OCT 23 2006
BEST BEST & KRIEGER

City of Riverside
Public Utilities Department
Recycled Water Program

Draft Program EIR

Prepared for:

City of Riverside
Public Utilities Department
3901 Orange Street,
Riverside, CA 92501
Contact: Kevin S. Milligan, P.E.,
Assistant Director - Water
951/826-5780

Prepared by:

Jones & Stokes
17310 Red Hill Avenue, Suite 320
Irvine, CA 92614-5600
Contact: Charles Smith, AICP
949/260-1080

October 2006

RIVERSIDE EX. 1-3

Jones & Stokes. 2006. City of Riverside Public Utilities Department Recycled Water Program Draft Program EIR. October. (J&S 04344.04.) Irvine, CA. Prepared for City of Riverside Public Utilities Department, Riverside, CA.

Contents

Executive Summary **ES-1**
Introduction ES-1
Project Description ES-1
Location and Existing Conditions ES-1
Background ES-2
Objectives ES-3
Proposed Project ES-4
Environmental Impacts ES-4
Impacts of the Proposed Project ES-4
Cumulative Impacts ES-5
Growth-Inducing Impacts ES-5
Significant Unavoidable Environmental Impacts ES-6
Alternatives to the Proposed Project ES-7
Alternatives Eliminated from Further Consideration ES-7
Alternatives Considered ES-7
Alternatives Analysis ES-7
Environmentally Superior Alternative ES-7
Areas of Controversy ES-8
Public Review of the Draft PEIR ES-8

Chapter 1 **Introduction** **1-1**
Purpose 1-1
Basis for Programmatic Analysis 1-1
Lead, Responsible, and Trustee Agencies 1-2
Uses of PEIR 1-3
Scope 1-3
Scoping Process 1-3
Results of the Initial Study 1-4
Responses to the Notice of Preparation 1-5
Known Areas of Controversy 1-6
Issues Addressed 1-6
Document Organization 1-8
Required Contents 1-8
Contents of the Draft PEIR 1-8
Public Review of the Draft PEIR 1-9

Chapter 2 **Project Description** **2-1**
Overview 2-1
Project Objectives 2-2

Project Background 2-2
Project Location 2-3
Region and Watershed 2-3
City Boundaries and Sphere of Influence 2-3
Project Area 2-4
Project Components and Details 2-4
Master Plan 2-4
Near- and Long-Term Projects 2-5
Water Rights Appropriation 2-11
Regulatory and Planning Context 2-11
Regulatory Context 2-11
Relationship to Other Plans and Programs 2-12

Chapter 3 Environmental Impacts and Mitigation Measures 3-1
Introduction 3-1
Organization of Environmental Analysis 3-1
Terminology Used in this EIR 3-2

Section 3A Water Resources 3A-1
Introduction 3A-1
Regulatory Setting 3A-1
Federal General Water Quality Regulations 3A-1
State Water Quality Regulations 3A-6
Local Water Quality Regulations 3A-9
Regulations and Criteria Specific to Recycled Water Quality 3A-10
Water Rights Regulations 3A-13
Environmental Setting 3A-15
Topography and Climate 3A-15
Hydrology 3A-16
Water Demand 3A-22
Water Quality 3A-23
Existing Wastewater and Recycled Water System 3A-28
Impacts and Mitigation 3A-31
Assumptions 3A-31
Methodology 3A-33
Significance Criteria 3A-33
Impact Analysis 3A-34
Mitigation for Significant Impacts 3A-41

Section 3B Biological Resources 3B-1
Regulatory Setting 3B-1
Environmental Setting 3B-6
Project Area 3B-6
Santa Ana River 3B-24
Existing and Proposed Conservation Areas 3B-30
Impacts and Mitigation 3B-43
Assumptions 3B-43
Methodology 3B-45
Significance Criteria 3B-46
Impact Analysis 3B-48

Mitigation for Significant Impacts 3B-67

Section 3C **Cultural Resources** **3C-1**
Introduction 3C-1
Regulatory Setting 3C-2
Federal 3C-2
State 3C-2
Local 3C-3
Environmental Setting 3C-4
Prehistoric Setting 3C-4
Ethnography 3C-5
Historic Setting 3C-6
Methods 3C-10
Record Search 3C-10
Archival Research 3C-10
Consultation 3C-10
Impacts and Mitigation 3C-11
Methodology 3C-11
Significance Criteria 3C-12
Impact Analysis 3C-18
Mitigation for Significant Impacts 3C-20

Chapter 4 **Cumulative Impact Analysis** **4-1**
Introduction 4-1
Methodology and Significance Criteria 4-2
Existing and Future Projects 4-2
Santa Ana River Diversions 4-3
Other Projects 4-8
Impact Analysis 4-9
Water Resources Impacts 4-9
Biological Resources Impacts 4-12
Potential for Other Cumulative Impacts 4-13

Chapter 5 **Other CEQA Considerations** **5-1**
Introduction 5-1
Growth-Inducing Impacts 5-1
Direct Growth-Inducing Impacts 5-2
Indirect Growth-Inducing Impacts 5-2
Significant Unavoidable Environmental Impacts 5-3
Irreversible Environmental Changes and Use of Nonrenewable Resources 5-3

Chapter 6 **Alternatives** **6-1**
Introduction 6-1
Alternatives Eliminated from Further Consideration 6-4
Different Use of Water Rights/Diverted Effluent 6-4
Substantially Reduced Agricultural Use Component 6-5
No Water Rights Application 6-5
City-Only Recycled Water Distribution System 6-5
Diversion Never Exceeds Discharge 6-5
No Diversion/Maximum Discharge 6-6

Alternatives Analyzed in This Draft PEIR 6-6
Description of Alternatives 6-9
Analysis and Comparison of Alternatives 6-10
Environmentally Superior Alternative 6-18

Chapter 7 References 7-1
Printed References 7-1
Personal Communication 7-6

Chapter 8 List of Preparers 8-1
Riverside Public Utilities 8-1
Jones & Stokes 8-1

