. Conveyance is required prior to the approval of final maps. The estimated conveyance obligation of 11,375 acres to the Otay Ranch Preserve would be met on a village-by-village basis as Otay Ranch is developed. Approximately 6,175 acres have been dedicated, offered for dedication, purchased for conservation, or anticipated to be imminently conveyed into the preserve.

- **Otay Ranch Resource Management Plan Phase II (RMPII):** The RMPII identifies the process that encompasses a series of tasks that must be performed throughout implementation of the Otay Ranch GDP. The document is a collection of the implementation studies, plans and programs which must be performed, or processes which must be initiated as a condition of approval of the initial Otay Ranch SPA. RMPII addresses activities related to preserve management, conveyance, and funding. RMPII outlines the conveyance program to be followed as villages are developed.

Section 2.0
Proposed Action and Alternatives

2.1 Introduction

The proposed action is the execution of an Agreement and allocation of federal funds for the Project. Alternatives to the proposed action, including the No Action alternative, are also discussed.

2.2 Proposed Action Alternative

2.2.1 Project Description

The District currently supplies recycled water in the Central Area and Otay Mesa Systems, located in the South District. New developments are required by land use jurisdictions, in cooperation with the District, to have separate, dual distribution systems for potable and recycled water.

The RWCWRF, owned and operated by the District, supplies the recycled water system. The RWCWRF can produce about 1.0 mgd of reclaimed water daily. The existing recycled water demand currently exceeds supply from the RWCWRF. The District intends to meet the existing and future recycled water demands with effluent from the City of San Diego's SBWRP. The SBWRP has a projected recycled water production capacity of approximately 15.0 mgd. Currently, the District's recycled water system is, and will continue to be, supplemented with potable water until the effluent from the SBWRP is available and the recycled water infrastructure necessary to receive the effluent are in operation. The Project will ultimately provide for the annual use of an estimated 9,219 acre-feet of recycled water. This will enable the District to meet the existing and future recycled water demand.

2.2.1.1 General Project Description

The following is a brief description of the major project features associated with implementation of the Project and proposed action:

Reservoirs

Three reservoirs are included in the District's Project. A reservoir site consists of a storage tank constructed on a level, graded pad, underground supply and delivery

pipelines, fencing for access and control, and access road for maintenance. Since maintaining proper pressures in the system are critical, reservoirs must be placed at optimal elevations for efficient and economical operation of the delivery system. Where possible, pipelines are constructed in road rights-of-way. Where pipelines must leave rights-of-way to reach a reservoir, the practice is to use the shortest feasible route from the right-of-way to the reservoir. Using the shortest route considers engineering considerations, minimizes disturbance, and avoidance of site-specific constraints. Areas disturbed by construction are typically replanted with native vegetation, and best management practices are implemented where needed for erosion control.

Pump Stations

Two pump stations are included in the District's Project. Pump stations are needed to move water between pressure zones. Pump stations move water uphill between pressure zones, and pressure-reducing valves are used when water flows from a higher-pressure zone to a lower one. Pressure-reducing valves are unobtrusive and passive and are installed along with the pipeline. Pumps are placed in pump stations that consist of a building to house the pumps, electric power-line connections, pipeline connections, fencing, and an access road. Pump stations are constructed on a level, graded pad with fencing for access and control. Areas disturbed by construction are typically replanted with native vegetation, and best management practices are implemented where needed for erosion control.

Pipelines

The District's Project contains 33 pipelines. Thirty of the 33 pipeline projects are located in roadways. The majority of pipeline projects are located in roadways and in most projects, pipeline construction activities will occur concurrently with road construction activities, within road rights-of-way. Engineering designs would coordinate construction of pipelines with other utilities located in the street right-of-way. Work schedules, traffic control, and detour routes would be coordinated with developers and jurisdictions for concurrent construction activities when appropriate.

The typical pipeline construction process is as follows. First, a construction zone would be cleared. Next, a trench would be excavated in the right-of-way by heavy construction equipment with excavated material placed next to the trench. Pipe would be stored at a staging area and delivered as needed, or stored along the pipeline route where space is available. Pipe installation would occur at an appropriate depth designed to avoid interference with other underground utilities. Any necessary valves, blow-off valves, air valves and test stations will be located in areas typically within the right-of-way. A crane or similar equipment would be used to lower the pipe into place for steel pipelines. Joints would be welded and coated for corrosion protection. The trench would be backfilled, using the excavated material if possible or imported material, if necessary. Surface finishing (paving, compacting, or other) would be completed as part of the road project.

Any excess material excavated would be disposed of in a permitted, legal construction material landfill or other permitted disposal or reuse area. All material storage and stockpile areas would be identified and approved by the District to insure that no adverse impacts to sensitive environmental resources would occur.

2.2.1.2 Project Costs

Preliminary cost estimates for the District's Project is approximately $67 million. Total costs of Phase II projects are estimated at $43.5 million, and Phase III at $23.5 million. Once constructed, operation and maintenance costs would be relatively low and included in the District's maintenance and operations budget for the recycled water system.

2.2.1.3 Project Implementation

The District's recycled water program is being implemented in three phases. Phase I has already been implemented. Phase II projects occur in the Central Area System. Phase III projects occur in the Otay Mesa System. Construction of Phase II and III would occur over a period of 25 years or less.

Many of the projects, particularly the pipelines in roadway alignments, are often planned, funded, and constructed by development project proponents. In some instances, the proposed alignments for the pipelines and roadways may be altered as development plans are finalized. After construction of the developer's pipeline projects, the District takes over the operation and maintenance of the pipelines.

Projects that are planned, funded and constructed by the District and the developers are as follows:

DISTRICT-IMPLEMENTED PHASE II PROJECTS:

- CIP No. R001: RecRes–450-1 Reservoir 12.0 MG
- CIP No. R004: RecPS–680-1 Pump Station (11,500 GPM)
- CIP No. R019: RecPL-20-Inch, 944 Zone, SDCWA R/W – 944-1 Pump Station/Olympic
- CIP No. R022: RecPL–30-Inch, 450 Zone, Otay Valley–Dairy Mart/450-1 Reservoir
- CIP No. R081: RecPL–16-Inch, 944 Zone, Lane Avenue–Proctor Valley/Pond No. 1
- CIP No. R082: RecPL–24-Inch, 680 Zone, Olympic Parkway–Village 2/Heritage. The portion in Olympic Parkway
- CIP No. R085: RecPL–20-Inch, 680 Zone, Village 2–High School/Olympic

DISTRICT-IMPLEMENTED PHASE III PROJECTS:

- CIP No. R023: RecRes–450-2 Reservior 4.0 MG
- CIP No. R034: RecRes–860-1 Reservior 4.0 MG

- CIP No. R035: RecPS–860-1 Pump Station (3,400 GPM)
- CIP No. R052: RecPL–30-Inch, 450 Zone, Tijuana Valley-Otay Mesa Place/450-2 Res
- CIP No. R053: RWCWRF–R.O. Building Remodel
- CIP No. R055: RWCWRF–Effluent Meter
- CIP No. R058: RecPL–16-Inch, 860 Zone, Airway Road–Otay Mesa/Alta
- CIP No. R067: RWCWRF–Waste Backwash Water Pipeline
- CIP No. R068: RWCWRF–Load Equalization Tank
- CIP No. R072: RecPL–16-Inch, 860 Zone, Otay Mesa Road–860-1 Pump Station/Heritage
- CIP No. R073: RecPL–24-Inch, 860 Zone, Alta Road–Airway/Border
- CIP No. R075: Brine Disposal Pipeline Otay Mesa to Metro Sewer System
- CIP No. R077: RecPL – 12-Inch, 860 zone, Alta Road – Alta Gate/Airway

DEVELOPER-IMPLEMENTED PHASE II PROJECTS:

- CIP No. R013: RecPL-16-Inch, 944 Zone, East H Street-Eastlake/Lane
- CIP No. R016: RecPL-16-Inch, 944 Zone, Eastlake Parkway-Trinidad Cove/Olympic
- CIP No. R025: RecPL–12-Inch, 680 Zone, La Media Road–Olympic/Birch
- CIP No. R028: RecPL–8-Inch, 680 Zone, Heritage Road–Olympic/Otay Village
- CIP No. R029: RecPL-12-Inch, 944 Zone, Otay Lakes Road-Hunte/Eastlake Vistas
- CIP No. R030: RecPL-8-Inch, 944 Zone, Eastlake Vistas-Otay Lakes/Olympic
- CIP No. R031: RecPL–12-Inch, 944 Zone, EastLake Parkway–Olympic/Birch
- CIP No. R032: RecPL–12-Inch, 944 Zone, La Media Road–Olympic/Birch
- CIP No. R033: RecPL–12-Inch, 944 Zone, Birch Road–La Media/EastLake
- CIP No. R037: RecPL–8-Inch, 680 Zone, La Media Road–Rock Mountain/ Otay Valley
- CIP No. R038: RecPL–8-Inch, 680 Zone, Rock Mountain Road–La Media/ Otay Valley
- CIP No. R040: RecPL–12-Inch, 680 Zone, Hunte Parkway–Olympic/EastLake
- CIP No. R041: RecPL–8-Inch, 944 Zone, EastLake Parkway–Birch/Rock Mountain
- CIP No. R042: RecPL–8-Inch, 944 Zone, Rock Mountain Road–SR-125/EastLake
- CIP No. R043: RecPL–8-Inch, 944 Zone, Rock Mountain Road–La Media/SR-125
- CIP No. R047: RecPL–12-Inch, 680 Zone, La Media Road–Birch/Rock Mountain
- CIP No. R071: RecPL-12-Inch, 944 Zone, Olympic Parkway-La Media/Eastlake
- CIP No. R078: RecPL–8-Inch, 680 Zone, Otay Valley Road–SR-125/Heritage
- CIP No. R079: RecPL–6-Inch, 450 Zone, Otay Valley Road–Otay Valley/Entertainment
- CIP No. R080: RecPL-12-Inch, 680 Zone, Olympic Parkway-Medical Center/Heritage
- CIP No. R082: RecPL–24-Inch, 680 Zone, Olympic Parkway–Village 2/Heritage. The portion between Olympic Parkway and Heritage Road
- CIP No. R083: RecPL–20-Inch, 680 Zone, Heritage Road–Village 2/Olympic
- CIP No. R084: RecPL–20-Inch, 680 Zone, Village 2–Heritage/La Media

2.2.1.4 Project Descriptions

Phase II projects will develop recycled water infrastructure in the Central Area System. Phase III projects develop recycled water infrastructure in the Otay Mesa System, and involve upgrades to the RWCWRF. The following sections indicate which projects will list individual project descriptions according to phase and implementation.

DISTRICT-IMPLEMENTED PHASE II PROJECTS:

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

The 450-1 Reservoir is to be located on a site in the northwest corner of the Otay Valley Landfill property. This 12-million-gallon reservoir will provide the Central Area System with enough capacity to meet operational storage requirements and receive supply from the City of San Diego South Bay Water Reclamation Plant.

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

The 680-1 Pump Station is to be located on the same site as the 450-1 Reservoir. This pump station will supply the 680 Pressure Zones in the Central Area System. Also included is a 24-inch discharge pipeline to the existing Olympic Parkway recycled water main.

CIP No. R019: RecPL - 20-Inch, 944 Zone, SDCWA R/W – 944-1 Pump Station/Olympic

This project consists of the installation of a 20-inch recycled water pipeline in the 944 Pressure Zone. The 2,400-foot-long pipeline will extend southeast through San Diego County Water Authority's right-of-way from the 944-1 Pump Station to Olympic Parkway.

CIP No. R022; RecPL – 30-Inch, 450 Zone, Otay Valley – Dairy Mart Road/450-1 Reservoir

This 30-inch transmission main is approximately 28,000 feet long in the 450 Pressure Zone and extends from Dairy Mart Road in the Tijuana River Valley to the 450-1 Reservoir. At build-out, this pipeline will transport an average of 6 mgd of recycled water from the City of San Diego's SBWRP into the Central Area System.

CIP No. R081; RecPL – 16-inch, 944 Zone, Lane Avenue – Proctor Valley/Pond No. 1

This project consists of the installation of an 8,300-foot-long 16-inch pipeline in the 944 Pressure Zone, located in Lane Avenue between Proctor Valley Road and Storage Pond No. 1 in the City of Chula Vista.

CIP No. R082; RecPL – 24-inch, 680 Zone, Olympic Parkway–Village 2/Heritage

The portion of this project in Olympic Parkway will be constructed by the District. The portion of this project between Olympic Parkway and Heritage road will be constructed by a developer, then operated and maintained by the District. This project consists of the installation of a 24-inch recycled water pipeline in the 680 Pressure Zone. The 6,700-foot-long pipeline will extend east through Olympic Parkway from the proposed industrial park driveway, located approximately 2,200 feet east of the intersection of Olympic and Brandywine Avenue, to Otay Ranch Village 2 West, then through Otay Ranch Village 2 West to Heritage Parkway.

CIP No. R085; RecPL – 20-inch, 680 Zone, Village 2–High School/Olympic

This project will be constructed by the District. This project consists of the installation of a 20-inch recycled water pipeline in the 680 Pressure Zone. The 2,800-foot-long pipeline will extend north through Otay Ranch Village 2 from the southeast corner of the new high school to Olympic Parkway.

DISTRICT-IMPLEMENTED PHASE III PROJECTS:

CIP No. R023; RecRes – 450-2 Reservoir 4.0 MG

The 4.0-million-gallon 450-2 Reservoir is to be located on a site near the western portion of Otay Mesa. The reservoir will provide the Otay Mesa System to meet the operational storage requirements and receive supply from the City of San Diego's SBWRP.

CIP No. R034; RecRes – 860-1 Reservoir 4.0 MG

This 4.0-million-gallon 860-1 Reservoir is to be located on a site adjacent to the San Diego County Detention Facility on Otay Mesa. It will provide recycled water operational storage for the 860 Pressure Zone.

CIP No. R035: RecPS – 860-1 Pump Station (3,400 GPM)

The 860-1 Pump Station is to be located on the same site as the 450-2 Reservoir near the western portion of Otay Mesa. This pump station will lift recycled water to the 860-1 Reservoir located at the San Diego County Detention Facility.

CIP No. R052; RecPL – 30-Inch, 450 Zone, Otay Mesa Road – Remington Hills/450-2 Reservoir

This 30-inch pipeline is approximately 4,200 feet long in the 450 Pressure Zone, located in Otay Mesa Road from Remington Hills Drive to the 450-2 Reservoir. This pipeline will transport recycled water from the City of San Diego's SBWRP into the Otay Mesa System.

CIP No. R053; RWCWRF – R. O. Building Remodel

The purpose of this project is to remodel the RWCWRF reverse osmosis system building into a water recycling/conservation school education facility and treatment plant operation personnel offices.

CIP No. R055; RWCWRF – Effluent Meter

The purpose of this project is to install a meter on the RWCWRF effluent pipeline to monitor plant output.

CIP No. R058; RecPL – 16-Inch, 860 Zone, Airway Road – Otay Mesa/Alta

This project will be constructed, operated and maintained by the District. This 16-inch pipeline is approximately 16,000 feet long in the 860 Pressure Zone, located in Airway Road between Otay Mesa Road and Alta Road in Otay Mesa.

CIP No. R067; RWCWRF – Waste Backwash Water Pipeline

The purpose of this project is to install a pipeline at the RWCWRF between the waste backwash water tank and an existing unused water storage tank. This will increase plant effluent by allowing longer filter backwashes and using the backwash water for primary treatment needs in lieu of plant product water.

CIP No. R068; RWCWRF – Load Equalization Tank

The purpose of this project is to install a raw water load equalization storage tank at the RWCWR Facility to allow for 24-hour raw water influent. This will increase total plant production of water output.

CIP No. R072; RecPL – 16-Inch 860 Zone, Otay Mesa Road – 860-1 Pump Station/Heritage

This project will be constructed, operated and maintained by the District. This 16-inch pipeline is approximately 16,000 feet long in the 860 Pressure Zone, located in Otay Mesa Road between the 860-1 Pump Station and Heritage Road in Otay Mesa.

CIP No. R073; RecPL – 24-Inch, 860 Zone, Alta Road – Airway/Border

This project will be constructed, operated and maintained by the District. This 24-inch pipeline is approximately 4,800 feet long in the 860 Pressure Zone, located in Alta Road between Airway Road and the United States and Mexico border in Otay Mesa.

CIP No. R075; Brine Disposal Pipeline Otay Mesa to Metro Sewer System

The purpose of this project is to install a reverse osmosis brine disposal pipeline from the Otay Mesa System to the City of San Diego Metro System ocean outfall. This pipeline will provide the incentive to attract potentially large recycled water industrial and commercial consumers that require brine disposal on Otay Mesa.

CIP No. R077; RecPL – 24-Inch, 860 Zone, Alta Road – Alta Gate/Airway

This project will be constructed, operated and maintained by the District. This 24-inch pipeline is approximately 13,000 feet long in the 860 Pressure Zone, located in Alta Road between the Alta Road gate and Airway Road in Otay Mesa.

DEVELOPER-IMPLEMENTED PHASE II PROJECTS:

CIP No. R013; RecPL – 16-Inch, 944 Zone, East H Street – Eastlake/Lane

This project will be constructed by a developer, then operated and maintained by the District. This 16-inch pipeline is approximately 7,500 feet long in the 944 Pressure Zone, located in East H Street between Eastlake Parkway and Lane Avenue in the City of Chula Vista.

CIP No. R016; RecPL – 16-Inch, 944 Zone, Eastlake Parkway – Trinidad Cove/Olympic

This project will be constructed by a developer, then operated and maintained by the District. This 16-inch pipeline is approximately 3,300 feet long in the 944 Pressure Zone, located in Eastlake Parkway between Trinidad Cove and Olympic Parkway in the City of Chula Vista.

CIP No. R025; RecPL – 12-Inch, 680 Zone, La Media Road – Olympic/Birch

This 12-inch pipeline is approximately 4,200 feet long in the 680 Pressure Zone and is located in La Media Road between Olympic Parkway and Birch Road in the City of Chula Vista. This project will be constructed by a developer, then operated and maintained by the District.