Appendix A Initial Study/Notice of Preparation and Comments

Appendix B City of Riverside's Application to Appropriate Water by Permit

Appendix C Air Quality

Tables

Table		Page
ES-1	Summary List of Impacts and Level of Significance	ES-10
1-1	Comments Received on the Notice of Preparation	1-5
1-2	Required EIR Contents	1-8
2-1	Citywide System Preliminary Capital Cost Analysis	2-7
2-2	Phase 1 Capital Cost Analysis	2-9
3A-1	Summary of Key NPDES Effluent Requirements	3A-4
3A-2	Beneficial Uses Identified in Basin Plan for Potential Receiving Waters and Groundwater Basins in the Project Area1	3A-7
3A-3	Basin Plan Surface Water Quality Objective (mg/L)	3A-8
3A-4	Groundwater Quality Objectives (mg/L)	3A-8
3A-5	U.S. EPA Guidelines for Water Reuse	3A-11
3A-6	California Treatment and Quality Criteria for Non-potable Uses of Recycled Water	3A-14
3A-7	Proposed California Groundwater Recharge Criteria	3A-15
3A-8	Santa Ana River Baseline Flows for Various Periods at MWD Monitoring Station	3A-18
3A-9	TDS and TIN Assimilative Capacity	3A-26
3A-10	Potable Water – Weighted Average Constituent Concentrations	3A-29
3A-11	RWQCP Effluent Monitoring Part I	3A-30
3A-12	Effluent Monitoring on January 16, 2001	3A-30

3A-13 Influent Monitoring on January 16, 2001 ..... 3A-31

3A-14 Estimated Amount of Recycled Water Diverted and Effluent Discharged from Riverside Regional Water Quality Control Plant from 2000 through 2050 (in acre-feet per year) 3A-33

3A-15 Summary List of Impacts and Level of Significance 3A-34

3A-16 Projected Loss of Santa Ana River Flow Resulting from Project Buildout (during dry seasons, June–September) 3A-38

3A-17 Total Santa Ana River Flow Compared to Riverside Requested Appropriation. 3A-40

3B-1 Applicable Regulations and Programs 3B-2

3B-2 Provisions of the WRC MSCHP Applicable to the Proposed Project 3B-5

3B-3 Special Status Species That Occur or Potentially Occur in or near the Project Area 3B-15

3B-4 Existing Levels of Conservation and proposed targets for Additional Conservation in the WRC MSHCP Plan Area by Area Plan 3B-33

3B-5 Biological Issues and Considerations and Planning Species for the Riverside/Norco Area Plan 3B-36

3B-6 Planning Species and Biological Issues and Considerations for the Lake Mathews/Woodcrest Area Plan 3B-37

3B-7 Planning Species and Biological Issues and Considerations for the Jurupa Area Plan 3B-39

3B-8 Planning Species and Biological Issues and Considerations for Highgrove Area Plan 3B-40

3B-9 Estimated Amount of Recycled Water Diverted and Effluent Discharged from Regional Water Quality Control Plant from 2000 through 2050 (in acre feet per year) 3B-45

3B-10 Summary List of Impacts and Level of Significance 3B-48

3C-1 Summary List of Impacts and Level of Significance 3C-18

4-1 Cumulative Projects List – Santa Ana River Reach 3 4-3

4-2 Summary List of Impacts and Level of Significance 4-10

4-3 Total Santa Ana River Flow in Recent Years and Proposed Diversions as a Percentage of Those Flows 4-12

6-1 Summary List of Significant Impacts Associated with Proposed Project and Identified Mitigation Measures 6-2

6-2 Summary of Key Components of the Proposed Project and Alternatives 6-7

6-3 Estimated Volumes of Diverted and Discharged Treated Effluent under the Proposed Project and Alternatives, AFY, 2000–2050 6-8

6-4 Summary Comparison of Alternatives with the Proposed Project 6-10

Figures

Figure		Follows Page
2-1	Regional Location	2-4
2-2	Santa Ana River Watershed Management Areas	2-4
2-3	Project Area	2-4
2-4	Potential Alignment of Recycled Water Core Distr ibution System	2-6
2-5	Potential Alignment for Phase 1 Expansion Area	2-8
3A-1a	Groundwater Management Zone Boundaries - Chino, Rialto-Colton, and Riverside Basins	3A-8
3A-1b	Groundwater Management Zone Boundaries - Orange County Basins	3A-8
3A-2	1998 Santa Ana River Flow (cfs) at MWD Crossing Compared to Calculated Future Flow and City of Riverside Discharges	3A-38
3A-3	1999 Santa Ana River Flow (cfs) at MWD Crossing Compared to Calculated Future Flow and City of Riverside Discharges	3A-38
3A-4	2000 Santa Ana River Flow (cfs) at MWD Crossing Compared to Calculated Future Flow and City of Riverside Discharges	3A-38
3A-5	2001 Santa Ana River Flow (cfs) at MWD Crossing Compared to Calculated Future Flow and City of Riverside Discharges	3A-38
3A-6	Shows 2002 Santa Ana River Flow (cfs) at MWD Crossing Compared to Calculated Future Flow and City of Riverside Discharges	3A-38
3B-1A	Western Riverside County MSHCP Plan Map	3B-2

3B-1B Western Riverside County Habitat Conservation Summary (as of 8.24.06) 3B-2

3B-2 Western Riverside County MSHCP Vegetation Map 3B-8

3B-3 MSHCP Schematic Cores and Linkages (Existing and Proposed Conservation Areas) 3B-32

3B-4 Cities of Riverside and Norco with Vegetation, Cells, and Cell Groups Keyed to MSHCP Criteria 3B-36

3B-5 Lake Mathews/Woodcrest Area Plan with Vegetation, Cells, and Cell Groups Keyed to MSHCP Criteria 3B-36

3B-6 Jurupa Area Plan with Vegetation, Cells, and Cell Groups Keyed to MSHCP Criteria 3B-38

3B-7 Highgrove Area Plan with Vegetation, Cells, and Cell Groups Keyed to MSHCP Criteria 3B-38

4-1 Cumulative Project Water Rights Applicants and Major Facilities 4-4

Acronyms and Abbreviations

afy	acre feet per year
Basin Plan	Santa Ana River Basin Plan
BMPs	Best Management Practices
BOD	biological oxygen demand
California DHS	California Department of Health Services
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
City	City of Riverside
cm	centimeters
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DFG	California Department of Fish and Game
DWR	California Department of Water Resources
EIR	environmental impact report
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	FEMA's Flood Insurance Rate Map
ft	feet
gpm	gallons per minute
gpm	gallons per minute
HVWA Wetlands	Hidden Valley Wildlife Area Wetlands