CIP No. R028; RecPL – 8-Inch, 680 Zone, Heritage Road – Olympic/Otay Valley

This 8-inch pipeline is approximately 9,300 feet long in the 680 Pressure Zone, located in Heritage Road from Telegraph Canyon Road to Olympic Parkway in the City of Chula Vista. This project will be constructed by a developer, then operated and maintained by the District.

CIP No. R029; RecPL – 12-Inch, 944 Zone, Otay Lakes Road – Hunte/Eastlake Vistas

This project will be constructed by a developer, then operated and maintained by the District. This 12-inch pipeline is approximately 2,600 feet long in the 944 Pressure Zone, located in Otay Lakes Road between Hunte Parkway and Eastlake Vistas in the City of Chula Vista.

CIP No. R030; RecPL – 8-Inch, 944 Zone, Eastlake Vistas – Otay Lakes/Olympic

This project will be constructed by a developer, then operated and maintained by the District. This 8-inch pipeline is approximately 5,000 feet long in the 944 Pressure Zone, located in Eastlake Vistas between Otay Lakes Road and Olympic Parkway in the City of Chula Vista.

CIP No. R031; RecPL – 12-Inch, 944 Zone, EastLake Parkway – Olympic/Birch

This 12-inch pipeline is approximately 2,500 feet long in the 944 Pressure Zone, located in EastLake Parkway between Olympic Parkway and Birch Road in the City of Chula Vista. This project will be constructed by a developer, then operated and maintained by the District.

CIP No. R032; RecPL – 12-Inch, 944 Zone, La Media Road – Olympic/Birch

This project will be constructed by a developer, then operated and maintained by the District. This 12-inch pipeline is approximately 2,800 feet long in the 944 Pressure Zone, located in La Media Road between Olympic Parkway and Birch Road in the City of Chula Vista.

CIP No. R033; RecPL – 12-Inch, 944 Zone, Birch Road – La Media/EastLake

This project will be constructed by a developer, then operated and maintained by the District. This 12-inch pipeline is approximately 6,300 feet long in the 944 Pressure Zone, located in Birch Road between La Media Road and EastLake Parkway in the City of Chula Vista.

CIP No. R037; RecPL – 8-Inch, 680 Zone, La Media Road – Rock Mountain/Otay Valley

This project will be constructed by a developer, then operated and maintained by the District. This 8-inch pipeline is approximately 4,000 feet long in the 680 Pressure Zone, located in La Media Road between Rock Mountain Road and Otay Valley Road in the City of Chula Vista.

CIP No. R038; RecPL – 8-Inch, 680 Zone, Rock Mountain Road – La Media/Otay Valley

This project will be constructed by a developer, then operated and maintained by the District. This 8-inch pipeline is approximately 6,800 feet long in the 680 Pressure Zone, located in Rock Mountain Road between La Media Road and Otay Valley Road in the City of Chula Vista.

CIP No. R040; RecPL – 12-Inch, 680 Zone, Hunte Parkway – Olympic/EastLake

This project will be constructed by a developer, then operated and maintained by the District. This 12-inch pipeline is approximately 8,600 feet long in the 680 Pressure Zone, located in Hunte Parkway between EastLake Parkway and Olympic Parkway in the City of Chula Vista.

CIP No. R041; RecPL – 8-Inch, 944 Zone, EastLake Parkway – Birch/Rock Mountain

This project will be constructed by a developer, then operated and maintained by the District. This 8-inch pipeline is approximately 4,200 feet long in the 944 Pressure Zone, located in EastLake Parkway between Birch Road and Rock Mountain Road in the City of Chula Vista.

CIP No. R042; RecPL – 8-Inch, 944 Zone, Rock Mountain Road – SR-125/EastLake

This project will be constructed by a developer, then operated and maintained by the District. This 8-inch pipeline is approximately 2,500 feet long in the 944 Pressure Zone, located in Rock Mountain Road between State Route (SR) 125 and EastLake Parkway in the City of Chula Vista.

CIP No. R043; RecPL – 8-Inch, 944 Zone, Rock Mountain Road – La Media/SR-125

This project will be constructed by a developer, then operated and maintained by the District. This 8-inch pipeline is approximately 3,600 feet long in the 944 Pressure Zone, located in Rock Mountain Road between La Media Road and SR 125 in the City of Chula Vista.

CIP No. R047; RecPL – 12-Inch, 680 Zone, La Media Road – Birch/Rock Mountain

This project will be constructed by a developer, then operated and maintained by the District. This 12-inch pipeline is approximately 4,000 feet long in the 680 Pressure Zone, located in La Media Road between Birch Road and Rock Mountain Road in the City of Chula Vista.

CIP No. R071; RecPL – 12-Inch, 944 Zone, Olympic Parkway – La Media/Eastlake

This project will be constructed by a developer, then operated and maintained by the District. This 12-inch pipeline is approximately 7,500 feet long in the 944 Pressure Zone, located in Olympic Parkway between La Media Road and Eastlake Parkway in the City of Chula Vista.

CIP No. R078; RecPL – 8-Inch, 680 Zone, Otay Valley Road – SR-125/Heritage

This project will be constructed by a developer, then operated and maintained by the District. This 8-inch pipeline is approximately 14,000 feet long in the 680 Pressure Zone, located in Otay Valley Road between SR-125 and Heritage Road in the City of Chula Vista.

CIP No. R079; RecPL – 6-inch, 450 Zone, Otay Valley Road – Otay Valley/Entertainment

This project will be constructed by a developer, then operated and maintained by the District. This 6-inch pipeline is approximately 2,400 feet long in the 450 Pressure Zone, located in Otay Valley Road from the intersection with Heritage Road and in Entertainment Circle from Otay Valley Road in the City of Chula Vista.

CIP No. R080; RecPL – 12-Inch, 680 Zone, Olympic Parkway – Medical Center/Heritage

This project will be constructed by a developer, then operated and maintained by the District. This 12-inch pipeline is approximately 8,800 feet long in the 680 Pressure Zone, located in Olympic Parkway between Medical Center Drive and Heritage Road in the City of Chula Vista.

CIP No. R082; RecPL – 24-inch, 680 Zone, Olympic Parkway–Village 2/Heritage

The portion of this project between Olympic Parkway and Heritage road will be constructed by a developer, then operated and maintained by the District. The portion of this project in Olympic Parkway will be constructed by the District. This project consists of the installation of a 24-inch recycled water pipeline in the 680 Pressure Zone. The 6,700-foot-long pipeline will extend east through Olympic Parkway from the proposed industrial park driveway, located approximately 2,200 feet east of the intersection of Olympic and Brandywine Avenue, to Otay Ranch Village 2 West, then through Otay Ranch Village 2 West to Heritage Parkway.

CIP No. R083; RecPL – 20-inch, 680 Zone, Heritage Road–Village 2/Olympic

This project will be constructed by a developer, then operated and maintained by the District. This project consists of the installation of a 20-inch recycled water pipeline in

the 680 Pressure Zone. The 1,000-foot-long pipeline will extend north through Heritage Road between Otay Ranch Village 2 and Olympic Parkway.

CIP No. R084; RecPL – 20-inch, 680 Zone, Village 2–Heritage/La Media

This project will be constructed by a developer, then operated and maintained by the District. This project consists of the installation of a 20-inch recycled water pipeline in the 680 Pressure Zone. The 5,200-foot-long pipeline will extend east through Otay Ranch Village 2 between Heritage Road and La Media Road.

2.2.2 Measures Proposed to Avoid and Minimize Potential Impacts

This Programmatic EA contains data, analysis, and explanations that evaluate potential environmental impacts that may result from implementation of the Project or alternatives. Measures are included as part of the proposed project to reduce potentially significant effects to less-than-significant levels. These measures are discussed in Section 4.0 as they pertain to environmental issues.

2.2.3 Otay Ranch Background and Framework for Developer-Implemented Projects

The purpose of this section is to outline the procedures that developers are required to follow as villages of Otay Ranch are developed. Development of villages includes the roadways that the pipelines will be constructed in, so mitigation for road impacts is addressed at the larger-scale of village impacts.

Otay Ranch is a large-scale, 30- to 50-year planned community that, when implemented, will support development of a cohesive community and regional facilities in southern San Diego. The community includes a balanced housing mix, employment and education centers, open space and regional parks, and a program for the comprehensive management and protection of natural resources. The Otay Valley Parcel (approximately 9,618 acres), one of three parcels within the development, coincides with the District's Central Area System.

In the Central Area System, pipelines will be constructed as development for the Otay Ranch occurs. Development in Otay Ranch is guided by the Otay Ranch GDP and subsequent SPA plans required for each of the 11 villages. The GDP requires that developers build infrastructure as they go, so developers would install recycled water pipelines. Once constructed, the District takes over operation and maintenance of the recycled water infrastructure.

The District's Project contains 22 recycled water pipelines that will be implemented by developers within the Central Area System.

The recycled water pipelines planned as part of the Otay Ranch development would be located in public rights-of-way. Pipelines would be constructed simultaneously with roadways and other development infrastructure. This minimizes construction impacts.

2.2.3.1 Otay Ranch GDP and EIR

The Final Program EIR for The Otay Ranch GDP identifies approximately 23,088 acres of development in an area consisting mostly of undeveloped land used for agriculture and cattle grazing. The Program EIR allows for the tiering of future project EIRs for each village as they are developed. Subsequent SPA plans determine road networks within villages, grading plan, specific public service locations and facilities, and conveyance of dedicated parcels into the preserve. Mitigation measures in the EIR address large-scale impacts from village development, including roads. These measures would reduce some potential effects. The Program EIR identified significant irreversible effects of the Otay Ranch GDP including conversion of open space and agricultural land, commitment of important biological resources, loss of mineral resources, disturbance of cultural and paleontology resources. Unavoidable adverse impacts were identified including land use/planning/zoning, landform alternation/aesthetics, biological resources, agricultural resources, transportation, air quality, and noise.

The Program EIR established mechanisms that would allow for the impacts from recycled pipelines constructed in roads by developers to be mitigated. This mitigation addresses the large-scale impacts of village development, including impacts from road construction, and concurrent implementation of pipeline infrastructure.

Most importantly, the Program EIR and GDP implemented the Otay Ranch RMP (along with many other technical studies and management plans) that establishes a large-scale, open space preserve for the protection and management of natural resources. The following sections discuss the Otay Ranch RMP that establishes the Preserve.

2.2.3.2 Otay Ranch Resource Management Plan (RMP)

In general, the objectives, policies, and standards presented in the RMP form the basis for mitigation measures in the Program EIR for the Otay Ranch GDP. While the RMP presents policies and programs for the protection and enhancement of sensitive resources, the Program EIR provides the vehicle for assuring that the policies and programs included in the RMP are carried out.

The goal of RMP is to establish a permanent resource preserve dedicated to the protection and enhancement of the biological, paleontology, cultural and scenic resources

of the ranch, maintenance of long-term biological diversity, and the assurance of the survival and recovery of native species and habitats within the resource preserve. The Otay Ranch GDP permits 11,524 acres of land to be developed, and requires 11,375 acres of land to be conveyed for resource preserve. The RMP restoration component requires approximately 1,300 acres of coastal sage scrub, and 56 acres of maritime succulent scrub.

The Otay Ranch Land Use Plan, when coupled with the Otay Ranch RMP and the mitigation measures outlined in the Program EIR, meets or exceeds virtually all the preservation standards contained in the MSCP.

Phase 1 of the RMP was developed in 1993, which established the overall framework for the RMP. Phase 2 of the RMP translated the Phase 1 policies into specific action programs and was completed in 1996 in support of the initial Otay Ranch SPA. As individual SPA plans are proposed within Otay Ranch, additional tasks must be executed as required for each SPA. Table 2.1 outlines the tasks that were executed as part of Phase 1 and 2 of the RMP, and the tasks required as villages are implemented.

Implementation of RMP began with the first SPA, and continues during the build-out of Otay Ranch as each village is developed. It involves:

1. The phased conveyance of acreage designated for inclusion in the Preserve to the permanent Preserve Owner/Manager;

2. Implementation of enhancement and restoration plans; and

3. Funding for RMP implementation.

Each Otay Ranch SPA is conditioned to be in conformance with Phase 1 and 2 RMP to require phased conveyance of acreage to the owner of the Preserve, and funding, and/or in-kind construction/services, related to Preserve resource protection, enhancement, and restoration activities.

RMP implementation will continue throughout much of the build-out of Otay Ranch. Gradually, the focus of the RMP will shift from acquisition, implementation, and construction of the Preserve components to maintenance and operation of the Preserve.

RMP Conveyance Plans

RMP acreage transfers, payment of RMP fees, other required funding, or completion of in kind services or related infrastructure facilities are linked to the issuance of building permits for the first final map within each SPA area to assure that development proceeds in an orderly manner consistent with the RMP.

TABLE 2.1
OTAY RANCH RESOURCE MANAGEMENT PLAN TASKS

PHASE 1 TASKS
• Identify sensitive resources • Identify a conceptual preserve boundary • Design the preserve to maximize protection of multiple species and resources • Identify necessary RMP studies and research • Establish comprehensive, coordinated resource protection, enhancement, and restoration policies • Identify permitted uses and guidelines for locating such uses within the Preserve • Identify the qualifications, responsibilities and selection process for the Preserve Owner/Manager • Identify the content of remaining phase of RMP • Formulate RMP Implementation Programs for resource protection, enhancement, and restoration. • Monitor the effectiveness of RMP implementation
PHASE 2 TASKS
• Conduct resource studies and related research • Select a Preserve Owner/Manager • Commence implementation of RMP programs for • Conveyance of acreage to Preserve Manager • Resource protection, enhancement, and restoration • Funding • Monitoring the effectiveness of RMP implementation • Refine the Preserve boundary based on completed studies/research • Develop conceptual infrastructure plans for facilities located within or across the Preserve • Identify locations of permitted uses within the Preserve
TASKS FOR EACH VILLAGE
• Implement enhancement and restoration plans • Continue and complete long-term research • Provide educational and interpretive facilities and programs • Monitor for overall RMP compliance and progress • Assure compliance with RMP policies and standards • Carry out phased conveyance of parcels to the Preserve • Provide for phased funding of RMP programs • Convey parcels to the Preserve

SOURCE: Otay Ranch Resource Management Plan, 1993.

Purpose of the Conveyance Plan is to outline policies for the orderly conveyance of Otay Ranch land to the Preserve Owner/Manager (POM). The Conveyance Plan identifies three key elements:

1. How much land each village must convey to ensure the eventual conveyance of the 11,375-acre resource preserve to the POM.

2. The government approval (issuance of building permits) that triggers actual conveyance of land to the POM.

3. Where land will be conveyed on a village-by-village basis.

GDP permits 11,524 acres of land to be developed, and requires 11,375 acres of land to be conveyed for resource preserve. The approximate conveyance ration is 1.188 acres conveyed per 1-acre of development. The Applicant must convey fee title, or an easement restricting the use of the land to those permitted by the RMP (upon the consent of the POM and any lien holder); to the Resource Preserve and POM upon the recordation of each final map for an amount of land equal to the final map's conveyance obligation as required by the RMP.

Conveyance of acres to the POM is guided by the following:

- First priority is given to conveyance of highest quality resources and most vulnerable area;

- Conveyance shall occur in an orderly manner beginning with an identified "keystone" parcels and proceed to the next logical block of land;

- Areas with restoration potential shall be conveyed early in order to begin research and restoration activities;

- Cumulative acreage conveyed shall be greater than or equal to the cumulative acreage of the proposed SPA development;

- General guidelines regarding in-kind mitigation and no net loss of wetlands shall be considered in the development of the conveyance schedule, particularly in the context of applicable State and Federal regulations;

- Applicable State and Federal regulations regarding protection of sensitive habitat and species shall be followed in the development of the conveyance schedule; and

- The POM shall participate in preparation of the conveyance schedule.

Otay Ranch Development Status

As development has proceeded in Otay Ranch, Preserve land has been dedicated or offered for dedication to the POM. Additional Preserve assembly has occurred through land sales to conservation entities including USFWS, CDFG, and the Environmental Trust. Figure 2.1 shows the location of Preserve land that has either been dedicated, offered for dedication, purchased for conservation or is anticipated to be imminently conveyed. These lands, approximately 6,175 acres, represent more than half of the total RMP Preserve acreage of 11,375 acres (Dudek and Associates, 2004).

In the Otay Ranch development, Villages 1, 5, 6, and 11 have had SPA, EIR, and final map approval. Lands have been conveyed to the Preserve for this Village development. Village 2, 3, 7, and a portion of 4 are in the process of SPA development and environmental review. Lands will be conveyed to the Preserve before final map approval and permit issuance. Village 8, 9, 10, and a portion of 4 have not yet had a SPA plan developed. There has been no Preserve conveyance for these Villages.

The following planning documents are currently in the process of review and updates:

- City of Chula Vista General Plan update
- City of San Diego, Otay Mesa Community Plan Update
- City of Chula Vista, Otay Ranch Villages 2, 3, and 18

2.3 No Action Alternative

Under the No Action Alternative, there would be no Agreement, and no allocation of federal funding for the District's Project. Without federal funding, the District is likely to proceed with the implementation of the Project in order to meet future water demands. The District's WRMP has identified the Project as necessary to meet future recycled water demands and fulfill District, state, regional, and local policies that direct the development of alternative water sources. Without the federal allocation of funds, the District would incur the entire cost of implementing the Project. This alternative would be considerably more expensive for the District.

The No Action alternative would result in increased costs to implement the Project for the District. The environmental review process would likely consist of a project-by-project approach. The increased costs, as well as the time-consuming process of the project-by-project approach, may hinder the District in meeting future recycled water demands. This may delay the District's ability to comply with policies to develop recycled water sources.