I-15	Interstate 15
I-215	Interstate 215
in	inches
Integrated Plan	Integrated Plan for Implementation of the Watershed Management Initiative
lbs	pounds
m	meters
Master Plan	Recycled Water Phase I Feasibility Study and Citywide Master Plan
mg/L	milligrams per liter
mgd	million gallons per day
min	minute
mL	milliliter
ml	milliliters
MPN	most probable number
MS4	municipal separate storm sewer system
MWD	Metropolitan Water District of Southern California
NCCP	Natural Community Conservation Plan
NDMA	N-nitrosodimethylamine
NO_3	nitrate
NOAA Fisheries	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NTU	nephelometric turbidity units
OCWD	Orange County Water District
PEIR	program environmental impact report
Permit	Order No. 01-3, NPDES No. CA0105350
RCIP	Riverside County's Regional Comprehensive Integrated Project
RIX	Rapid Infiltration and Extraction
RWQCP	City of Riverside's Regional Water Quality Control Plant
Santa Ana RWQCB	Santa Ana Regional Water Quality Control Board
SAWPA	Santa Ana Watershed Project Authority
SBBA	San Bernardino Basin Area
SKR HCP	Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County
SPCCP	spill prevention, control, and countermeasure program

SR-60	State Route 60
SR-71	State Route 71
SR-91	State Route 91
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
THM	Trihalomethane
TIN	total inorganic nitrogen
TMDL	Total Maximum Daily Load
TSS	total suspended solids
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geologic Survey
VOCs	Volatile organic compounds
WMAs	Watershed Management Areas
WMI	Watershed Management Initiative
WRC MSHCP	Western Riverside County Multi-Species Habitat Conservation Plan

Executive Summary

Executive Summary

Introduction

This draft program environmental impact report (PEIR) was prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code §21000 et seq.), State CEQA Guidelines (14 California Code of Regulations §15000 et seq.), and the City of Riverside's (City's) Local CEQA Guidelines to evaluate the potential environmental impacts associated with:

- the City's adoption of the Recycled Water Phase I Feasibility Study and Citywide Master Plan (Master Plan) (Parsons 2003);
- the City's implementation of a program of near-term and long-term projects to provide recycled water from the City's Regional Water Quality Control Plant (RWQCP) for municipal, industrial, irrigation, and agricultural uses; and
- appropriation of 41,400 acre feet per year (afy) of Santa Ana River water rights to the City by the State Water Resources Control Board (SWRCB), based on the City's proposal to divert that amount of treated effluent from the RWQCP and use it as recycled water.

Project Description

Location and Existing Conditions

Region and Watershed

The proposed project is located in northwestern Riverside County, California, east of Orange County and south of San Bernardino County. As described in more detail in Section 3A, "Water Resources," the recycled water facilities and uses would occur in the central reaches of the Santa Ana River watershed, upstream of Prado Dam. The Santa Ana River watershed stretches from the San Bernardino Mountains to the Pacific Ocean.

City Boundaries and Sphere of Influence

Riverside is the largest inland city in southern California, with an estimated 2003 population of approximately 274,000 and a total area of approximately 52,000 acres. The city shares boundaries with three other Riverside County cities: Norco, Corona, and Moreno Valley. Unincorporated communities border the city along the north and south. The Santa Ana River runs along the city's northern border.

Riverside's sphere of influence extends south to below Lake Mathews; it also includes unincorporated lands along the city's northeast boundary. Combined, Riverside's current boundaries and sphere of influence encompass approximately 93,000 acres.

Project Area

As described in the market analysis within the Master Plan, the City proposes to distribute recycled water throughout the city and to connection points in the three community service districts that currently use the RWQCP: Jurupa and Rubidoux to the north and Edgemont to the east. The Jurupa and Rubidoux Community Service Districts are located in the Jurupa Area Plan, as identified in Riverside County's Regional Comprehensive Integrated Project (RCIP) (Riverside County 2003b). The Edgemont Community Service District is largely encompassed by Riverside's sphere of influence. The Master Plan also indicates a large potential market for the recycled water south of the city.

To ensure that the area potentially affected by the proposed project is not understated, the project area studied for this draft PEIR includes:

- Riverside's current boundaries,
- Riverside's sphere of influence as shown in the Draft Riverside General Plan 2025 (City of Riverside 2004a), and
- the Jurupa Area Plan as shown in the 2003 RCIP.

See Figure 2-3 for a depiction of the project area.

Background

The RWQCP is located on a 121-acre site at 5950 Acorn Street, Riverside, California, and is south of the Santa Ana River, near the intersection of Van Buren Boulevard and Jurupa Avenue. It consists of two secondary treatment plants, one tertiary treatment plant, and sludge handling facilities. The RWQCP started operation in 1946 as a small primary treatment plant and underwent major upgrading in 1992. In 1995, approximately 50 acres of wetlands were constructed and are now being used for additional treatment (nitrogen removal) of RWQCP effluent. The RWQCP treats wastewater from Riverside and three

community service districts (Edgemont, Jurupa, and Rubidoux). It currently is permitted to treat 40 million gallons per day (mgd) of wastewater and is master planned to treat 60 mgd. Presently the RWQCP produces approximately 36,000 afy of effluent and discharges almost all of that amount into Reach 3 of the Santa Ana River.

The City's recycled water distribution system is an outgrowth of reclamation studies and programs from the early 1990s. In 1992, the City prepared a reclamation report/master plan that focused on the evaluation of recycled water quantity and quality, options for use of recycled water, market assessment, development of a distribution system, and management of excess recycled water. Although the City did not formally adopt and implement the report, it gradually increased the use of recycled water around the RWQCP on a case-by-case basis. Presently, the City operates a small recycled water system composed of 8-inch and 12-inch diameter distribution mains. Riverside supplies approximately 290 afy of recycled water to the Van Buren Golf Center, Van Buren Urban Forest, and Toro Manufacturing Company, and has existing recycled water pipelines in Van Buren Boulevard and Doolittle Avenue.

In response to increased water demands and environmental needs, the City initiated an update of the 1992 reclamation report to include an economic analysis of the development and phased implementation of a citywide recycled water system. The update was completed in 2003 and produced the Master Plan that the City now proposes to adopt and implement.