Map Source: Dudek and Associates, Inc., April 2004

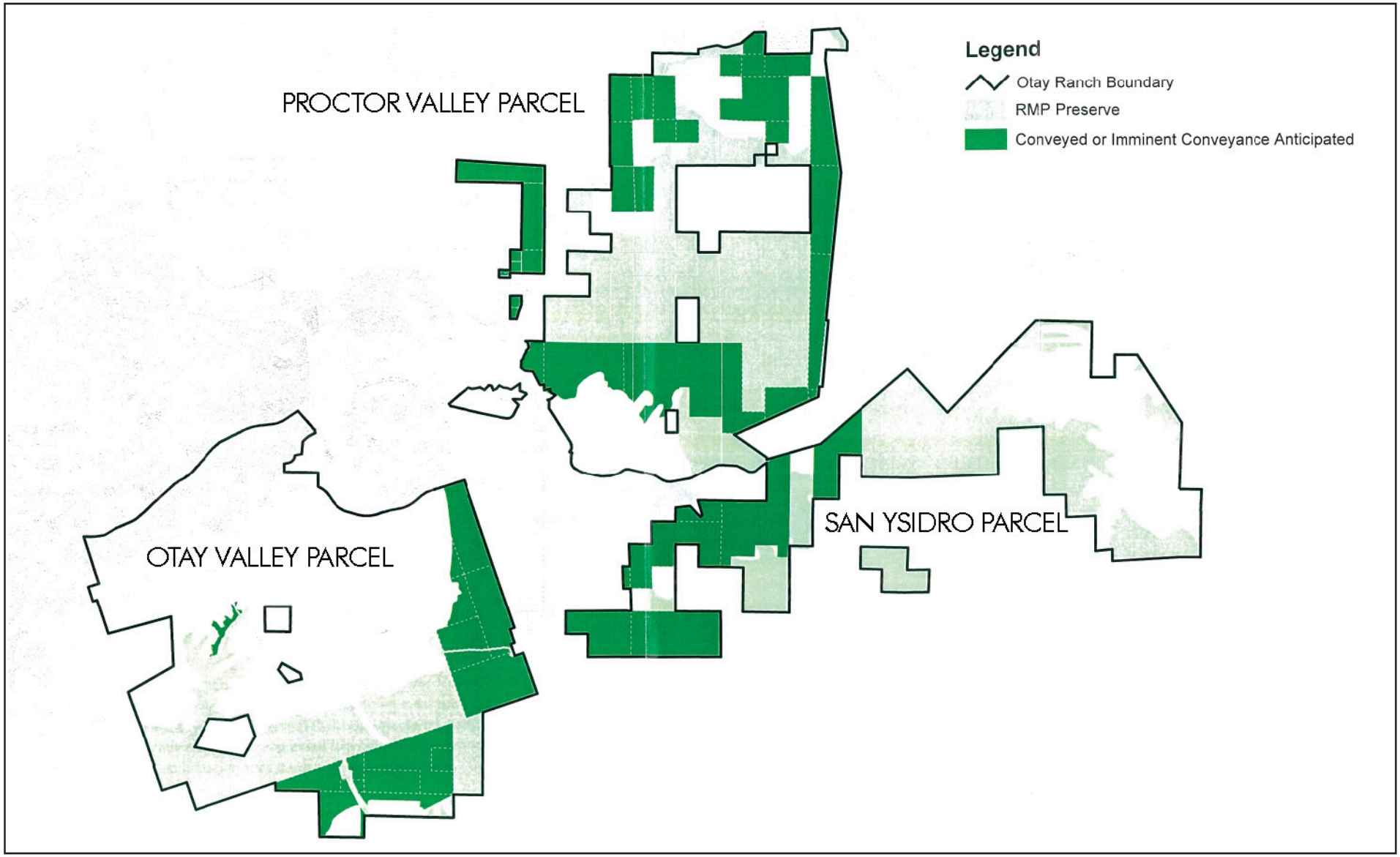

FIGURE 2-1
Otay Ranch Resource Management Preserve

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2.4 No Project Alternative

Under the No Project Alternative, the District would not implement the Project. The 42 Phase II and III Recycled Water projects would not be constructed. The estimated 9,219 acre-feet per year of recycled water that the Project would produce would not be available. The use of imported, potable water to supplement the District's recycled water supply would continue.

The District's WRMP identified the Project as needed to meet future recycled water demands and fulfill District, state, regional, and local policies that direct the development of alternative water sources. Under the No Project Alternative, the District would not follow its WRMP, and would be in violation of policies advocating the development of recycled water sources. Without implementation of this Project, the District's ability to meet future water demands may be hindered.

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 *Artemisia californica, Rhus integrifolia, Agave shawii, Euphorbia misera, Ferocactus viridescens, Lycium californicum, Mammillaria dioica, Opuntia littoralis, Opuntia oricola, Opuntia prolifera,* and *Simmondsia chinensis*.
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 *Artemisia californica, Baccharis pilularis, Baccharis sarothroides, Encelia californica, Eriogonum fasciculatum, Isocoma menziesii, Malosma laurina, Nasella lepida, Rhus integrifolia, Salvia mellifera, Salvia apiana,* and *Viguiera laciniata*.
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 *Arctostaphylos glandulosa* ssp. *zacaensis, Ceanothus tomentosus, Cercocarpus minutiflorus, Adenostoma fasciculatum, Rhamnus ilicifolia, Rhus ovata,* and *Ribes speciosum*.
Chamise chaparral	This is a low-growing chaparral dominated by *Adenostoma fasciculatum* 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 *Eriodictyon trichocalyx, Gutierrezia sarothrae, Rhamnus pilosa, Yucca schidigera,* and *Xylococcus bicolor*.
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 *Adenostoma fasciculatum, Xylococcus bicolor, Heteromeles arbutifolia, Malosma laurina, Eriogonum fasciculatum, Artemisia californica, Salvia mellifera,* and *Salvia apiana*.
Native grassland[1]	Native grasslands are found on clay substrates dominated by the bunchgrass, *Nasella pulchra,* along with herbaceous perennials, annuals, and bulbs. This vegetation type is scattered throughout foothillsCharacteristic species also include *Sisyrinchium bellum, Calochortus splendens, Uropappus lindleyi, Bloomeria crocea, Sanicula arguta,* and *Dodecatheon clevelandii*.
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 *Avena barbata, Bromus madritensis* ssp. *rubens, Bromus hordaceous, Bromus diandrus, Hirschfeldia incana, Vulpia myuros,* and *Schismus barbatus*.

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 *Typha latifolia*, *Typha domingensis*, *Scirpus californicus*, *Scirpus americanus*, *Cyperus eragrostis*, and *Eleocharis montevidensis*.
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: *Salix gooddingii*, *Salix lasiolepis*, *Salix lucida* ssp. *lasiandra*, *Populus fremontii*, *Alnus rhombifolia*, and *Quercus agrifolia*. Individual tree species may be locally dominant. Characteristic understory plants are *Rosa californica*, *Artemisia douglasiana*, *Baccharis salicifolia*, and *Urtica holosericea*.
Sycamore alluvial woodland and Southern sycamore-alder riparian woodland[1]	These deciduous woodlands occur in broad alluvial or rocky drainages and floodplains. *Platanus racemosa* 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 *Sambucus caerulea*, *Toxicodendron diversilobum*, *Phoradendron villosum*, and *Vitis girdiana*.
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 *Baccharis salicifolia.* Characteristic species also include *Salix lasiolepis*, *Salix laevigata*, *Salix lucida* ssp. *lasiandra*, *Salix exigua*, *Tamarisk* sp., *Oenothera elata*, and *Epilobium canum*.
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 *Salix lasiolepis*, *Salix laevigata*, *Salix lucida* ssp. *lasiandra*, *Salix exigua*, *Tamarisk* sp., *Oenothera elata*, and *Epilobium canum*.
Coast live oak woodland[1]	This evergreen woodland is dominated by *Quercus agrifolia* with an understory of perennial grasslands, annuals, and herbaceous species. The understory can be open and low-growing, or dominated by shrubs including *Toxicodendron diversilobum* and *Vitis girdiana*. Characteristic species also include *Symphoricarpos mollis*, *Carex spissa*, *Rhamnus californica*, *Rosa californica*, *Nasella cernua*, and the introduced *Stellaria media*.
Southern interior cypress forest[1]	These forests have isolated stands of *Cupressus forbesii* or *Cupressus arizonica* ssp. *Stephensonii*, found on Otay Mountain. The understory can consists of chaparral and scrub species including *Adenostoma fasciculatum*, *Arctostaphylos otayensis*, *Eriogonum fasciculatum*, *Heteromeles arbutifolia*, *Ceanothus otayensis*, *Pickeringia montana*, and *Chamaebetia australis*.
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 *Downingia cuspidata*, *Elatine brachyspermum*, and *Isoetes orcuttii*, and rare species such as *Pogogyne abramsii* and *Eryngium aristulatum* ssp. *parishii*.

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

Deleted: Category 1
Deleted: Category 2
Deleted: Category 2
Deleted: Proposed endangered
Deleted: Proposed endangered
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
Opuntia parryi var. *serpentina*	Snake cholla	Category 2	None	No	Maritime succulent scrub
Orcuttia californica	California Orcutt grass	Endangered	Endangered	No	Vernal pools
Pogogyne nudiuscula	Otay Mesa mint	Endangered	Endangered	No	Vernal pools
Ribes canthariforme	Moreno currant	Category 2	None	No	Chaparral
Senecio ganderi	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	*Streptocephalus woottoni*	Endangered	None	Yes	Vernal pools
San Diego fairy shrimp	*Branchinecta sandiegonensis*	Endangered	None	Yes	Vernal pools
Dun skipper	*Euphyes vestris harbisoni*	Category 2	None	No	Riparian and freshwater marsh where *Carex spissa* is found
Hermes copper butterfly	*Lycaena hermes*	Category 2	None	No	Chaparral and coastal sage scrub where *Rhamnus crocea* and *Eriogonum fasciculatum* are found
Quino checkerspot butterfly	*Euphydryas editha quino*	Endangered	None	No	Grassland and coastal sage scrub habitat occurring on gabbro clay soils; *Plantago* spp.
Arroyo toad	*Bufo microscaphus californicus*	Endangered	Endangered	Proposed	Sandy banks of washes, streams, and arroyos with bordering riparian habitat
Western spadefoot toad	*Scaphiopus hammondii*	Category 2	SSC	No	Vernal pools, washes, floodplains, alkali flats
Southwestern pond turtle	*Clemmys marmorata palidus*	Category 1	SSC	No	Ponds, creeks with sunning sites
Coronado skink	*Eumeces skiltonianus interparietalis*	Category 2	SSC	No	Grassland, open chaparral, and open woodland
San Diego banded gecko	*Coleonyx variegatus abbottii*	Category 2	None	No	Chaparral with rocky soils and rock outcrops
Silvery legless lizard	*Anniella pulchra pulchra*	Category 2	SSC	No	Coastal sage scrub, chaparral, and open riparian habitat
San Diego horned lizard	*Phrynosoma coronatum blainvillii*	Category 2	SSC	No	Open areas of sandy soils in sage scrub, chaparral, grassland, and woodlands
Orange-throated whiptail	*Cnemidophorus hyperythrus*	Category 2	SSC	No	Open coastal sage scrub and chaparral
Coastal western whiptail	*Cnemidophorus tigris multiscutatus*	Category 2	SSC	No	Coastal sage scrub, chaparral, woodland, and riparian habitats
San Diego ringneck snake	*Diadophis punctatus similis*	Category 2	SSC	No	Mesic habitats
Coast patch-nosed snake	*Salvadora hexalepis virgultea*	Category 2	SSC	No	Sandy and rocky areas of grassland, coastal sage scrub, and chaparral
Rosy boa	*Lichanura trivirgata*	Category 2	SSC	No	Rock outcrops in chaparral
Two-striped garter snake	*Thamnophis hammondii*	Category 2	SSC	No	Intermittent streams and riparian

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

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

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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.

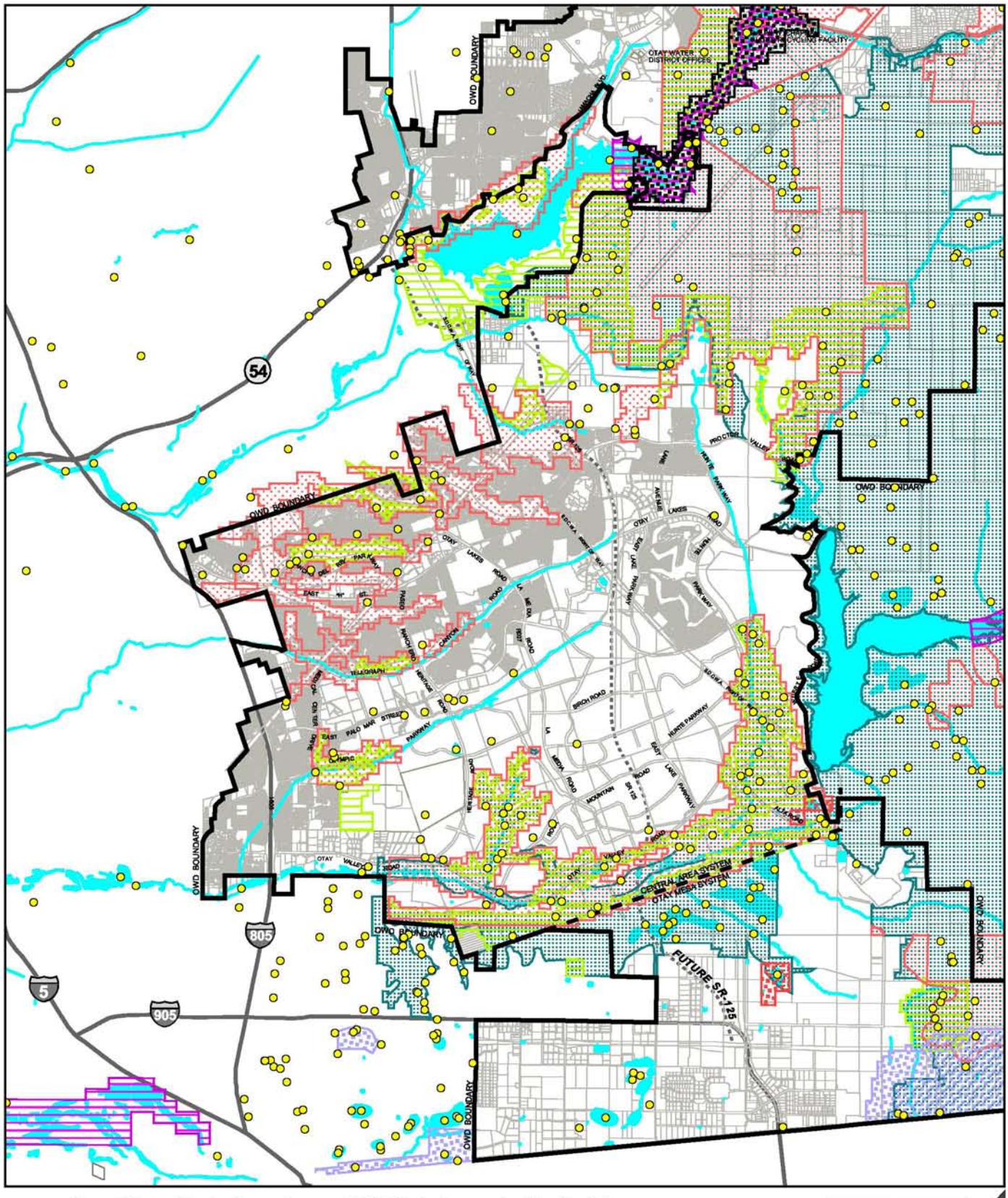
Part of the implementation process for the MSCP is the concept of subarea plans prepared by local agencies, using the MSCP plan as a framework and incorporating the MSCP biological preserve design standards and guidelines along with other land use, economic, and management recommendations. Once a local 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: CNDDB, 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

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- **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.

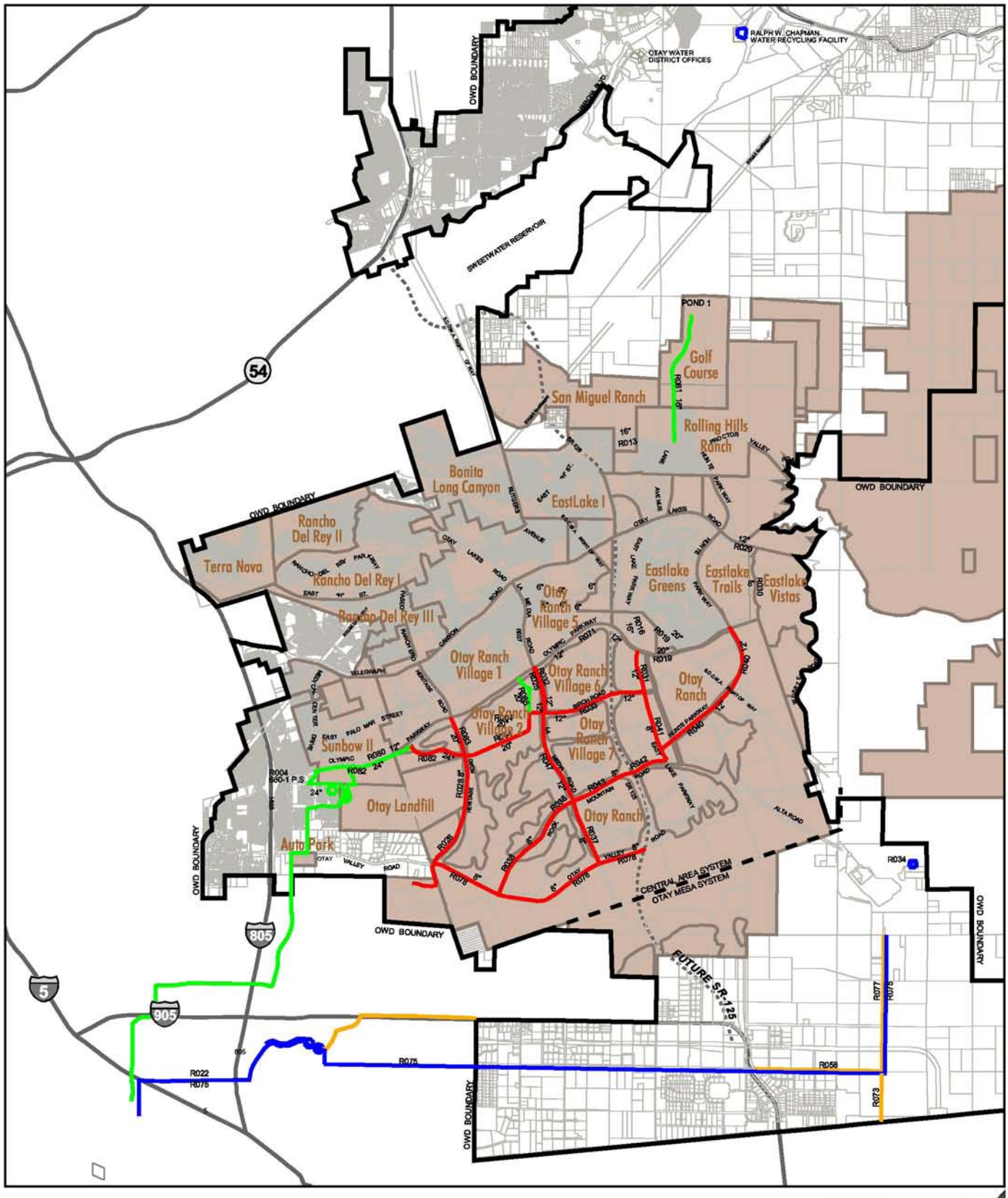
The Central Area System planning area is approximately 37,700 acres. The major development projects in the Central Area System and Otay Mesa System are shown in Figure 3.2. The Otay Ranch GDP, the largest single development project, is defined as the Otay Valley Parcel, Procter Valley Parcel, and the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