The City's application for a water appropriation is in response to the SWRCB's Order WR 2000-12. In Section 6.3 of the order, the board found that increased releases of treated wastewater, increased runoff due to urbanization, and increased availability of water during wet years have substantially increased flows in the Santa Ana River since the entry of previous judgments regarding water appropriations and that it was reasonable to expect further increases in flow in the future. In addition, the SWRCB found that the construction of the Seven Oaks Dam was a significant change in conditions that affect flow conditions below the dam following storm events, making it feasible to divert more water. Finally, the board found that the possibility of using Seven Oaks Dam for water storage if federal approval was obtained could further increase the quantity of water potentially available for appropriation in some years. In addition to the City's application, the SWRCB has received four applications from water agencies and four applications from individuals. DFG has filed a protest contesting the determination that conditions warrant changing the Santa Ana River's status as "fully-appropriated."

Objectives

With regard to the Master Plan, the City's objective is to establish the framework for planning and implementing a recycled water distribution system, including capital projects and operation and maintenance programs. The Master Plan is needed to guide the phased expansion of the system, allowing the City to reduce its dependency on groundwater and contract water supplies by increasing the

availability and use of recycled water for municipal, industrial, irrigation, and agricultural purposes.

With regard to the projects and activities required to implement the recycled water program, the City's objective is to ensure that proposed facilities and capital improvements are consistent with the Master Plan and all applicable environmental regulations.

With regard to the water rights appropriation, the City's objective is to ensure the continuous beneficial use of the water by directing treated effluent from the RWQCP to recycled water users while contributing to the flow and protecting the water quality and biological resources of the Santa Ana River.

Proposed Project

The proposed project has three components:

- adoption of the Master Plan;
- implementation of near-term and long-term projects to deliver recycled water from the RWQCP to users in the project area; and
- appropriation of 41,400 afy of Santa Ana River water rights to the City, in the form of treated effluent diverted from the RWQCP for use as recycled water.

Environmental Impacts

Impacts of the Proposed Project

The City prepared an initial study for the proposed project in December 2003 (see Appendix A). Based on the findings of the initial study, the City determined that an EIR would be required for the project. The City used the initial study, as well as agency input received during the notice of preparation comment period, to determine the scope of the evaluation for the EIR. Chapter 3, "Environmental Impacts and Mitigation Measures," discusses the following environmental issues:

- water resources;
- biological resources; and
- cultural resources.

Sections 3A, 3B, and 3C provide a detailed discussion of the environmental setting, impacts associated with the proposed project, and mitigation measures designed to reduce significant impacts to a less-than-significant level (or to reduce the severity of significant impacts). Potential air quality impacts associated with the project are addressed in a technical appendix to this EIR.

Cumulative Impacts

The following areas were found to have cumulative impacts on the environment:

- water resources; and
- biological resources.

In addition, the following areas were found to have the potential for cumulative impacts:

- air quality;
- cultural resources;
- energy and mineral resources;
- geology and soils;
- hazards and hazardous materials;
- land use and planning;
- noise;
- population and housing;
- public services;
- recreation;
- transportation and traffic;
- utilities and service systems; and
- visuals and aesthetics.

Growth-Inducing Impacts

Direct Growth-Inducing Impacts

A project would directly induce growth if it would remove barriers to population growth. An example of such a project is a change to a jurisdiction's General Plan and Zoning Ordinance that would allow new residential development to occur.

The proposed project would not change the amount or location of developable lands, the process by which development is authorized, or the rate at which development would occur within the project area. Further, the proposed project would be implemented within an area subject to the growth-related policies in the City's existing, adopted General Plan and Riverside County's RCIP.

In southern California, water supply is typically considered a constraint on new development. To a degree, recycled water can be considered an augment to existing sources and therefore a possible inducement for additional development.

At maximum capacity (which is expected to occur in 2025), the proposed project would provide 41,400 afy of water for municipal, commercial, industrial, and agricultural purposes. In 2003–2004, approximately 84,000 afy of water was being used within the area served by the City. By 2020, uses are projected to increase to approximately 105,000 afy. As recognized in the City's existing, adopted General Plan and the RCIP, the availability and use of recycled water is an important factor in estimating and planning future growth. However, the limitations on its use restrict the potential for recycled water to induce growth beyond what otherwise would be supported by groundwater and contract supplies. Housing, commercial, and industrial development requires potable water supplies; recycled water can reduce dependence on and use of, but not the need for, those supplies.

Indirect Growth-Inducing Impacts

A project would indirectly induce growth if it would increase the capacity of the infrastructure in an area in which the public service currently meets demands. Examples would be increasing the capacity of a sewer treatment plant or a roadway beyond that needed to meet existing demands.

The proposed project entails expansion of the RWQCP's capacity. However, the expansion has been planned by the City in order to meet the projected wastewater treatment needs of its service area. The expansion would occur when demand has increased. The expansion and proposed use of the treated effluent would not induce growth beyond that projected by the City.

Significant Unavoidable Environmental Impacts

Significant impacts are identified in Section 3A, "Water Resources;" Section 3B, "Biological Resources;" Section 3C, "Cultural Resources," and Chapter 4, "Cumulative Impact Analysis," of this draft PEIR (also see Table 6-1 for list). Where feasible, mitigation has been identified that would reduce the effects to a less-than-significant level. However, the proposed project would result in significant unavoidable impacts to cultural resources.

As noted in Chapter 4, "Cumulative Impact Analysis," the proposed project would contribute to significant combined impacts to river flow from proposed upstream diversions and projects. No feasible mitigation has been identified for the expected combined effect, and a significant unavoidable impact would result if the proposed upstream diversions and projects are implemented. However, the contribution of the proposed project to the combined effect is a less-than-significant impact.

Alternatives to the Proposed Project

Alternatives Eliminated from Further Consideration

The six alternatives considered but eliminated from further analysis are:

- Different Use of the Water Rights/Diverted Effluent,
- Substantially Reduced Agricultural Use Component,
- No Water Rights Application,
- City-Only Recycled Water Distribution System,
- Diversion Never Exceeds Discharge, and
- No Diversion/Maximum Discharge.

A detailed explanation of why each of these alternatives was eliminated is found in Chapter 6, "Alternatives."

Alternatives Considered

In addition to the proposed project, the following alternatives are analyzed in this draft PEIR:

- Alternative 1: 20,000 AFY Recycled Water System,
- Alternative 2: No RWQCP Expansion, Minimum Discharge, and
- Alternative 3: No-Project Alternative (also Maximum Discharge).