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fig3.2 (projects) 08/16/04

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 DISTRICT[1]

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*

[1]SOURCE: Otay Water District Water Resource Master Plan, August 2002, Table 3-3
[2]The 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 DISTRICT[1]

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*

[1]SOURCE: Otay Water District Water Resource Master Plan, August 2002, Table 3-3
[2]The 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 DISTRICT[1]

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*

[1]SOURCE: Otay Water District Water Resource Master Plan, August 2002, Table 3-3
[2]The 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 (O_3) 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 O_3 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 Rachero, 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 Mastershed 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 (CNDDB), 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

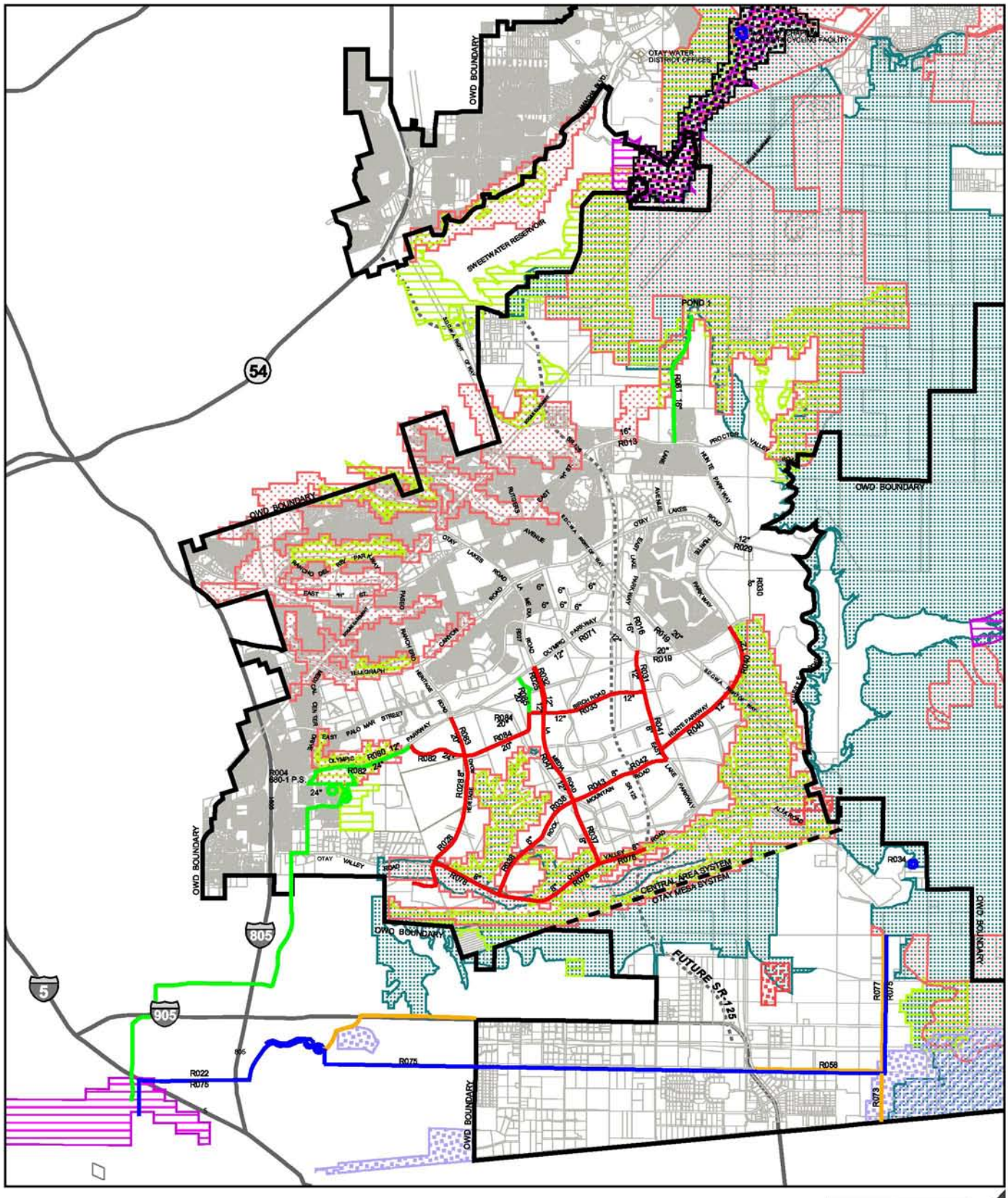
This reservoir project site is located within an area that has been designated as critical habitat for the Otay tarplant. The species is known to occur at this site. Initially, significant impacts to Otay tarplant were anticipated to occur as a result of construction of the reservoir; however, the District 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
Otay Water District boundary

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 4.1
Biological Impact Analysis for Critical Habitat

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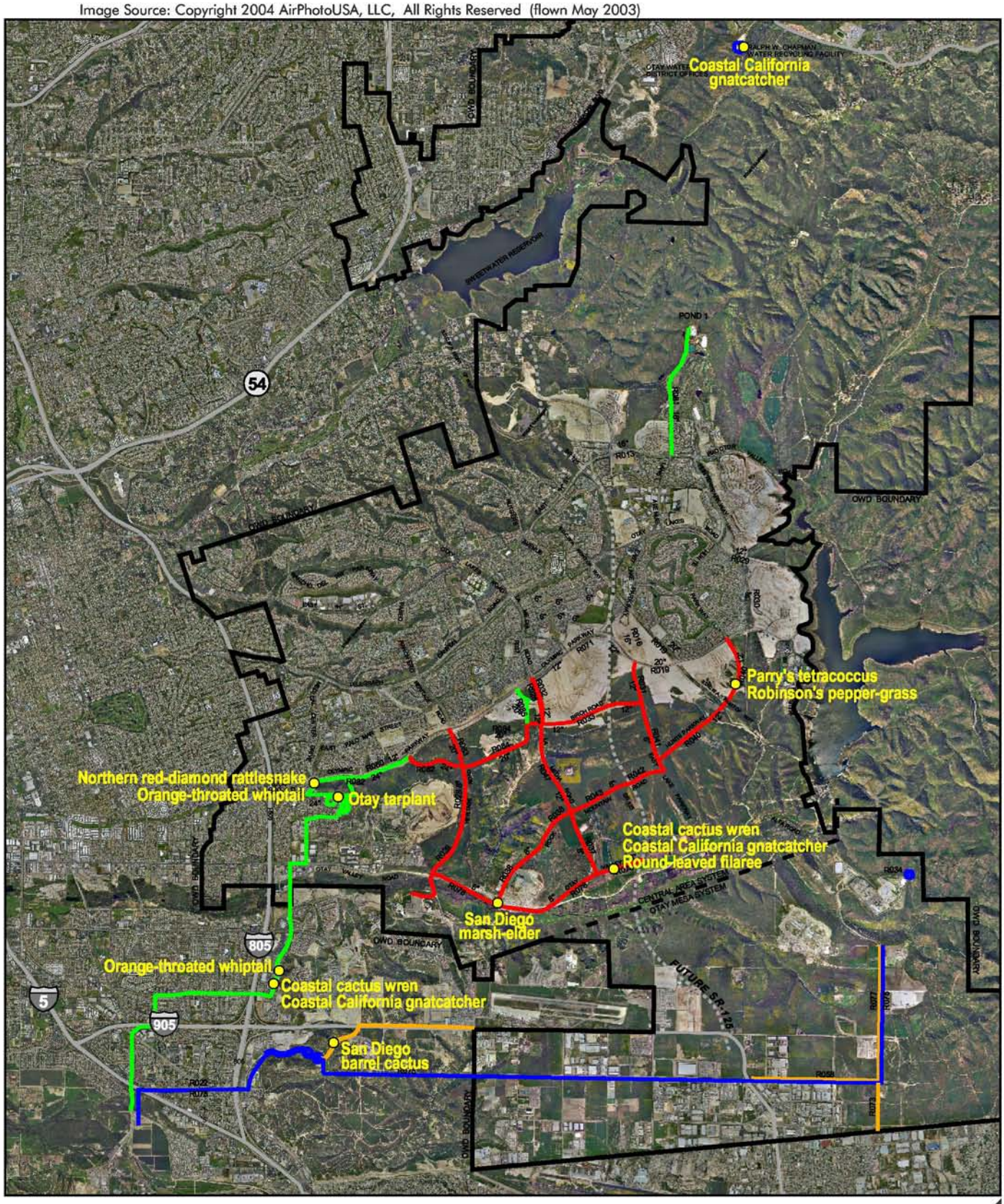

FIGURE 4.2
Biological Impact Analysis for Species Occurrences

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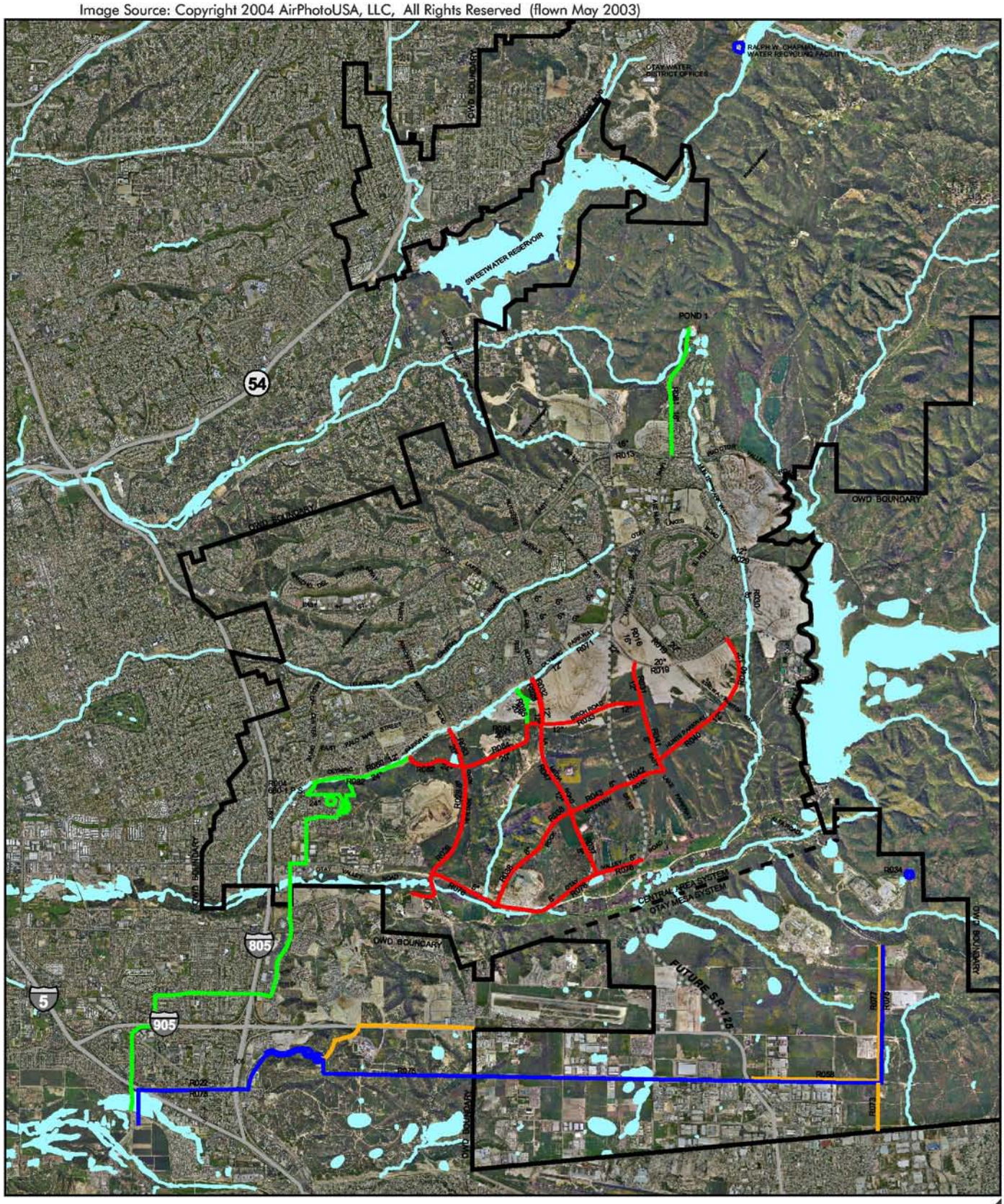
Image Source: Copyright 2004 AirPhotoUSA, LLC, All Rights Reserved (flown May 2003)



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

National Wetlands Inventory
(Source: USFWS, 1985)
Rivers
Wetlands

0 Miles 1.55 N

FIGURE 4.3
Biological Impact Analysis for Wetlands

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CIP No. R022; Pipeline, Recycled Pipeline – 30-Inch, 450 Zone, Otay Valley – Dairy Mart/450-1 Reservoir

The north end of this pipeline is located on the same site as reservoir R001. There are potential impacts to Otay tarplant at this site. Potential impacts to Otay tarplant can be minimized by selective placement of the pipeline on the site and locating staging areas off-site. As project details are finalized, biological surveys would be conducted to determine the exact impacts to Otay tarplant and subsequent mitigation.

Where the pipeline crosses the Otay River, a trenchless construction technology will be used to avoid impacts to the river.

This pipeline is located in roads or public rights-of-way. Along the pipeline, the following species have been identified in previous surveys: Orange-throated whiptail in 1988, coastal California gnatcatcher in 2000, and coastal Cactus wren. Construction will be limited to the existing development footprint in roads and other public rights-of-way.

CIP No. R081; Pipeline, RecPL – 16-Inch, 944 Zone, Lane Avenue – Proctor Valley/Pond No. 1

The northern section of this pipeline occurs in the Otay Water District San Miguel HMA, portions of which have been designated as critical habitat for Otay tarplant, quino checkerspot butterfly (QCB), and coastal California gnatcatcher. Species occurrences include Otay tarplant. The pipeline would be constructed in the existing dirt road along the Use Area. Potential impacts are anticipated. Impacts can be minimized by selective placement of pipeline on the site, and locating staging areas in areas that would not cause impacts. As project details are finalized, biological surveys would be conducted to determine the exact impacts and subsequent mitigation.

CIP No. R082; RecPL – 24-Inch, 680 Zone, Olympic Parkway – Village 2/Heritage Pipeline

The District will implement the portion of this project in Olympic Parkway. The other portion of this pipeline between Olympic Parkway and Heritage Road will be constructed by a developer, then operated and maintained by the District. The western portion of this pipeline that the District will implement travels through critical habitat for Otay tarplant and coastal California gnatcatcher. The pipeline will be constructed in Olympic Parkway and associated rights-of-way. The existing Olympic Parkway road lacks the primary constituent elements of critical habitat. No impact to habitat, critical or native, would occur.

CIP No. R085; RecPL – 20-inch, 680 Zone, Village 2–High School/Olympic

This pipeline will be constructed in Otay Ranch Village 2 development area, near a high school that has already been constructed. The pipeline will be installed in existing roadways and rights-of-way within the development footprint. There is no critical habitat near this pipeline.

DISTRICT IMPLEMENTED PHASE III PROJECTS

CIP No. R023; RecRes – 450-2 Reservoir 4.0 MG

This 4.0-million-gallon 450-2 Reservoir is to be located on a site near the western portion of Otay Mesa. The reservoir site will be approximately one acre on a site of coastal sage scrub vegetation. The site consists of coastal sage scrub and disturbed area. There is no critical habitat on or adjacent to this site. Potential impacts can be minimized by placing the reservoir away from habitat, and locating staging areas in areas that would not impact habitat.

CIP No. R034; Reservoir, RecRes–860-1 Reservoir 4.0 MG:

This reservoir is located within QCB designated critical habitat. The reservoir site will be approximately one acre in coastal sage scrub vegetation. Impacts to critical habitat are anticipated. Potential impacts to critical habitat can be minimized by placing the reservoir away from habitat, and locating staging areas in areas that would not impact habitat.

CIP No. R035; RecPS – 860-1 Pump Station (3,400 GPM)

The 860-1 Pump Station is to be located on the same site as the 450-2 Reservoir (R023) near the western portion of Otay Mesa. This pump station will be constructed within the footprint of the reservoir, an approximate one-acre site in coastal sage scrub vegetation. This site consists of coastal sage scrub, and some disturbed areas. There is no critical habitat on or adjacent to this site. Potential impacts can be minimized by placing the pump station away from habitat, and locating staging areas in areas that would not impact habitat.

CIP No. R052; RecPL – 30-Inch, 450 Zone, Tijuana Valley-Otay Mesa Place/450-2 Reservoir

This pipeline is approximately 4,200 feet long and will connect to the 450-2 reservoir. This site consists of coastal sage scrub vegetation and disturbed areas. Impacts to vegetation will occur. There is no critical habitat on or adjacent to this site.

CIP No. R053; Upgrade, RWCWRF – R.O. Building Remodel

This project is an upgrade to the RWCWRF. Designated critical habitat for coastal California gnatcatcher, QCB, LBV, and arroyo toad occur in the vicinity of the

RWCWRF. The project would occur within the existing developed area. The developed area where the project will be implemented lacks the primary constituent elements of critical habitat. There would be no impacts to any critical or native habitat.