A detailed description of each of these alternatives can be found in Chapter 6, "Alternatives."

Alternatives Analysis

Alternatives 1 and 2 were evaluated in terms of their potential for avoiding or reducing the significant impacts of the proposed project, their own potential for significant impacts, and how they compared with the other alternatives. Environmental conditions under Alternative 3 (No-Project Alternative) were compared with those anticipated under the proposed project.

Environmentally Superior Alternative

The proposed project is the environmentally superior alternative because it would allow the City to reduce dependence of groundwater and contract water supplies through activities that would have less-than-significant residual effects on water and biological resources. Further, the proposed project has the potential to

contribute to completion of the MSHCP reserve system via mitigation for species and habitat impacts from construction of system components and potentially by adding wetlands in connection with expansion of the RWQCP.

Areas of Controversy

In addition to the issues identified above, two areas of known controversy have been identified. Both are connected with the water rights application:

1. DFG disputes the SWRCB's determination that conditions in the Santa Ana basin are such that additional water rights can be appropriated.

2. DFG protests the SWRCB's consideration of applications for unappropriated Santa Ana River water rights based, among other things, on the potential for direct and cumulative effects on resources of the Santa Ana basin, including reduction of riparian and wetland habitat values as a result of cumulative diversion rates.

Public Review of the Draft PEIR

The draft PEIR has been distributed to agencies, organizations, and interested groups and persons for comment during the 45-day formal review period, in accordance with CEQA Guidelines Section 15087.

During the 45-day public review period, which began on October 13, 2006, and ends on November 27, 2006, the draft PEIR is available for general public review at the following location:

City of Riverside
Public Utilities Department
3901 Orange Street
Riverside, CA 92501

The document will also be available online at www.riversidepublicutilities.com.

Interested parties may provide written comments on the draft PEIR that must be postmarked by November 27, 2006. Please address comments to:

Mr. Kevin Milligan, P.E.
Assistant Director - Water
City of Riverside Public Utilities Department
3901 Orange Street
Riverside, CA 92501
Fax: (951) 826-2498

Upon completion of the 45-day public review period, written responses to all comments on environmental issues discussed in the draft PEIR will be prepared

and incorporated into the final PEIR. A public meeting on the final PEIR will be held at the City of Riverside, 3900 Main Street, Riverside, CA 92522. Comments from the community and interested parties are encouraged at all public meetings.

Written responses to comments received during the official comment period from any public agencies will be made available to these agencies at least 10 days before the board meeting, at which the certification of the final PEIR will be considered. These comments, and their responses, will be included in the final PEIR for consideration by the City, as well as any other decision makers. For details on the project schedule, please contact the City.

Table ES-1. Summary List of Impacts, Level of Significance, and Mitigation Measures

Impact ID	Type of Impact	Level of Impact	Mitigation for Significant Impacts
Water Quality Impacts			
WR-IMP-1A	**Decreased surface water quality from construction of all project components**	**Potentially significant (less than significant with mitigation incorporated)**	**WR-MM-1A-1: Implement requirements of the NPDES General Construction Permit.** **WR-MM-1A-2: Implement a spill prevention, control, and countermeasure program.** **WR-MM-1A-3: Prepare a frac-out contingency plan for any jack-and-bore construction activities.**
WR-IMP-1B	**Decreased water quality from construction below the water table**	**Potentially significant (less than significant with mitigation incorporated)**	**WR-MM-1A-1: Implement requirements of the NPDES General Construction Permit.** **WR-MM-1A-2: Implement a spill prevention, control, and countermeasure program.** **WR-MM-1B-1: Implement provisions for dewatering.**
WR-IMP-1C	Decreased groundwater and surface water quality from wastewater collection pipeline rupture or facility rupture	Less than significant	Not Applicable
WR-IMP-1D	Decreased water quality from discharge of recycled water to surface water bodies	Less than significant	Not Applicable
WR-IMP-1E	Degradation of surface water or groundwater quality from use of recycled water	Less than significant	Not Applicable

Impact ID	Type of Impact	Level of Impact	Mitigation for Significant Impacts
WR-IMP-1F	Risk to human health as a result of use and/or exposure to the treated and disinfected recycled water	Less than significant	Not Applicable
Water Flow Impacts			
WR-IMP-2A	Changes in the flow of the Santa Ana River from diversion of 21.3 cfs (15,400 afy)	Less than significant	Not Applicable
WR-IMP-2B	Changes in groundwater table from use of recycled water	Less than significant	Not Applicable
Flood Zone Impacts			
WR-IMP-CA	Construction in flood zone	Less than significant	Not Applicable
Special Status Species Impacts			
BIO-IMP-1A-1	Construction of Phase1	Less than significant	Not Applicable
BIO-IMP-1A-2	Operation and maintenance of Phase 1	Less than significant	Not Applicable
BIO-IMP-1B-1	**Construction of core distribution system**	**Potentially significant (less than significant with mitigation incorporated)**	**BIO-MM-1: Implement the applicable measures of the WRC MSHCP.** **BIO-MM-2: Comply with the applicable requirements of the SKR HCP.**
BIO-IMP-1B-2	Maintenance and operation of core distribution system	Less than significant	Not Applicable

Impact ID	Type of Impact	Level of Impact	Mitigation for Significant Impacts
BIO-IMP-1C-1	**Construction of agricultural use system**	**Potentially significant (less than significant with mitigation incorporated)**	**BIO-MM-1: Implement the applicable measures of the WRC MSHCP.** **BIO-MM-2: Comply with the applicable requirements of the SKR HCP.**
BIO-IMP-1C-2	Maintenance and operation of agricultural use system	Less than significant	Not Applicable
BIO-IMP-1D	Use of recycled water	Less than significant	Not Applicable
BIO-IMP-1E	Change in discharge levels	Less than significant	Not Applicable
BIO-IMP-1F-1	Addition of wetlands	Less than significant, benefits	Not Applicable
BIO-IMP-1F-2	**Facility Expansion/Upgrading**	**Potentially significant (less than significant with mitigation incorporated)**	**BIO-MM-1: Implement the applicable measures of the WRC MSHCP.** **BIO-MM-2: Comply with the applicable requirements of the SKR HCP.**
Special Status Natural Community Impacts			
BIO-IMP-2A-1	**Construction of Phase1**	**Potentially significant (Less than significant with mitigation incorporated)**	**BIO-MM-1: Implement the applicable measures of the WRC MSHCP.** **BIO-MM-2: Comply with the applicable requirements of the SKR HCP.**

Impact ID	Type of Impact	Level of Impact	Mitigation for Significant Impacts
BIO-IMP-2A-2	Operation and maintenance of Phase 1	Less than significant	Not Applicable
BIO-IMP-2B-1	**Construction of core distribution system**	**Potentially significant (Less than significant with mitigation incorporated)**	**BIO-MM-1: Implement the applicable measures of the WRC MSHCP.** **BIO-MM-2: Comply with the applicable requirements of the SKR HCP.**
BIO-IMP-2B-2	Maintenance and operation of core distribution system	Less than significant	Not Applicable
BIO-IMP-2C-1	**Construction of agricultural use system**	**Potentially significant (Less than significant with mitigation incorporated)**	**BIO-MM-1: Implement the applicable measures of the WRC MSHCP.** **BIO-MM-2: Comply with the applicable requirements of the SKR HCP.**
BIO-IMP-2C-2	Maintenance and operation of agricultural use system	Less than significant	Not Applicable
BIO-IMP-2D	Use of recycled water	Less than significant	Not Applicable
BIO-IMP-2E	Change in discharge levels	Less than significant	Not Applicable
BIO-IMP-2F-1	Addition of wetlands	Less than significant, benefits	Not Applicable

Impact ID	Type of Impact	Level of Impact	Mitigation for Significant Impacts
BIO-IMP-2F-2	**Facility Expansion/Upgrading**	**Potentially significant (Less than significant with mitigation incorporated)**	**BIO-MM-1: Implement the applicable measures of the WRC MSHCP.** **BIO-MM-2: Comply with the applicable requirements of the SKR HCP.**
Linkage/Corridor Impacts			
BIO-IMP-3A-1	Construction of Phase1	Less than significant	Not Applicable
BIO-IMP-3A-2	Operation and maintenance of Phase 1	Less than significant	Not Applicable
BIO-IMP-3B-1	Construction of core distribution system	Less than significant	Not Applicable
BIO-IMP-3B-2	Maintenance and operation of core distribution system	Less than significant	Not Applicable
BIO-IMP-3C-1	**Construction of agricultural use system**	**Potentially significant (Less than significant with mitigation incorporated)**	**BIO-MM-1: Implement the applicable measures of the WRC MSHCP.** **BIO-MM-2: Comply with the applicable requirements of the SKR HCP.**
BIO-IMP-3C-2	Maintenance and operation of agricultural use system	Less than significant	Not Applicable
BIO-IMP-3D	Use of recycled water	Less than significant	Not Applicable
BIO-IMP-3E	Change in discharge levels	Less than significant	Not Applicable

Impact ID	Type of Impact	Level of Impact	Mitigation for Significant Impacts
BIO-IMP-3F-1	Addition of wetlands	Less than significant, benefits	Not Applicable
BIO-IMP-3F-2	**Facility Expansion/Upgrading**	**Potentially significant (Less than significant with mitigation incorporated)**	**BIO-MM-1: Implement the applicable measures of the WRC MSHCP.** **BIO-MM-2: Comply with the applicable requirements of the SKR HCP.**
Conservation Area/HCP Implementation Impacts			
BIO-IMP-4A-1	Construction of Phase1	Less than significant	Not Applicable
BIO-IMP-4A-2	Operation and maintenance of Phase 1	Less than significant	Not Applicable
BIO-IMP-4B-1	**Construction of core distribution system**	**Potentially significant (Less than significant with mitigation incorporated)**	**BIO-MM-1: Implement the applicable measures of the WRC MSHCP.** **BIO-MM-2: Comply with the applicable requirements of the SKR HCP.**
BIO-IMP-4B-2	Maintenance and operation of core distribution system	Less than significant	Not Applicable
BIO-IMP-4C-1	**Construction of agricultural use system**	**Potentially significant (Less than significant with mitigation incorporated)**	**BIO-MM-1: Implement the applicable measures of the WRC MSHCP.** **BIO-MM-2: Comply with the applicable requirements of the SKR HCP.**

Impact ID	Type of Impact	Level of Impact	Mitigation for Significant Impacts
BIO-IMP-4C-2	Maintenance and operation of agricultural use system	Less than significant	Not Applicable
BIO-IMP-4D	Use of recycled water	Less than significant	Not Applicable
BIO-IMP-4E	Change in discharge levels	Less than significant	Not Applicable
BIO-IMP-4F-1	Addition of wetlands	Less than significant, benefits	Not Applicable
BIO-IMP-4F-2	**Facility Expansion/Upgrading**	**Potentially significant (Less than significant with mitigation incorporated)**	**BIO-MM-1: Implement the applicable measures of the WRC MSHCP.** **BIO-MM-2: Comply with the applicable requirements of the SKR HCP.**
Cultural Resources Impacts			
CR-IMP-1	**Demolition of historic resources from construction of project components**	**Potentially significant and unavoidable**	**CR-MM-1A: Avoid cultural resources and human remains.** **CR-MM-1B: Conduct further study of the resource to document and convey its significance.** **CR-MM-1C: Obtain standard photographic and written documentation.** **CR-MM-2A: Ensure that alterations conform to the Secretary of the Interior's Standards.**

Impact ID	Type of Impact	Level of Impact	Mitigation for Significant Impacts
CR-IMP-2	**Alteration or restoration of historic resources from construction of project components**	**Potentially significant (Less than significant with mitigation incorporated)**	**CR-MM-1A: Avoid cultural resources and human remains.** **CR-MM-2A: Ensure that alterations conform to the Secretary of the Interior's Standards.** **CR-MM-2B: Conduct design review.**
CR-IMP-3	**Relocation of historic resources from project right-of-way acquisition**	**Potentially significant and unavoidable**	**CR-MM-1A: Avoid cultural resources and human remains.** **CR-MM-1B: Conduct further study of the resource to document and convey its significance.** **CR-MM-1C: Obtain standard photographic and written documentation.** **CR-MM-2A: Ensure that alterations conform to the Secretary of the Interior's Standards.** **CR-MM-2B: Conduct design review.**