CIP No. R055; Upgrade, RWCWRF – Effluent Meter

This project is an upgrade to the RWCWRF. Designated critical habitat for coastal California gnatcatcher, QCB, LBV, and arroyo toad occur in the vicinity of the RWCWRF. The project would occur within the existing developed area. The developed area where the project will be implemented lacks the primary constituent elements of critical habitat. There would be no impacts to any critical or native habitat.

CIP No. R058; RecPL – 16-Inch, 860 Zone, Airway Road – Otay Mesa/Alta

This pipeline will be constructed within the eastern portion of Airway Road, which is paved. Impacts can be minimized during construction by locating staging areas and equipment in areas that have already been disturbed. There is no critical habitat on or adjacent to this site.

CIP No. R067; Upgrade, RWCWRF – Waste Backwash Water Pipeline

This project is an upgrade to the RWCWRF. Designated critical habitat for coastal California gnatcatcher, QCB, LBV, and arroyo toad occur in the vicinity of the RWCWRF. The project would occur within the existing developed area. The developed area where the project will be implemented lacks the primary constituent elements of critical habitat. There would be no impacts to any critical or native habitat.

CIP No. R068 Upgrade; RWCWRF – Load Equalization Tank

This project is an upgrade to the RWCWRF. Designated critical habitat for coastal California gnatcatcher, QCB, LBV, and arroyo toad occur in the vicinity of the RWCWRF. The project would occur within the existing developed area. The developed area where the project will be implemented lacks the primary constituent elements of critical habitat. There would be no impacts to any critical or native habitat.

CIP No. R072; RecPL – 16-Inch, 860 Zone, Otay Mesa Road – 860-1 Pump Station/Heritage

A small portion of this pipeline travels through the edge of QCB critical habitat. This pipeline would be located in Otay Mesa Road, which is not a primary constituent element of critical habitat. No impact to critical habitat would occur.

CIP No. R073; RecPL – 24-Inch, 860 Zone, Alta Road – Airway/Border

This pipeline will be constructed in Alta Road, which is currently unpaved, between Otay Mesa Road and the United States and Mexico border. This pipeline is located within Riverside fairy shrimp proposed critical habitat. Impacts would occur when road improvements (i.e., paving) and pipeline construction occurs.

CIP No. R075; Pipeline, Brine Disposal Pipeline Otay Mesa to Metro Sewer System

The north end of this pipeline in Alta Road occurs near QCB critical habitat. The pipeline would be located in Alta Road, which lacks the primary constituent element of critical habitat.

The portion of this pipeline located in Dairy Mart Road is located in LBV critical habitat. Impact to this critical habitat may occur if the riparian habitat in the Tijuana River is disturbed at the Dairy Mart Road bridge. The bridge and road lack the primary constituent elements of critical habitat. Construction would occur outside the LBV breeding season (February 15th to August 30th). If construction must occur during the breeding season, a biological monitor would be present.

A portion of this pipeline is located in Riverside fairy shrimp proposed critical habitat. This portion of the pipeline is located within the existing Otay Mesa Road and Alta Road, which lack the primary constituent elements of critical habitat. There would be no impact to critical habitat.

CIP No. R077; Pipeline, RecPL – 24-Inch, 860 Zone, Alta Road – Alta Gate/Airway

The north end of this pipeline is adjacent to QCB critical habitat. This pipeline would be constructed in Alta Road and associated rights-of-way. This portion of Alta Road is paved and not a primary constituent element of critical habitat. No impacts to critical habitat or vegetation are anticipated.

Consultation with USFWS and Analysis of Potential Effects

Analysis in this Programmatic EA revealed that eight projects have the potential to effect biological resources, including federally listed threatened and endangered species. These projects are listed in Table 4.1 and shown in Figure 4.4. Preliminary estimates indicate that a total of approximately 10 acres of undeveloped land will be impacted, including disturbed areas. Some of this land is native vegetation, primarily coastal sage scrub habitat, while other areas are nonnative grassland, former agricultural lands, or other disturbed habitats. The District proposes to offset impacts with conservation actions at the San Miguel HMA.

TABLE 4.1
DISTRICT IMPLEMENTED PROJECTS AND POTENTIAL ENVIRONMENTAL EFFECTS

CIP Number	Type	Description	Preliminary Estimate of Permanent Impact Acres	Issue	Significance Level
R001	Reservoir	RecRes–450-1 Reservoir 12.0 MG	5.14 acres	Critical habitat for Otay tarplant. Tarplant present at site. Nonnative grassland, Diegan coastal sage scrub, and maritime succulent scrub vegetation.	Less than significant with implementation of conservation measures recommended in BO[1]. Follow Biological Measures in 1999 USFWS BO, project EIR, and PEIR for WRMP.
R004	Pump Station	RecPS–680-1 Pump Station (11,500 GPM)	Within 4.5 acres of R001	Critical habitat for Otay tarplant. Tarplant present on site. Non-native grassland vegetation.	Less than significant with implementation of conservation measures as recommended in BO[1]. Follow Biological Measures in 1999 USFWS BO, project EIR, and PEIR for WRMP.
R022	Pipeline	RecPL–30-Inch, 450 Zone, Otay Valley–Dairy Mart/450-1 Reservoir	–	Critical habitat for Otay tarplant, gnatcatcher, and vireo. Orange-throated whiptail occurrence nearby in 1988. Gnatcatcher occurrence in 2000. Part of alignment in Vireo critical habitat. Temporary impacts in developed areas, approximately 30 acres. Approximately 1 acre of temporary impacts to disturbed vegetation.	Less than significant with implementation of conservation measures as recommended in BO[1]. Follow Biological Measures in 1999 USFWS BO, project EIR, and PEIR for WRMP.
R081	Pipeline	RecPL–16-Inch, 944 Zone, Lane Avenue–Proctor Valley/Pond No. 1	2 acre	Critical habitat for Otay tarplant, gnatcatcher, and Quino. Approximately 2 acres of permanent impact in disturbed dirt road within HMA.	Pipeline located in dirt road in Use Area. Less-than-significant with implementation of conservation measures recommended in BO[1].
R034	Reservoir	RecRes–860-1 Reservoir 4.0 MG	1 acre	Quino Critical habitat. Coastal sage scrub vegetation.	Less than significant with implementation of conservation measures recommended in the BO[1].
R023	Reservoir	RecRes-450-2 Reservoir 4.0 MG	1 acre	Undeveloped coastal sage scrub vegetation. No critical habitat.	Less than significant with implementation of conservation measures recommended in the BO[1].
R035	Pump Station	RecPS-860-1 Pump Station (3,400 GPM)	Within 1 acre of R023	Undeveloped coastal sage scrub vegetation. No critical habitat.	Less than significant with implementation of conservation measures recommended in the BO[1].
R052	Pipeline	RecPL-30-Inch, 450 zone, Otay Mesa Road – Remington Hills/450-2 Reservoir	1 acre	Undeveloped coastal sage scrub vegetation. No critical habitat. Approximately 5 acres of temporary disturbance, and 1 acre of permanent impact in coastal sage scrub and disturbed vegetation.	Less than significant with implementation of conservation measures recommended in the BO[1].

[1]A Section 7 Consultation has been initiated to address Endangered Species Act issues. Conservation measures will be recommended in the Biological Opinion that USFWS will issue when the current Section 7 Consultation commences.

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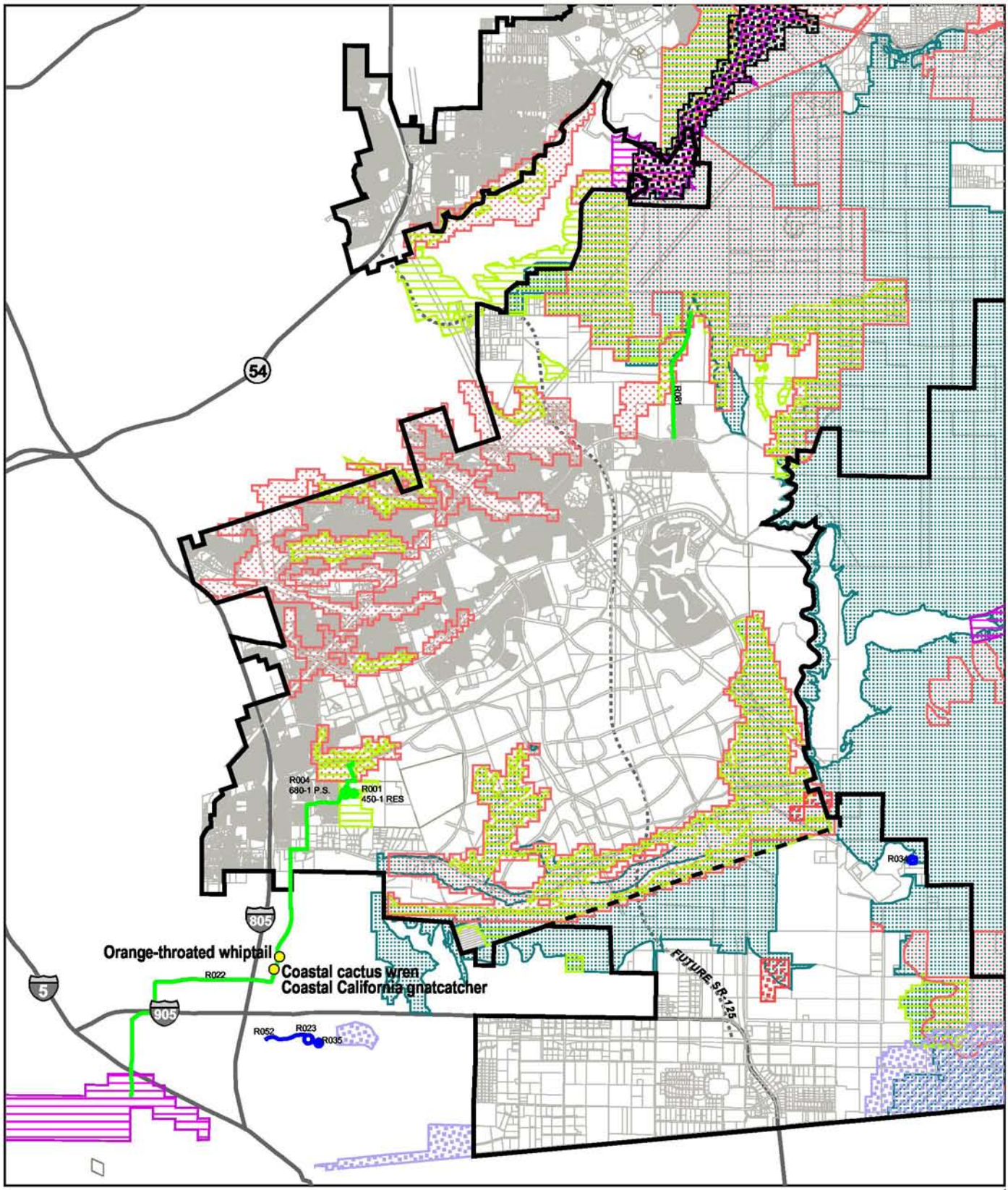

Phase II District implemented project
Phase III District implemented project
Otay Water District boundary
Sensitive species location within 150 feet of CIPs (Source: CNDDB, 2004)

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

Note: CIP projects are shown with project numbers.

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FIGURE 4.4

District Implemented Projects and Potential Environmental Effects

Projects R001, R004, and R022 will impact disturbed coastal sage scrub habitat that supports Otay tarplant. Surveys for the Otay tarplant resulted in a population estimate of 275,146 individuals (AMEC 2005). After moving the proposed location of the R001 reservoir to reduce impacts to Otay tarplant, approximately 673 individuals are expected to be impacted. The R001 site is designated critical habitat for the Otay tarplant. The area adjacent to the R001 site is designated Otay tarplant and coastal California gnatcatcher critical habitat. A portion of the area adjacent to the R001 site is part of the City of Chula Vista Subarea MSCP preserve. The R001 reservoir site will impact approximately two acres. The R004 pump station will be located within the impacted site of the reservoir. The R034 site will impact approximately one acre of coastal sage scrub habitat. This area is designated as QCB critical habitat. The closest known QCB occurrence is located approximately 1.8 miles southeast of the site.

The R023 reservoir site will impact approximately one acre of coastal sage scrub habitat. The R035 pump station will be located within the footprint of the one acre impacted area. The R052 pipeline connecting the R023 reservoir to the Project R022 pipeline will impact approximately one acre of permanent impact in coastal sage scrub habitat. Approximately 5 acres will be temporarily impacted during construction, and then revegetated. The District's right-of-way and access road will have approximately one acre of permanent impact. These are preliminary estimates.

The R081 pipeline will be located within the District's San Miguel HMA Use area. Preliminary estimates indicate that approximately one acre will be impacted. This pipeline will be constructed within an existing dirt road (an already disturbed area). Most of the disturbance and impacted area will occur within the dirt road. When construction is complete, the temporarily impacted areas will be revegetated.

District-implemented projects may impact areas designated as critical habitat for the coastal California gnatcatcher, LBV, and QCB. Gnatcatchers are known to occur in several coastal sage scrub habitat areas within the action area. Vireos have been observed in riparian habitat along the Tijuana River. QCB are known to occur approximately 0.5 mile northwest of the R081 site.

Formal Section 7 Consultation shall be initiated to address the endangered species issues. During Section 7 Consultation, the action and/or the conservation measures proposed by the District may be modified. The USFWS will determine whether the proposed action would jeopardize the survival and recovery of listed species or result in the destruction or adverse modification of designated critical habitat. The USFWS findings will then be documented in a Biological Opinion.

For the R001, R004 and R022 projects, detailed biological surveys have been conducted, and an EIR was prepared (AMEC 2005). For future District-implemented projects, the District will conduct project-level biological surveys consistent with the requirements of

USFWS as documented in the biological opinion. The District will implement the conservation measures in the biological opinion that will be issued at the end of the Section 7 consultation.

The remaining District-implemented projects are proposed within existing developed areas, including paved streets, and are not expected to result in impacts to biological resources. Pipeline R022 is within critical habitat designated for the least Bell's vireo. However, the primary constituent elements of vireo critical habitat are absent within the paved street surface. Measures to minimize indirect effect to vireo, such as construction outside of the nesting season or sound barriers, may be required by USFWS.

Impacts from developer-implemented projects, as part of the Otay Ranch development, is discussed in Section 4.3.1.2.

4.2.1.2 Developer Implemented Projects

Impacts to biological resources resulting from developer projects, primarily implementation of the Otay Ranch Villages, would be mitigated by compliance with the Otay Ranch planning documents including the GDP, SPA plans, GPD Program EIR, and both Phases of the RMP and appendices. Conveyance of required mitigation acres to the preserve is contingent upon building permit issuance. Mitigation for impacts that result from developer-implemented projects is addressed at the large-scale village development level.

DEVELOPER IMPLEMENTED PHASE II PROJECTS

CIP No. R013; Pipeline, RecPL – 16-Inch, 944 Zone, East H Street – Eastlake/Lane

This pipeline will be constructed within East H Street and associated road rights-of-way as part of the Otay Ranch development. There is no critical habitat on or adjacent to this site. Impacts to vegetation will occur during development of the area and the road.

CIP No. R016; Pipeline, RecPL – 16-Inch, 944 Zone, Eastlake Parkway – Trinidad Cove/Olympic

This pipeline will be constructed within Eastlake Parkway and associated road rights-of-way as part of the Otay Ranch development. There is no critical habitat on or adjacent to this site. Impacts to vegetation will occur during development of the area and the road.

CIP No. R025; RecPL – 12-Inch, 680 Zone, La Media Road – Olympic/Birch

This pipeline will be constructed in La Media Road and associated right-of-way as part of the Otay Ranch development. There is no critical habitat on or adjacent to this site. Impacts to vegetation will occur during development of the area and the road.

CIP No. R028; Pipeline, RecPL – 8-Inch, 680 Zone, Heritage Road – Olympic/Otay Valley:

The south end of this pipeline is located within designated critical habitat for coastal California gnatcatcher and QCB. This pipeline would be constructed within the alignment of Heritage Road. Impacts to vegetation and critical habitat will occur during construction and development of the road.

CIP No. R029; Pipeline, RecPL – 12-Inch, 944 Zone, Otay Lakes Road – Hunte/Eastlake Vistas

This pipeline will be constructed within Otay Lakes Road and associated road rights-of-way as part of the Otay Ranch development. There is no critical habitat on or adjacent to this site. Impacts to vegetation will occur during development of the area and the road.

CIP No. R030; Pipeline, RecPL – 8-Inch, 944 Zone, Eastlake Vistas – Otay Lakes/Olympic

This pipeline will be constructed within Eastlake Vistas and associated road rights-of-way as part of the Otay Ranch development. There is no critical habitat on or adjacent to this site. Impacts to vegetation will occur during development of the area and the road.

CIP No. R031; RecPL – 12-Inch, 944 Zone, EastLake Parkway – Olympic/Birch

This pipeline will be constructed within EastLake Parkway and associated road rights-of-way as part of the Otay Ranch development. There is no critical habitat on or adjacent to this site. Impacts to vegetation will occur during development of the area and the road.

CIP No. R032; RecPL – 12-Inch, 944 Zone, La Media Road – Olympic/Birch

This pipeline will be constructed within La Media Road as part of the Otay Ranch development. There is no critical habitat on or adjacent to this site. Impacts to vegetation will occur during development of the area and the road.

CIP No. R033; RecPL – 12-Inch, 944 Zone, Birch Road – La Media/EastLake

This pipeline will be constructed within Birch Road and associated road rights-of-way. As this part of the Otay Ranch development occurs, there will be impacts to vegetation from the construction of the road. There is no critical habitat on or adjacent to this site.

CIP No. R037; Pipeline, RecPL – 8-Inch, 680 Zone, La Media Road – Rock Mountain/Otay Valley

The south end of this pipeline occurs in critical habitat for Otay tarplant, coastal California gnatcatcher, and QCB. The pipeline would be constructed in La Media Road

and adjacent right-of-way during Otay Ranch development. Impacts to critical habitat and vegetation are anticipated to occur during this part of the Otay Ranch development and road construction.

CIP No. R038; Pipeline, RecPL – 8-Inch, 680 Zone, Rock Mountain Road – La Media/Otay Valley

The southern portion of this pipeline is located within designated critical habitat for coastal California gnatcatcher and QCB. A small part of this pipeline passes through Otay tarplant critical habitat. This pipeline will be installed as Rock Mountain Road is constructed. Impacts to critical habitat and vegetation will occur during this part of the Otay Ranch development and construction of Rock Mountain Road. Species occurrences within 150-feet of the preliminary road alignment include the San Diego marsh-elder in 1990.