Impact ID	Type of Impact	Level of Impact	Mitigation for Significant Impacts
CR-IMP-4	**Disturbance of archaeological resources or human remains from construction of project components**	**Potentially significant (Less than significant with mitigation incorporated)**	**CR-MM-1A: Avoid cultural resources and human remains.** **CR-MM-2B: Conduct design review.** **CR-MM-4A: Comply with State laws pertaining to the discovery of human remains.** **CR-MM-4B: Conduct archaeological data recovery.** **CR-MM-4C: Conduct archaeological monitoring.** **CR-MM-4D: Halt work if cultural resources are suspected to exist in the project area.** **CR-MM-4E: Cover or "cap" archaeological resources.** **CR-MM-4F: Restrict access to Native American traditional or religious sites.**
Cumulative Impacts			
CUM-WR-1	Cumulatively considerable impacts on surface and groundwater quality from repeated or combined effects	Less than significant cumulative effects from repeated impacts Less than significant cumulative effects if combined with other projects No contribution to potentially significant cumulative impacts anticipated in connection with another project.	Not Applicable

Impact ID	Type of Impact	Level of Impact	Mitigation for Significant Impacts
CUM-WR-2	Cumulatively considerable impacts on surface flow of Santa Ana River above Prado Dam from repeated or combined effects	Less than significant cumulative effects from incremental decreases in discharges (incremental increases in diversions) Contribution to potentially significant cumulative impacts on river flow in dry years in combination with other projects Contribution to potentially significant cumulative impacts anticipated in connection with another project	Not Applicable
CUM-BIO-1	Cumulatively considerable impacts to special status species and natural communities from repeated or combined effects	Less than significant cumulative effects from repeated impacts, with same mitigation as for direct impacts No or less than significant contribution to potentially significant cumulative impacts anticipated in connection with another project.	Not Applicable
CUM-BIO-2	Cumulatively considerable impacts to existing or proposed conservation areas from repeated or combined effects	Less than significant cumulative effects from repeated impacts No or less than significant contribution to potentially significant cumulative impacts anticipated in connection with another project.	Not Applicable
Other Resources	Cumulatively considerable impacts to air quality, cultural resources, Energy and mineral resources, geology and soils, hazards and hazardous materials, land use and planning, noise, population and housing, public services, recreation, visual and aesthetics impacts, transportation, utilities and service systems, visual and aesthetics.	No or less than significant contribution to any potentially significant cumulative impacts from other projects	Not Applicable

Chapter 1

Introduction

Chapter 1

Introduction

Purpose and Use

This draft program environmental impact report (PEIR) was prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code §21000 et seq.), State CEQA Guidelines (14 California Code of Regulations §15000 et seq.), and the City of Riverside's (City's) Local CEQA Guidelines to evaluate the potential environmental impacts associated with:

- the City's adoption of the Recycled Water Phase I Feasibility Study and Citywide Master Plan (Master Plan) (Parsons 2003);
- the City's implementation of a program of near-term and long-term projects to provide recycled water from the City's Regional Water Quality Control Plant (RWQCP) for municipal, industrial, irrigation, and agricultural uses; and
- appropriation of 41,400 acre feet per year (afy) of Santa Ana River water rights to the City by the State Water Resources Control Board (SWRCB), based on the City's proposal to divert that amount of treated effluent from the RWQCP and use it as recycled water.

Basis for Programmatic Analysis

The project (see Chapter 2 for description) meets CEQA criteria for a programmatic analysis as it entails:

> a series of actions that can be characterized as one large project and are related either: (1) geographically, (2) as logical parts in the chain of contemplated actions, (3) in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways (CEQA Guidelines Section 15168).

This draft PEIR addresses the impacts of implementing the citywide recycled water program as proposed in the Master Plan and water appropriation application; it also addresses the impacts of projects identified in the Master Plan to the degree of specificity presently known about such activities. Subsequent activities in Riverside's recycled water program will be examined in the light of this PEIR to determine whether additional documentation (for example, an initial study leading to either a negative declaration or environmental impact report [EIR]) must be prepared for those activities.

Lead, Responsible, and Trustee Agencies

In accordance with State CEQA Guidelines Section 15367 which defines a lead agency and Sections 15050 and 15051 which identify the lead agency and define the scope of duties, the City of Riverside is the lead agency for the proposed project and is taking primary responsibility for conducting the environmental review and certifying the PEIR.

In addition to the City, several other agencies have special roles with respect to the proposed project. Other agencies will use this draft EIR as the basis for their decisions to issue any approvals and/or permits that may be required. These agencies are defined in CEQA Guidelines Section 15381 as "responsible agencies." In addition, the PEIR will be reviewed by state agencies with jurisdiction by law over natural resources that are held in trust for the people of California. These agencies are defined in CEQA Guidelines Section 15386 as "trustee agencies." The responsible and trustee agencies for this PEIR are:

- the SWRCB,
- the Santa Ana Regional Water Quality Control Board (Santa Ana RWQCB) Division of Water Rights; and
- The California Department of Fish and Game (DFG).

The following other federal, state, and local agencies will receive the draft PEIR and may use the information that it contains:

- San Bernardino Valley Municipal Water District
- East Valley Water District,
- Metropolitan Water District of Southern California.
- Orange County Flood Control District, and
- Orange County Water District (OCWD),
- Riverside County Flood Control District,
- San Bernardino County Flood Control District,
- San Bernardino Valley Water Conservation District,
- U.S. Army Corps of Engineers (Corps),

- U.S. Fish and Wildlife Service (USFWS),
- Western Municipal Water District,
- Jurupa Community Service District (CSD),
- Rubidoux CSD, and
- Edgemont CSD.

Uses of the PEIR

The PEIR will serve many intended uses (CEQA Section 15124(d)), including:

1. Provide the environmental analysis required for the City's CEQA findings regarding the effects of adopting the Master Plan;

2. Provide the environmental analysis required for the SWRCB's CEQA findings regarding the effects of approving of the City's water rights application;

3. Identify the CEQA mitigation measures that will apply as components of the City's Recycled Water Program are implemented within the City;

4. Serve as the first-tier environmental analysis for components of the City's Recycled Water Program that will require further review under CEQA and/or federal or state permits, as well as local water, grading, or other permits needed for the Phase I Expansion Project;

5. Provide information about components of the City's Recycled Water Program for use in the "Joint Project Review of Public Agency Projects" under the Western Riverside County Multiple Species Habitat Conservation Plan (WRC MSHCP) (Riverside County 2003c).