CIP No. R040; Pipeline, RecPL – 12-Inch, 680 Zone, Hunte Parkway – Olympic/EastLake

The eastern edge of this pipeline passes through critical habitat for Otay tarplant, coastal California gnatcatcher, and QCB. This pipeline would be located in Hunte Parkway. No actual habitat, critical or native, would be impacted or disturbed. Species occurrences include Robinson's pepper-grass in 1997, and Parry's tetracoccus.

CIP No. R041; RecPL – 8-Inch, 944 Zone, EastLake Parkway – Birch/Rock Mountain

This pipeline will be constructed within EastLake Parkway and associated road rights-of-way. As this part of the Otay Ranch development occurs, there will be impacts to vegetation from the construction of the road. There is no critical habitat on or adjacent to this site.

CIP No. R042; RecPL – 8-Inch, 944 Zone, Rock Mountain Road – SR-125/EastLake

This pipeline will be constructed as Rock Mountain Road is constructed as part of the Otay Ranch development. There will be impacts to vegetation from this development and construction. There is no critical habitat on or adjacent to this site.

CIP No. R043; RecPL – 8-Inch, 944 Zone, Rock Mountain Road – La Media/SR-125

This pipeline will be constructed within Rock Mountain Road and associated road rights-of-way. As this part of the Otay Ranch development occurs, there will be impacts to vegetation from the construction of the road. There is no critical habitat on or adjacent to this site.

CIP No. R047; RecPL – 12-Inch, 680 Zone, La Media Road – Birch/Rock Mountain

This pipeline alignment is in La Media Road. The pipeline alignment does not intersect critical habitat. Impacts to vegetation will occur during road construction as this part of the Otay Ranch development occurs.

CIP No. R071; Pipeline, RecPL – 12-Inch, 944 Zone, Olympic Parkway – La Media/Eastlake

This pipeline will be constructed within Olympic Parkway and associated road rights-of-way as part of the Otay Ranch development. There is no critical habitat on or adjacent to this site. Impacts to vegetation will occur during development of the area and the road.

CIP No. R078; Pipeline, RecPL – 8-Inch, 680 Zone, Otay Valley Road – SR 125/Heritage

The majority of this pipeline is located within designated critical habitat for coastal California gnatcatcher and QCB. The east end of this pipeline is located in Otay tarplant critical habitat. This pipeline would be located within the existing roadbed of Otay Valley Road, which travels by the Otay River. A portion of Otay Valley Road and pipeline crosses riparian habitat in the Otay River. Species previously observed within 150-feet of the preliminary road alignment include San Diego marsh-elder in 1990. Impacts to critical habitat, vegetation, and wetlands would occur during construction of the road as this portion of the Otay Ranch development occurs.

CIP No. R079; Pipeline, RecPL – 6-Inch, 450 Zone, Otay Valley Road – Otay Valley/ Entertainment

This pipeline is located in coastal California gnatcatcher and QCB critical habitat. A portion of this pipeline would occur within the existing development footprint. Impacts to vegetation and critical habitat would occur as this project is constructed.

CIP No. R080; Pipeline, RecPL – 12-Inch, 680 Zone, Olympic Parkway – Medical Center/Heritage

This pipeline will be constructed within Olympic Parkway and associated road rights-of-way as part of the Otay Ranch development. There is no critical habitat on or adjacent to this site. Impacts to vegetation will occur during development of the area and the road.

CIP No. R082; RecPL – 24-Inch, 680 Zone, Olympic Parkway – Village 2/Heritage Pipeline

The District will construct the portion of this project in Olympic Parkway. The portion of this project between Olympic Parkway and Heritage road will be constructed by a developer, then operated and maintained by the District. The developer-implemented portion of this project would be located in a local roadway and associated right-of-way.

The developer-implemented portion of this pipeline alignment does not intersect critical habitat. Impacts to vegetation will occur during road construction as this part of the Otay Ranch development occurs.

CIP No. R083; RecPL – 20-inch, 680 Zone, Heritage Road – Village 2/Olympic

This pipeline will be constructed within Heritage Road and associated road rights-of-way as part of the Otay Ranch development. There is no critical habitat on or adjacent to this site. Impacts to vegetation will occur during development of the area and the road.

CIP No. R084; RecPL – 20-inch, 680 Zone, Village 2 – Heritage/La Media

This pipeline alignment will be located in a local roadway between Heritage Road and La Media Road. There is no critical habitat on or adjacent to this site. Impacts to vegetation will occur during development of the area and the road.

Biology Resource Mitigation Measures

Impacts to biological resources resulting from developer projects would be mitigated by compliance with the Otay Ranch planning documents including the GDP, SPA plans, GPD Program EIR, and both Phases of the RMP and appendices. Mitigation for impacts that result from developer-implemented projects is addressed at the large-scale village development level. General mitigation measures from the Otay Ranch Program EIR are listed below:

- Preservation of habitat and natural resources in open space, incorporation of open space into RMP, restoration and enhancement of disturbed habitat, and selected project redesign.

- Preservation of wildlife corridors within open space through project redesign where necessary, enhancement, restoration and habitat re-establishment, use of bridges for road crossings over corridors, and implementation of the RMP.

4.2.2 No Action Alternative

This alternative would not involve execution of an Agreement and subsequent federal funding of the District's Project. The District is likely to still implement the Project under this alternative, so environmental effects would be the same as effects for the proposed project.

4.2.3 No Project Alternative

The District would not construct its project under this alternative. While no immediate effects would occur to biological resources as identified for the proposed project, increasing development and demand for water would eventually have some impact on local biological resources.

4.3 Cultural Resources

4.3.1 Proposed Project

A comprehensive cultural resource site record and report search (spanning approximately 48,000 acres) for the Otay Water District was completed at the South Coastal Information Center at San Diego State University and at the San Diego Museum of Man. The record and report search included information on the Central Area System and Otay Mesa System where the majority of the District's Projects will be implemented. In addition, historic map and photograph sources were reviewed to identify historic period resources such as archaeological deposits or buildings and structures. The resulting data is referred to as the Cultural Resource Inventory (CRI) for this Project. This CRI serves as the information necessary to determine potential significant impacts and ways to avoid, minimize, and/or mitigate appropriately.

The CRI revealed that large portions of the planning area have been surveyed for a variety of projects over the past 20 years; however, the search also showed that there are some areas for which no systematic cultural resources surveys have been completed. In general, Projects implemented within the boundaries of existing District facilities or roadways are not considered likely to impact cultural resources. Construction of new reservoirs, pump stations, or pipelines could result in potential impacts to archaeological, historical, or cultural sites and features, particularly trenching for pipeline construction. Mitigation measures implemented by the District would avoid, minimize, and/or mitigate potential impacts through a program of identification, evaluation, avoidance of impacts, or mitigation through programs of data recovery to capture scientific information that would otherwise be lost. To insure that the mitigation measures are followed, a Programmatic Agreement (available upon request from Reclamation) between Reclamation, SHPO, and the District would be established specifying the duties of each participant. The Programmatic Agreement expands on the mitigation steps and may be obtained from Reclamation.

Construction of the Project requires excavation of undisturbed areas and could result in impacts to cultural resources unless such resources potentially present are identified and appropriate steps to avoid or mitigate impacts are taken. Portions of the Project will be

constructed in existing roadways, or undergo concurrent construction with roads. Trenching to install pipelines could affect potential subsurface deposits of cultural materials not detected in the surveys and testing.

Owing to the scope of the proposed Project, identification of cultural resources that are eligible for inclusion in the NRHP cannot be fully determined at this time. A preliminary impact assessment was conducted to determine which sites occur in the vicinity of the Project. An overlay analysis was conducted using GIS by combining spatial information on project location and archaeological sites. A buffer area of approximately 150 feet was used to assess potential for archaeological sites in the vicinity of the Project. Archaeological sites that occur within the 150 feet buffer are listed in Table 4.2. A Confidential attachment showing the location of these archaeological sites is on file at Reclamation.

The District will implement the following procedures as the project designs are finalized:

- A review of the current status of investigations for the proposed location(s) will be made to ensure compliance with 36 CFR 800.4. The adequacy of study will be determined by review of existing documents on file at the South Coastal Information Center and San Diego Museum of Man, Otay Water District records, and other sources as applicable. Native American Tribes (Tribes) shall be consulted and their comments and concerns shall be addressed throughout the identification and evaluation process.

- If investigation of the location(s) satisfies 36 CFR 800.4 and no cultural resources are present, a finding of no adverse effect for the proposed CIP project(s) will be recommended. A letter of notification of this finding will be submitted to Reclamation and will identify the CIP project, its location, status of investigations in the study area, and conclusions of the review.

- If studies in the selected project location(s) do *not* satisfy 36 CFR 800.4, additional survey will be implemented in order to comply. A letter indicating the need for additional survey investigations will be submitted to Reclamation identifying the project, its location, status of prior research, and proposed methods for additional survey.

- If at this point the investigation of the location(s) satisfies 36 CFR 800.4 and no cultural resources are present, a finding of no effect for the proposed project will be recommended.

- If cultural resources that do not meet NRHP eligibility criteria are present within the added survey areas, a finding of no properties/no effect for the proposed project will be recommended.

TABLE 4.2
CULTURAL RESOURCES IMPACT ANALYSIS

CIP Number	OHP Site Number	SDMM Site Number	Site Type	Content	NRHP Status Indicated by the Documentation	Quad	Report Author, Year and Number on File at South Coastal Information Center
R001	10473		Lithic Scatter	Knapped Stone	Not Eligible	IB	Fink 74+45
R001	10473		Lithic Scatter	Knapped Stone	Not Eligible	IB	Kyle 96-76
R001	10473		Lithic Scatter	Knapped Stone	Not Eligible	IB	Gallegos 97+172
R004	N/A	520	Lithic Scatter	Knapped Stone	Not Eligible	IB	None
R022	7983		Lithic Scatter	Knapped Stone	Not Eligible	IB	City of S.D. 93+36
R022	7983		Lithic Scatter	Knapped Stone	Not Eligible	IB	SRS 80+11
R022	7983		Lithic Scatter	Knapped Stone	Not Eligible	IB	Carrico 76+30
R022	7984		Lithic Scatter	Knapped Stone	Not Eligible	IB	City of S.D. 93+36
R022	7984		Lithic Scatter	Knapped Stone	Not Eligible	IB	SRS 80+11
R022	7984		Lithic Scatter	Knapped Stone	Not Eligible	IB	Carrico 76+30
R022	8065		Artifact Scatter	Knapped Stone and Shell	Not Eligible	IB	Smith 89+50
R022	8065		Artifact Scatter	Knapped Stone and Shell	Not Eligible	IB	SRS 80+11
R022	8065		Artifact Scatter	Knapped Stone and Shell	Not Eligible	IB	SRS 80+4
R022	8065		Artifact Scatter	Knapped Stone and Shell	Not Eligible	IB	SRS 84+33
R022	10473		Lithic Scatter	Knapped Stone	Not Eligible	IB	Fink 74+45
R022	10473		Lithic Scatter	Knapped Stone	Not Eligible	IB	Kyle 96-76
R022	10473		Lithic Scatter	Knapped Stone	Not Eligible	IB	Gallegos 97+172
R022	11079		Artifact Scatter	Knapped Stone and Ground Stone	Not Eligible	IB	SRS 84+35
R022	11079		Artifact Scatter	Knapped Stone and Ground Stone	Not Eligible	IB	Pignolo 89+9
R022	11079		Artifact Scatter	Knapped Stone and Ground Stone	Not Eligible	IB	Kyle 94+60
R023	10518		Lithic Scatter	Knapped Stone	Not Specific	IB	SRS 84+35
R025	11384		Historic Site	Foundation and Trash Scatter	Not Eligible	OM	Smith 96+301
R025	11412		Lithic Scatter	Knapped Stone	Not Eligible	OM	Carrico 158
R028	11968		Lithic Scatter	Knapped Stone	Not Eligible	IB	Smith 96+301
R028	11968		Lithic Scatter	Knapped Stone	Not Eligible	IB	Carrico 158
R028	12289		Artifact Scatter	Knapped Stone and Ground Stone	Not Eligible	OM	Smith 96+301
R028	12293		Artifact Scatter	Knapped Stone and Ground Stone	Not Eligible	IB/OM	Smith 96+302
R028	13226		Artifact Scatter	Knapped Stone and Ground Stone	Not Eligible	OM	Smith 96+301
R028	13867		Lithic Scatter	Knapped Stone	Not Eligible	IB	Carrico 158
R028	13867		Lithic Scatter	Knapped Stone	Not Eligible	IB	Carrico 158
R028	I-451		Isolate	Core	Not Eligible	IB	Smith 86+301
R028	I-451		Isolate	Core	Not Eligible	IB	Carrico 158
R028	I-634		Isolate	Flake	Not Eligible	OM	Smith 86+301
R028	I-634		Isolate	Flake	Not Eligible	OM	Carrico 158
R028	I-634		Isolate	Flake	Not Eligible	OM	Gallegos 97+172
R028	P-014175		Isolate	No Record on File	Not Eligible	OM	Carrico 158
R028	P-014177		Isolate	No Record on File	Not Eligible	OM	Carrico 158

TABLE 4.2
CULTURAL RESOURCES IMPACT ANALYSIS
(continued)

CIP Number	OHP Site Number	SDMM Site Number	Site Type	Content	NRHP Status Indicated by the Documentation	Quad	Report Author, Year and Number on File at South Coastal Information Center
R028	P-014182		Isolate	No Record on File	Not Eligible	IB	Carrico 158
R028	P-014184		Isolate	No Record on File	Not Eligible	IB	Smith 96+301
R028	P-014184		Isolate	No Record on File	Not Eligible	IB	Carrico 158
R028	P-014185		Isolate	No Record on File	Not Eligible	IB	Smith 96+301
R028	P-014185		Isolate	No Record on File	Not Eligible	IB	Carrico 158
R028	N/A	4865	Artifact Scatter	Knapped Stone and Ground Stone	Not Eligible	IB	Smith 96+301
R037	11412		Lithic Scatter	Knapped Stone	Not Eligible	OM	None
R037	15235		Lithic Scatter	Knapped Stone	Not Eligible	OM	Smith 96 + 301
R037	14235		Lithic Scatter	Knapped Stone	Not Eligible	OM	Carrico 158
R037	14236		Lithic Scatter	Knapped Stone	Not Eligible	OM	Smith 96 + 301
R037	14236		Lithic Scatter	Knapped Stone	Not Eligible	OM	Carrico 158
R037	4789 (4988)		Lithic Scatter	Knapped Stone	Not Eligible	OM	Smith 96 + 301
R037	4789 (4988)		Lithic Scatter	Knapped Stone	Not Eligible	OM	Rosen 90+24
R037	4789 (4988)		Lithic Scatter	Knapped Stone	Not Eligible	OM	Carrico 158
R037	4789 (4988)		Lithic Scatter	Knapped Stone	Not Eligible	OM	Schaefer 94+23
R040	12278		Lithic Scatter	Knapped Stone	Not Eligible	JM	Smith 96+301
R040	12278		Lithic Scatter	Knapped Stone	Not Eligible	JM	Buyssei 99+5
R041	I-443		Isolate	No Record on File	Not Eligible	OM	Carrico 158
R043	I-447		Isolate	No Record on File	Not Eligible	IB	Smith 96+301
R043	I-447		Isolate	No Record on File	Not Eligible	IB	Rosen 90+24
R043	I-447		Isolate	No Record on File	Not Eligible	IB	Carrico 158
R047	11384		Historic Site	Foundation and Trash Scatter	Not Eligible	OM	Carrico 158
R052	10511		No Documentation	No Record on File	Not Eligible	IB	SRS 84+35
R052	10511		No Documentation	No Record on File	Not Eligible	IB	Pignolio 89+9
R052	10511		No Documentation	No Record on File	Not Eligible	IB	Kyle 94+60
R058	12886		Lithic Scatter	Knapped Stone	Not Eligible	OM	County of SD 83 EIR+14
R072	1077		Isolate	Scraper	Not Eligible	IB	County of SD 88 EIR 23
R072	6941		Habitation Site	Midden, Knapped Stone, Ground Stone	Not Eligible	IB	None
R072	10197		Artifact Scatter	Knapped Stone and Ground Stone	Not Eligible	IB	None
R072	14084		Lithic Scatter	Knapped Stone	Not Specific	IB	None
R075	7208		Lithic Scatter	Knapped Stone	Not Eligible	OM	County of SD 83 EIR 14
R075	7215		Lithic Scatter	Knapped Stone	Not Eligible	OM	County of SD 83 EIR 14
R075	7857		Lithic Scatter	Knapped Stone	Not Eligible	OM	County of SD 83 EIR 14
R075	8654		Lithic Scatter	Knapped Stone	Not Eligible	OM	County of SD 83 EIR 14
R075	8753		Lithic Scatter	Knapped Stone	Not Eligible	IB	SRS 84+35
R075	10207		Lithic Scatter	Knapped Stone	Not Eligible	IB	SRS 84+35
R075	10207		Lithic Scatter	Knapped Stone	Not Eligible	IB	City of SD 96+101

TABLE 4.2
CULTURAL RESOURCES IMPACT ANALYSIS
(continued)

CIP Number	OHP Site Number	SDMM Site Number	Site Type	Content	NRHP Status Indicated by the Documentation	Quad	Report Author, Year and Number on File at South Coastal Information Center
R075	10627		Lithic Scatter	Knapped Stone	Not Eligible	OM	Westec 82 EIR 9
R075	10627		Lithic Scatter	Knapped Stone	Not Eligible	OM	Thesken 82+5
R075	10627		Lithic Scatter	Knapped Stone	Not Eligible	OM	County of SD 83 EIR+14
R075	11799		Lithic Scatter	Cistern	Not Specific	OM	Carrico 74+141
R075	12337		Lithic Scatter	Knapped Stone	Not Specific	OM	County of SD 83 EIR+14
R075	12337		Lithic Scatter	Knapped Stone	Not Specific	OM	Carrico 74+141
R075	12337		Lithic Scatter	Knapped Stone	Not Specific	OM	Carrico 158
R075	12337		Lithic Scatter	Knapped Stone	Not Specific	OM	Rosen 90+24
R075	14090		Lithic Scatter	Knapped Stone	Not Specific	OM	County of SD 83 EIR+14
R075	14092		Lithic Scatter	Knapped Stone	Not Specific	OM	None
R075	14094		Lithic Scatter	Knapped Stone	Not Specific	OM	County of SD 83 EIR+14
R077	6941		Habitation Site	Midden, Knapped Stone, Ground Stone	Not Eligible	IB	None
R077	7215		Lithic Scatter	Knapped Stone	Not Eligible	OM	County of SD 83 EIR 14
R077	8081	2071	Lithic Scatter	Knapped Stone	Not Specific	OM	Carrico 74+141
R077	8654	453	Lithic Scatter	Knapped Stone	Not Specific	OM	County of SD 83 EIR 14
R077	10627		Lithic Scatter	Knapped Stone	Not Eligible	OM	Westec 82 EIR 10
R077	10627		Lithic Scatter	Knapped Stone	Not Eligible	OM	Hector 82+46
R077	I-514		Isolate	Flake	Not Eligible	OM	Carrico 74+141
R078	4739		Lithic Scatter	Knapped Stone	Not Eligible	OM	Smith 96+301
R078	4739		Lithic Scatter	Knapped Stone	Not Eligible	OM	Rosen 90+24
R078	4739		Lithic Scatter	Knapped Stone	Not Eligible	OM	Carrico 158
R078	4740		Lithic Scatter	Knapped Stone	Not Eligible	OM	Smith 96+301
R078	4740		Lithic Scatter	Knapped Stone	Not Eligible	OM	Rosen 90+24
R078	4740		Lithic Scatter	Knapped Stone	Not Eligible	OM	Carrico 158
R078	4740		Lithic Scatter	Knapped Stone	Not Eligible	OM	McDonam 93+4
R078	4741		Lithic Scatter	Knapped Stone	Not Eligible	OM	Smith 96+301
R078	4741		Lithic Scatter	Knapped Stone	Not Eligible	OM	Rosen 90+24
R078	4741		Lithic Scatter	Knapped Stone	Not Eligible	OM	Carrico 158
R078	4741		Lithic Scatter	Knapped Stone	Not Eligible	OM	Schaefer 94+23
R078	4743		Lithic Scatter	Knapped Stone	Not Eligible	OM	Smith 96+301
R078	4743		Lithic Scatter	Knapped Stone	Not Eligible	OM	Rosen 90+24
R078	4743		Lithic Scatter	Knapped Stone	Not Eligible	OM	Carrico 158
R078	4743		Lithic Scatter	Knapped Stone	Not Eligible	OM	Schaefer 94+23
R078	4790		Lithic Scatter	Knapped Stone	Not Eligible	OM	Smith 96+301
R078	4790		Lithic Scatter	Knapped Stone	Not Eligible	OM	Carrico 158
R078	4863		Artifact scatter	Knapped Stone and Ground Stone	Not Eligible	IB/OM	Smith 96+301
R078	4863		Artifact scatter	Knapped Stone and Ground Stone	Not Eligible	IB/OM	Fink 73-25

TABLE 4.2
CULTURAL RESOURCES IMPACT ANALYSIS
(continued)

CIP Number	OHP Site Number	SDMM Site Number	Site Type	Content	NRHP Status Indicated by the Documentation	Quad	Report Author, Year and Number on File at South Coastal Information Center
R078	11362		Lithic Scatter	Knapped Stone	Not Eligible	OM	Smith 96 + 301
R078	11362		Lithic Scatter	Knapped Stone	Not Eligible	OM	Co. of S.D. 83 EIR + 14
R078	11362		Lithic Scatter	Knapped Stone	Not Eligible	OM	Carrico 158
R078	11362		Lithic Scatter	Knapped Stone	Not Eligible	OM	Banks 80 + 2
R078	11968		Lithic Scatter	Knapped Stone	Not Eligible	IB	Carrico 158
R078	12293		Artifact scatter	Knapped Stone and Ground Stone	Not Eligible	IB/OM	Fink 73-75
R078	14203		Artifact scatter	Knapped Stone and Ground Stone	Not Eligible	OM	Smith 96+301
R078	14205		Lithic Scatter	Knapped Stone	Not Eligible	OM	Ritz 89
R078	14205		Lithic Scatter	Knapped Stone	Not Eligible	OM	Smith 96+301
R078	14205		Lithic Scatter	Knapped Stone	Not Eligible	OM	Rosen 90+24
R078	14205		Lithic Scatter	Knapped Stone	Not Eligible	OM	Carrico 158
R078	14231		Artifact scatter	Bedrock Milling and Knapped Stone	Not Specific	OM	Smith 96+301
R078	14232		Artifact scatter	Bedrock Milling and Knapped Stone	Not Specific	OM	Smith 96+301
R078	4789 (4988)		Lithic Scatter	Knapped Stone	Not Eligible	OM	None
R079	10783		Artifact Scatter	Knapped Stone and Ground Stone	Not Specific	IB	City of S.D. 98+112
R081	7198		Lithic Scatter	Knapped Stone	Not Eligible	JM	Westec 79+10
R081	7198		Lithic Scatter	Knapped Stone	Not Eligible	JM	Kaldenberg 75+15
R081	7198		Lithic Scatter	Knapped Stone	Not Eligible	JM	Co.of S.D. 88 EIR 23
R081	16084		Lithic Scatter	Knapped Stone	Not Eligible	JM	Westec 79+10
R081	16084		Lithic Scatter	Knapped Stone	Not Eligible	JM	Wade 88+11
R081	16084		Lithic Scatter	Knapped Stone	Not Eligible	JM	Co. of S.D. 88 EIR 23
R081	I-376		Isolate	No Record on File	Not Eligible	JM	Rosen 90+24
R081	I-376		Isolate	No Record on File	Not Eligible	JM	Carrico 158
R083	P-014168		Isolate	Flake	Not Eligible	IB	Carrico 158
R084	I-449		Isolate	Historic Glass	Not Eligible	OM	Carrico 158
R085	P-014176		Isolate	Drill	Not Eligible	OM	Carrico 158
R077	11798		Artifact Scatter/Historic Site	Knapped Stone and 1903 Building	Not Specific	JM	Carrico 74+141
R077	12888		Historic	Historic Trash	Not Specific	OM	Carrico 74+141
R072	14083		No Documentation	No Record on File	Not Specific	IB	None
R072	14086/H		Lithic Scatter/Historic Site	Knapped Stone/ Historic Trash	Not Specific	IB	None
R072	14086/H		Lithic Scatter/Historic Site	Knapped Stone/ Historic Trash	Not Specific	IB	None

* Key to USGS 7.5' Quadrangle abbreviations: IB – Imperial Beach; JM – Jamul Mountains; OM – Otay Mesa.

- If an archaeological resource is determined to be eligible for the NRHP, and avoidance is not feasible, the District will develop a Treatment Plan to be submitted to Reclamation for a review and comment period. At a minimum, a Treatment Plan shall include a research design, research questions and data requirements to answer them, a data recovery plan, proposed disposition of recovered materials and records, proposed methods for involving Tribes and the interested public, and a proposed schedule for implementation of the plan.

  The District shall ensure that a report is prepared for each data recovery project covered in the Treatment Plan. Reclamation shall review the report and consult with the SHPO, Tribes, and interested parties on draft data recovery reports.

- The District will ensure that research results from the Data Recovery excavations at eligible archaeological sites will be provided to the South Coastal Information Center and the San Diego Archaeological Center and will also be disseminated to the general public.

- Excavation records and materials recovered from non-eligible archaeological sites will be curated at an appropriate facility.

To insure that the procedures identified here are completed, a Programmatic Agreement between Reclamation, SHPO, and the District shall be executed specifying the duties of each part. The Programmatic Agreement expands on the steps discussed above and may be obtained from Reclamation.

Determining the significance of impacts to cultural resources is dependent on whether a site meets or does not meet the significance criteria identified in the NRHP and the California Register of Historic Resources (CRHR). The evaluation criteria of these two programs are very similar in their organization and terminology. The NRHP criteria are identified in 36 CFR 60. The NRHP identifies the specific criteria by alphabetical designation (i.e., Criteria A though D) and the CRHR identifies the criteria with numeric designations (i.e., Criteria 1 through 4). The content of the criteria remain consistent between the two programs. The NRHP criteria are provided here as the example:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded, or may be likely to yield, information important in prehistory or history.

4.3.1.1 District Implemented Projects

Cultural Resource Mitigation Measures

- On-site cultural resource surveys shall be conducted by a qualified archaeologist prior to implementation of an individual project. The purpose of the survey will be to more precisely locate and map significant cultural resources.

- If cultural resources are encountered during construction, construction activities will stop until a qualified archaeologist examines the findings, and assesses significance. Procedures outlined in the Programmatic Agreement will be followed.

- If human bones are found during construction, all work shall stop and the County Coroner will be contacted immediately. If the remains are determined to be Native American, the Coroner shall notify the Native American heritage Commission who shall notify the person it believes to be the most likely descendant. The most likely descendant shall work with the District to develop a program for re-internment of the human remains and any associated artifacts. No construction work shall take place in the immediate vicinity of the find until the above actions have been executed.

4.3.1.2 Developer Implemented Projects

Cultural Resource Mitigation Measures

- Survey of the entire project area and testing of sites as outlined in the Otay Ranch RMP and appendices. Implement mitigation to preclude impacts to significant site based on the survey and testing program.

- Perform paleontological monitoring during excavation of geologic formations with paleontological sensitivity to prevent disturbance to significant resources.

4.3.2 No Action Alternative

Reclamation would not execute an Agreement with the District, so there would be no allocation of federal funds for the Project. The District would still implement the Project in order to meet future water demands and maximize the use of local water supplies. The Project would still be implemented, so environmental effects to cultural resources would be the same as the Proposed Project.

Under this alternative, there would be no Programmatic Agreement between Reclamation, the District, and the SHPO. The orderly procedure of cultural resource mitigation as outlined in the Programmatic Agreement would not be followed. The District would be required to comply with the National Historic Preservation Act and SHPO on a project-by-project basis, following the Section 106 process.

4.3.3 No Project Alternative

The District would not implement the Project. There would be no significant impact on cultural resources.

4.4 Land Use

4.4.1 Proposed Project

Water service facilities are exempt from local planning and zoning requirements under Section 53091 of the California Government Code. Even though District facilities are not subject to local zoning and land use designations, District policy requires careful planning and review in order to coordinate their facilities with local land use policies and zoning. This ensures that there is no adverse impact from implementation of District facilities and infrastructure.

District facilities are a necessary infrastructure element for all types of development. The District's recycled water CIP program was developed after a careful survey of existing and planned development, and the phasing and intensity of future development. Many water utilities are designed and constructed as part of subdivision improvements under the approval of local jurisdictions. This is done wherever possible for efficiency, economy, and avoidance of later disruption of communities and public rights-of-way. Expansion of the District's recycled water infrastructure in the Central Area System is anticipated to meet market demands. This increase in recycled water demand is partly a result of land use policies in the local jurisdictions and development projects. Large developments are being required to install parallel water delivery systems so that recycled water can be used for irrigation of landscaping.

Elements of the Project that interact with land uses include pipelines, pump stations, and reservoirs. Pipelines are installed belowground in public rights-of-way in existing or planned roads as much as possible, and do not have any significant effects after installation. Pump stations and reservoirs are installed partly or entirely aboveground and are visible. During pipeline construction and maintenance, there may be potential impacts associated with traffic and possible conflicts with other utilities. Any potential conflicts with other utilities, such as natural gas lines or electrical conduits, are identified in the engineering and design stage of the project and avoided. District policy is to coordinate all construction, repair, and maintenance activities with other utilities that may be in the shared rights-of-way. Therefore, any potential impacts on utilities are identified and avoided, or mitigated to less than significant by District policy. No land use changes are expected to occur in the District as a result of the proposed Project.

4.4.1.1 District Implemented Projects

Land Use Mitigation Measures

- The District will follow applicable land use policies addressing sensitive lands when appropriate. This will reduce potential conflicts with environmentally sensitive lands regulations.

- The District will coordinate project construction with other utilities that may exist in utility rights-of-way in order to minimize disruption of service.

4.4.1.2 Developer Implemented Projects

Land Use Mitigation Measures

- Inclusion of landscaping and buffering guidelines in the GDP and SPA plans would reduce any potential incompatibility with internal project land uses in the Otay Valley Parcel, including residential, commercial, and industrial uses.

4.4.2 No Action Alternative

The District would still implement the Project, even without the Agreement and federal funding. By implementing the Project, the District could maximize use of local water supplies, and meet future water demands. Environmental impacts would occur from Project implementation, and would be the same as the proposed Project alternative. See section 4.5.3 for potential impact details.

4.4.3 No Project Alternative

The District would not construct its project under this alternative. Use of local water sources would not be maximized. The District's ability to meet future water demands may be hindered. The approximate 9,126 acre-feet per year of recycled water that the Project would supply would not be available. The intended use of the recycled water is for irrigation.

Current recycled water customers are developments including EastLake Greens, EastLake Trails, EastLake Business Center, Rancho del Rey, Sunbow, Rancho San Miguel, Rolling Hills Ranch, Otay Ranch and the Olympic Training Center. Future recycled water demands include parks, golf courses, street and highway landscapes, freeways, schools, office parks, commercial and industrial areas, government facilities, health care centers, multi-family residential housing, and other common areas that require irrigation. Under the no project alternative, the potential for irrigation for these future areas would be limited. Without the Project, the District's recycled water system would continue to be supplemented with potable water.

4.5 Aesthetics

4.5.1 Proposed Project

Implementation of the Project will require temporary disturbance of the sites for construction. Many of the individual projects are not prominently visible from residences, roads, or other public viewsheds. For those projects that would be viewable, construction may result in highly noticeable effects. Disturbance of ground cover, grading, excavation, material stockpiles, and the operation of construction equipment are common features of construction sites. When construction is completed, most of the projects would have no significant effect on the visual environment.

Installation of pipelines will occur primarily in roadways that are being constructed. This simultaneous construction of roads and pipelines will reduce temporary construction impacts. Existing traffic on these roads would be minimal, often the roads are dirt and used primarily by construction vehicles, which further reduces adverse visual impacts since public use is limited. Visual disturbance from construction is short-term, and impacts are reduced upon the completion of construction. Pipelines in roadways are belowground installations and would have no visual effect when completed. Pipelines outside of roadways would have no effect when the area is revegetated upon completion of construction.

Pump stations are structures that may be near roads and developed areas. Pump stations typically have masonry walls and a roof, resembling an ordinary single-story building. Because they are ordinary looking once constructed, they usually are an unremarkable feature in the landscape for most viewers. The potential for significant visual effects from a pump station is low, but their appearance can be enhanced by exterior treatment and landscaping. Pump stations will not have significant aesthetic effects.

The visual effect of reservoirs depends on the visibility of the site, degree of landform alteration, size, color and prominence of the structure, the number and proximity of the viewers, and any landscaping or screening of the facility. In order for reservoirs to function with the system's operating pressure, they are required to be located at the appropriate elevation, usually on hillsides, hilltops, or ridges in prominent locations. Reservoirs are typically constructed out of steel or concrete, and are cylindrical in shape. Features associated with the reservoir may contribute to its visual effects, such as grading to create a level pad, which may include cut and fill slopes, depending on site topography. Fencing and utility connections can also add visible features, though these would usually be minor in comparison to the reservoir. Landscaping can help to screen the form of a reservoir, but in most cases it is more effective in developed areas than in native hillsides. In such cases, revegetation with native species, especially taller native scrub species, including trees, is recommended. In some cases, it may be possible to build an earthen berm around the base of a reservoir and revegetate it to blend with its natural surroundings.

Reservoirs are highly visible features; viewer reactions and attitudes may be mixed. Water storage reservoirs are familiar features of the landscape in San Diego County; for many residents of and visitors to viewsheds, reservoir presence in the landscape is familiar, and because of that familiarity, accepted without much remark. For some viewers, they are perceived as marring the landscape. This is common where reservoirs are set in natural landscapes, in less densely developed areas, and on ridges, hillsides, or hilltops.

The project has been designed to be compatible with existing neighborhoods and future developments plans as much as possible. Where potential exists for a significant impact to visual resources, such as a reservoir, the District would identify the viewer groups, and involve them in the project planning process as project details are finalized. This coordination would minimize potential adverse impacts to a less-than-significant level.

Most components of the Project would result in minor external changes and would have no significant visual impact. Most pipelines will have no permanent visual effects. When potential exists for an impact, the District will incorporate the affected viewer group(s) into the design process to minimize potential impacts to a less-than-significant level using design features, screening, landscaping, and native vegetation.

4.5.1.1 District Implemented Projects

Aesthetics Mitigation Measures

- Where possible, projects shall be sited in areas that have natural features, such as topography and vegetation, which would block views to the project facilities.
- Design facilities to blend in with their proposed surrounding. Include color and design that blends with the vegetation, rocks, etc. within the sites surrounding characteristics.
- Provide landscaping to screen views to the proposed project facilities.

4.5.1.2 Developer Implemented Projects

Measures below were developed in the context of the Otay Ranch development. Developers are required to implement these measures as each village is constructed. These measures address the village development, and do not specifically address the roads that the pipelines will be under.

Aesthetics Mitigation Measures

- Grading will be limited to below tops of major ridgelines, as outlined in GDP. Integration of natural buffering between development and landforms shall be performed.
- Specific guidelines for grading, design, landscaping and buffering, building heights and colors, and setbacks, as outlined in village SPA plans shall be included.

4.5.2 No Action Alternative

There would be no federal allocation of funds under this alternative. The District would still implement the Project to meet future water demand. The most visible components of the Project are reservoirs, and to a lesser extent, pump stations. In general, pipelines are located underground and do not have any impact on the visual quality of the surface. The Project would still be constructed under this alternative, and aesthetic impacts would be the same as the proposed Project alternative.

4.5.3 No Project Alternative

The Project would not be constructed for this alternative. There would be no direct effects to aesthetic resources, since reservoirs and pump stations, the most visible

components of the Project, would not be constructed. Temporary aesthetic impacts associated with construction would not occur, since the Projects would not be built.

4.6 Air Quality

4.6.1 Proposed Project

Implementation of the proposed project would result in emissions generated by construction equipment, private and District vehicles, and power-consuming District facilities such as pump stations. The San Diego APCD regulates pollutant emissions from motorized construction equipment.

Standard equipment used for the construction of reservoirs, pump stations and pipelines can include bulldozers, rollers, dewatering pumps, backhoes, loaders, delivery and haul trucks, and other equipment. Typical equipment and associated emissions found at construction sites is listed in Table 4.3.

TABLE 4.3
EXHAUST EMISSIONS FROM TYPICAL CONSTRUCTION EQUIPMENT (pounds per day)

Equipment	Average Hours/Day of Operation	Emissions				
		NO_X	CO	PM_{10}	VOC	SO_2
Front-end loader	8	13.01	3.24	1.27	0.94	1.34
Crawler tractor	4	14.46	3.62	1.51	0.81	1.87
Roller	8	22.24	10.01	1.47	1.65	1.88
Backhoe	4	5.6	3.44	0.6	0.82	0.40
Utility truck	8	11.16	2.40	1.00	0.56	1.36
12,000-gallon tanker	4	25.51	7.14	1.57	1.16	2.79
Dump truck	4	7.66	2.14	0.47	0.35	0.84

SOURCES: Radian Corporation and Environmental Protection Agency 1988.
NO_X = oxides of nitrogen; CO = carbon monoxide; PM_{10} = 10-micron particulates;
VOC = volatile organic compounds; SO_2 = sulfur dioxide

Table 4.4 lists the San Diego APCD air quality impact analysis trigger levels.

TABLE 4.4
AIR QUALITY IMPACT ANALYSIS TRIGGER LEVELS

Pollutant	Threshold (pounds/day)
NOx	250
SOx	250
CO	550
PM_{10}	100
Lead	3.2
ROC	55*

SOURCE: San Diego APCD, Rule 20.2 (12/17/1998).
*The SDAPCD does not specify a threshold for ROG. The significance threshold of 55 pounds/ day cited is from the South Coast Air Quality Management District CEQA Air Quality Handbook as recommended by San Diego County staff (County of San Diego 2005).

Under the SDABs APCD Rules and Regulations, a construction site may be considered a stationary source of air pollutant emissions. As long as "offset trigger levels" of emissions are not exceeded, site-specific impacts would not be considered significant. Offset trigger levels are 550 pounds per day for carbon monoxide, 250 pounds per day for sulfur dioxide and nitrogen dioxide, and 100 pounds per day for PM_{10}. Exhaust emissions from typical construction equipment, as listed in Table 4.3, would not exceed the SDAB trigger thresholds, listed in Table 4.4. Impacts to air quality from operation of construction equipment would be less-than-significant.

Grading and trenching have a potential to cause a discharge of particulates into the air. Fugitive dust emissions are subject to regulation by APCD and local jurisdictions. Typical grading ordinances require that all graded surfaces and materials, whether filled, excavated, transported, or stockpiled, be wetted, protected, or contained to minimize nuisance from dust. In general, working areas of a construction site are watered at the beginning of each working day and at least once during the day. More frequent watering may be required if warranted. While the quantities of grading involved in construction of the pipelines, reservoirs, and pump stations make it inevitable that some fugitive dust will be generated, adherence to APCD Rules and Regulations and applicable grading ordinances would reduce fugitive dust emissions to less-than-significant levels. Therefore, short-term air quality impacts from the operation of heavy equipment and fugitive dust emissions during construction would not be significant. In addition, many of the pipelines will be constructed concurrently with the roads, thereby reducing the overall temporary impact from construction activities.

Potential air quality impacts related to long-term operation of the projects include emissions associated with the generation of electricity for facilities, particularly pump stations. During power outages, power is provided by on-site diesel generators. Two recycled water pump stations would be constructed as part of the proposed project. Four projects involve upgrades to the RWCWRF, which may also increase the amount of energy use for long-term operations. These energy requirements are necessary components of the orderly, planned growth in the air basin associated with local land use jurisdictions' general and community plans. The long-term air quality impacts from the operation and maintenance of pump stations and other District facilities are not significant.

4.6.1.1 District Implemented Projects

Air Quality Mitigation Measures

- The District and its contractors will maintain construction equipment engines to ensure minimum emissions.

- The District shall adhere to APCD regulations and grading ordinances to minimize fugitive dust by applying water or chemical dust suppressants to disturbed areas and unpaved roadways to maintain a stabilized surface.

- Vehicles hauling dirt or fill will be covered to minimize fugitive dust and PM_{10}.

4.6.1.2 Developer Implemented Projects

These measures were developed in the context of the Otay Ranch and village development. Developers are required to implement measures as each village is constructed. These measures address the large-scale village development, and do not specifically address the roads that the pipelines will be under.

Air Quality Mitigation Measures

- Mitigation for vehicular emissions includes implementation of village design, public transit, TDM, and bike paths. Stationary source mitigation includes the promotion of mass transit, the installation of heat transfer modules on gas-fired furnaces, energy efficient building design, and minimization of drive-in establishments.

- Mitigation for construction emissions includes phasing construction, use of low pollutant-emitting construction equipment, and watering, stabilization and prompt paving of roadways.

4.6.2 No Action Alternative

Without executions of an Agreement, and no allocation of federal funds, the District would still likely implement the Project, in order to meet future water demands. Environmental effects to air quality for this alternative are the same as the proposed project.

4.6.3 No Project Alternative

Under this alternative, the District would not construct the Project. Any potential effects to air quality under this alternative would not occur since there would be no Project construction. Temporary, construction-related impacts such as increased fugitive dust and particulate matter, and vehicle emissions would not occur. There would be no significant effect to air quality.

4.7 Noise

4.7.1 Proposed Project

District recycled water facilities do not produce high noise levels. Pump stations can produce perceptible noise. The Project calls for construction and operation of two pump stations. During normal operation, pumps are powered by electric motors, and during emergencies diesel engine generators are used. Masonry enclosures for pump stations are effective at attenuating noise. Adequate areas around pump stations buffers nearby sensitive noise receivers.

The District tests emergency generators approximately once a week for approximately 30 minutes during normal working hours. The District does not ordinarily receive complaints from nearby residents about noise produced from normal operations or emergency tests at pump stations or other facilities. Based on this experience, effects on noise levels from the Project are less-than-significant.

Noise will be generated during Project construction. Construction equipment noise ranges from 70 dB(A) to 90 dB(A), and sometimes up to 100 dB(A) for rock drills and pile drivers. Noise from construction activities would occur at specific, localized sites for reservoirs and pump stations, or along extended linear sites for pipelines. Construction noises generally occur during daylight hours on weekdays when noise sensitivity is lower. Construction noises may be intrusive, however, they are generally considered less than significant because of short duration during normal working hours. Long-term construction noise impacts would not occur at site-specific locations.

Some facilities in this Project will be constructed in areas that are already developed, but others will be in areas where development has not yet begun. Identification of sensitive receivers is not yet possible for components of the Project since specific details have not yet been determined. Where sensitive receivers are, compliance with the applicable jurisdictions noise ordinance for construction would mitigate impacts from Project construction to less-than-significant levels.

4.7.1.1 District Implemented Projects

Measures outlined below address construction and operational noise.

Noise Mitigation Measures

- Pump Stations: Identify sensitive receivers within 250 feet and conduct noise analysis to determine noise levels. Incorporate feasible engineering measures into facility design to reduce noise levels. Criteria for successful mitigation shall be

the reduction of noise levels affecting sensitive receivers to 65 dB(A) CNEL from normal facility operation.

- Implement noise barriers in sensitive areas.

- For projects adjacent to sensitive wildlife habitat, (e.g., least Bell's vireo), follow established protocols for noise monitoring during construction.

- District and contractors will comply with local ordinances and regulations specifying sound control and noise level rules.

- Construction work shall be conducted Monday through Friday between the hours of 7:00 A.M. and 5:00 P.M., in compliance with the San Diego county noise ordinance for construction. No construction shall occur outside these days and times except in an emergency.

- Construction equipment, and equipment at facilities will have mufflers.

- No equipment shall create noise levels in excess of 75 dB(A) at the nearest residential property line for any eight-hour period during its allowed times of operation.

4.7.1.2 Developer Implemented Projects

The measures outlined below address noise impacts at a large-scale village development level. These measures will be implemented as village development occurs.

Noise Mitigation Measures

- Perform site-specific studies for each village SPA plan and implement identified mitigation measures, including setbacks and noise berms.

- In areas adjacent to habitat, prepare site-specific studies on roadways and development.

4.7.2 No Action Alternative

Under this alternative the District would still implement the Project, even without federal funding, in order to meet future water demands. Impacts to ambient noise levels include construction-related noise, and operation noise from pump stations. Adherence to local jurisdictional noise ordinances would mitigate noise impacts to less-than-significant levels. These impacts are the same as the proposed project alternative.

4.7.3 No Project Alternative

The District would not construct its project under this alternative. There would be no effect on ambient noise levels from construction or operation activities.

4.8 Transportation

4.8.1 Proposed Project

Many of the pipeline projects are located in roads associated with new development. In the circulation element of the Chula Vista General Plan, undergroundings of utilities within street rights-of-way and transportation corridors is encouraged to enhance the visual appearance of the roadway and create a safer driving environment. The District's Project complies with this objective.

Pipelines would be constructed as roads are constructed, so there would be minimal impact to traffic patterns since the majority of existing traffic patterns are construction related.

For pipeline construction in existing roads, engineering design would coordinate pipeline location with other utilities located in the street right-of-way. Construction, including work schedules, traffic control, and detour routes would be coordinated with local jurisdictions. All construction would be contained within the right-of-way of the roads and staging areas. No road design features would be affected by the proposed project. Therefore, there would be no significant impacts to traffic for the few projects that are located in existing roadways.

4.8.1.1 District Implemented Projects

Transportation Mitigation Measures

- Develop and submit Traffic Control Plan prior to the start of construction. This plan shall specify temporary traffic control zones, posting of appropriate signage, and speed limits for control zones.

- For projects in public roadways, the District shall coordinate with local jurisdictions and conform to applicable traffic control requirements during construction.

- Implement traffic management measures including marking temporary traffic lanes, use of barricades and lights at excavations and crossings.

- When feasible, during pipeline construction maintain both directions of traffic flow.

4.8.1.2 Developer Implemented Projects

Transportation Mitigation Measures

- Transportation mitigation will include the following: development of transportation demand management mitigation strategies; preparation of transportation phasing plans; provide parallel arterial system; improve mode split; increase local/regional trip capture; increase freeway, segment, and intersection capacities; implement transportation system management strategies and traffic control strategies.

4.8.2 No Action Alternative

Without executions of an Agreement, and no allocation of federal funds, the District would still likely implement the Project, in order to meet future water demands. Transportation impacts under this alternative are the same as the proposed project.

4.8.3 No Project Alternative

Under this alternative the District would not construct the Project. There would be no impact to transportation.

4.9 Environmental Justice

4.9.1 Proposed Project Impact Assessment

The proposed project consists of reservoirs, pump stations, pipelines, and building upgrades for recycled water distribution. The majority of facilities, particularly pipelines, are located underground and are generally not visible. The project facilities are located throughout the District's Central Area and Otay Mesa Systems, which cover diverse neighborhoods. In addition, recycled water delivered to customers is subject to health and safety regulations under Title 22 of the California Code of Regulations.

The pipelines would not be noticeable once installed, and benefits of reclaimed water availability would accrue equally to customers of the District. For these reasons, neither benefits nor risks associated with the proposed action would disproportionately affect minority or low-income populations, and no impacts of either the proposed action or the no action alternative associated with environmental justice are anticipated.

In addition, the proposed project would be located primarily within public street rights-of-way, or on property owned by the District. There are no known legal interests in assets held in trust by the federal government for federally recognized Indian tribes or individual Indians (Indian Trust Assets or ITAs) associated with the project site. Therefore, the proposed project will not have significant impacts.

4.9.2 No Action Alternative Impact Assessment

Without executions of an Agreement, and no allocation of federal funds, the District will likely implement the Project, in order to meet future water demands. There would be no significant impact to environmental justice for this alternative. For discussion, please refer to proposed Project assessment discussion (Section 4.10.3).

4.9.3 No Project Alternative Impact Assessment

Under this alternative, the District would not construct the Project. Without the Project, the anticipated 9,219 acre-feet of recycled water per year would not be available. Without Project implementation, any shortage of water would be incurred by the entire District. No neighborhoods would be unfairly affected by potential water shortages. There would be no environmental justice concerns for this alternative.

4.10 Cumulative Impacts

Cumulative impacts are those impacts that by themselves are not significant but, when considered with impacts occurring from other projects in the vicinity, would result in a total or cumulative impact. The proposed project is a series of projects to be implemented over a period of approximately 25 years or less. The proposed project consists of the Phase II and III Recycled Water CIP. The proposed project consists of three reservoirs, two pump stations, 33 pipelines, and four upgrades to the RWCWRF. These projects are within the scope of the District's Capital Improvement Program and Water Resource Master Plan, which was prepared to anticipate and meet future customer demands. Many of the projects are within the scope of the Master Environmental Impact Report (MEIR) for the District's Water Resource Master Plan. Mitigation for potential impacts was identified in the MEIR and incorporated into this Programmatic EA.

As project specific details are determined for individual project components, the District would follow the Biological Resource Measures (Section 4.2.1.1), and Cultural Resource Programmatic Agreement. These protocols will be implemented as necessary to ensure that potential environmental effects are avoided and minimized to a level of less-than-significant. The Programmatic Agreement is available upon request from Reclamation.

No significant impacts to environmental justice or ITAs would be associated with the proposed project. With implementation of the mitigation measures, biological resource protocol, and cultural resource Programmatic Agreement, no significant impacts associated with the proposed project have been identified that would be insignificant in and of themselves but would be significant in combination with impacts of other projects. The proposed project would not contribute to significant cumulative impacts.

The proposed project would not have any adverse significant environmental impacts, however, there would be a significant beneficial effect regarding the increase and distribution of recycled water. The proposed Project would significantly increase the amount and distribution of recycled water. Given the current demand for recycled water within the Central Area System of the District, and the future demand in both the Central Area and Otay Mesa System, the proposed project would not only meet the demand for recycled water, it would make available the potable water that is currently used to supplement the recycled water supply to meet present day demands.

Program level cumulative effects that may occur of overall regional development proceeds during the implementation of the Project as allowed by existing land use designations and zoning. Existing land use designations and zoning include San Diego County, City of San Diego, and City of Chula Vista General Plans; and HCPs including City of Chula Vista MSCP Subarea Plan, and County of San Diego and City of San Diego MSCP. Other region-wide plans and regulations developed for protection of the environment include the Otay Ranch Resource Management Plan.

By implementing the Recycled Water CIP Program, which includes the proposed Project, the District will be able to provide recycled water to its customers. The cumulative impacts of the proposed Project would be reduced to a less-than-significant level with the implementation of measures to avoid and minimize potential effects as outlined in the Programmatic EA. By implementing the Water Resources Master Plan, the District will be able to reliably provide water to its customers by ensuring that an adequate supply is available and that adequate infrastructure is in place to transport and treat the water.

The Otay Ranch development is a planned community that is being phased over a period of 30 to 50 years. The Otay Ranch Final Program EIR identified unavoidable cumulative impacts to the environment including impacts to land use, landform alteration and aesthetics, biological resources, agricultural resources, mineral resources, transportation, air quality and noise. These impacts are associated with the conversion of undeveloped land from primarily open space and agricultural use to urban uses.

The proposed Project involves recycled water pipelines that will be installed in roadways as development occurs in Otay Ranch. These pipelines will be underground and will not result in significant cumulative impacts. The cumulative impacts from Otay Ranch development have and will occur independent of the District’s pipelines.

4.11 Irreversible and/or Irretrievable Commitments of Resources

This section considers the effects of the proposed Project that would result in the commitment of resources and uses of the environment that could not be recovered if the project were constructed. An irreversible or irretrievable commitment of resources would occur when resources were consumed, committed, or lost as a result of the Project. The commitment of a resource would be irreversible if the project started a process that would not be stopped. As a result, the resource, its productivity, or its utility would be consumed, committed, or lost forever. Commitment of a resource would be considered “irretrievable” when the project would directly eliminate the resource, its productivity, or its utility for the life of the project.

The reservoir and pump station components of the Project would involve the commitment of land to these facilities. Implementation of the Project would involve the consumption of energy derived from nonrenewable sources, such as fossil fuels. Building materials would be considered permanently consumed. These changes would be irreversible.

Section 5.0
Consultation and Coordination

The following individuals and agencies were consulted during the analysis of the proposed action and the preparation of this environmental study.

Otay Water District
- Dianne Kilwein
- Jim Peasley
- Robert Scholl

U.S. Department of the Interior, Bureau of Reclamation
- Doug McPherson
- Laurie Perry
- Dennis Wolfe

City of San Diego
- Kim Vance
- Ron Buckley

U.S. Army Corps of Engineers
- Jae Chung
- Laurie Ikuta
- Stacey Jensen
- Robert Smith

U.S. Fish and Wildlife Service
- Chris Otahal

California Department of Fish and Game
- David Mayer

San Diego Regional Water Quality Control Board
- Mike Porter

State Historic Preservation Officer
- Hans Kreutzberg

California Coastal Commission
- Lee McEachern

Section 6.0
Environmental Commitments

In order for the proposed projects to be implemented, the following processes must be completed:

- Initiate and complete a formal Section 7 consultation with USFWS to obtain a Biological Opinion. This Biological Opinion will finalize the mitigation required for the proposed project impacts and determine the effect to listed species.

- Negotiate a Programmatic Agreement with SHPO. This Agreement will identify the process necessary for avoiding or mitigating impacts to historic properties. Implementing the agreement will satisfy USBR responsibilities under Section 106 of the NHPA.

- Obtain a Coastal Zone Consistency Act determination from the California Coastal Commission. This determination is required any time a portion of the proposed project falls within or adjacent to the Coastal Overlay Zone, to insure the District is in compliance with the Coastal Zone Consistency Act.

Section 7.0
List of Preparers

This Programmatic Environmental Assessment was prepared by RECON. Persons assisting in preparation include:

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Section 8.0
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Walker, J.
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Section 9.0
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