Scope

This draft PEIR addresses the potential environmental effects of the proposed project and was prepared following input from the public, as well as responsible and affected agencies, through the EIR scoping process. The scoping of this PEIR was conducted using several of the tools available under CEQA.

Scoping Process

The City prepared an initial study for the proposed project in December 2003 and determined that the project has the potential for significant effects on certain aspects of the environment.

In accordance with CEQA Guidelines Section 15063, the City prepared a notice of preparation (NOP) and distributed it to responsible and affected agencies and other interested parties for review and comment. The public review period for the notice of preparation began on March 17, 2004, and ended on April 20, 2004. The notice of preparation was also posted in the Riverside County Clerk's office for 20 days and sent to the State Clearinghouse at the Governor's Office of Planning and Research to officially solicit statewide agency participation in determining the scope of the PEIR.

Prior to publication of the NOP, a public hearing was held by the City Planning Commission on December 18, 2003 to solicit public comments on the project. This public hearing effectively served as a CEQA scoping meeting. The mandatory scoping meeting requirement in CEQA 15082 (c)(1) came into effect on January 1, 2005, after the NOP for the project was published.

A copy of the initial study, notice of preparation, and comments received during the notice of preparation review period are included in Appendix A.

Results of the Initial Study

The initial study identifies potentially significant impacts to two aspects of the environment: water resources and biological resources. The initial study also identifies a mandatory finding of significance regarding the project's potential effects on fish and wildlife communities, populations, and listed species. (See Chapter 3B for a discussion of relevant changes to Section 15065 of the State CEQA Guidelines regarding this mandatory finding of significance.)

No impacts or less-than-significant impacts were found regarding the following:

- land use and planning,
- population and housing,
- geology and soils,
- air quality,
- transportation/circulation,
- energy and mineral resources,
- hazards,
- noise,
- public services,
- utilities and service systems,
- aesthetics,
- cultural resources, and
- recreation.

The reasons why the project's potential effects in these areas were not considered significant (at the time of preparation of the initial study) are presented in the initial study checklist in Appendix A.

Responses to the Notice of Preparation

Written comments on the notice of preparation were received from the SWRCB, OCWD, East Valley Water District, Riverside County Flood Control and Water Conservation District, Metropolitan Water District of Southern California, and City of Loma Linda. Table 1-1 summarizes these comments.

Table 1-1. Comments Received on the Notice of Preparation

Reference	Comment
State Water Resources Control Board	
p. 1, para 1	The SWRCB may require additional or different mitigation measures for impacts identified in resource areas within the board's jurisdiction.
p. 1, para 2	The PEIR must have sufficient specificity for the SWRCB to consider issuing a permit.
p. 1, para 2	The PEIR must focus on the secondary effects that can be expected to follow from adoption of the plan.
p. 2, para 2	The PEIR must address impacts from the entire project. The analysis should address direct, indirect, and cumulative impacts.
p. 2, para 3	The PEIR must address impacts from implementing the plan, even if the level of analysis may not address site-specific detail.
p. 2, para 4	Biological and water quality impacts resulting from reduced stream flow must be fully analyzed.
p. 2, para 5	Potential construction impacts and mitigation measures should be called out in a general way so that subsequent environmental documentation may be tiered.
Orange County Water District	
p. 1, no. 1	The PEIR should clarify the scope of the project with respect to the annual volume of water usage.
p. 1, no. 2	The PEIR should address potential impacts to groundwater quality.
p. 2, no. 3	The PEIR should quantify water quality impacts to river flows and groundwater, and should demonstrate compliance with the Santa Ana River Basin Plan.
p. 2, no. 4	The PEIR should identify potential impacts to receiving water habitats, endangered or listed species, and critical habitats within and downstream of the area.
p. 2, no. 5	The PEIR should address biological impacts resulting from reduced stream flow.
p. 2, no. 6	The PEIR should provide adequate information to analyze biological resources impacts.
p. 2, no. 7	The PEIR should provide adequate information to analyze biological resources and water quality impacts.
East Valley Water District	
p. 2, para 1	The PEIR must discuss and analyze issues raised in the protests filed with the SWRCB.

Reference	Comment
p. 2, para 2	The PEIR administrative record should include a detailed written response to all past, present, and future East Valley Water District comments.
Riverside County Flood Control and Water Conservation District	
p. 1, no. 1	The PEIR should acknowledge that Riverside County Flood Control and Water Conservation District's Master Drainage Plans will (when fully implemented) provide adequate drainage outlets and relieve areas from serious flooding problems.
p. 1, no. 2	The PEIR should note that any work that involves Riverside County Flood Control and Water Conservation District right-of-way, easements, or facilities will require an encroachment permit from the district
p. 2, no. 3	The PEIR should note that improper application of reclaimed water could mobilize pollutants to groundwater.
p. 2, no. 4	The PEIR should note that construction projects that disturb 1+ acres of land may require coverage under the SWRCB's National Pollution Discharge Elimination System General Permit for Construction.
p. 2, no. 5	The project should comply with the stormwater permit requirements under the National Pollution Discharge Elimination System Municipal Stormwater Permit for the Santa Ana River watershed. The PEIR should include any necessary mitigation measures.
Metropolitan Water District of Southern California	
p. 2, para 2-3	The PEIR must identify potential impacts to Metropolitan Water District of Southern California's Upper Feeder pipeline and fee-owned property resulting from excavation, construction, operations, or any development that may occur as a result of the project.
City of Loma Linda	
p. 1, para 1	No comments.

Known Areas of Controversy

In addition to the issues identified above, two areas of known controversy have been identified. Both are connected with the water rights application:

1. DFG disputes the SWRCB's determination that conditions in the Santa Ana basin are such that additional water rights can be appropriated.

2. DFG protests the SWRCB's consideration of applications for unappropriated Santa Ana River water rights based, among other things, on the potential for direct and cumulative effects on resources of the Santa Ana basin, including reduction of riparian and wetland habitat values as a result of cumulative diversion rates.

Issues Addressed

Issues addressed in this draft PEIR include water resources and biological resources (as identified in the initial study), as well as cultural resources and air

quality (as construction-related impacts identified after preparation of the initial study, during EIR scoping). Specific issues are as follows:

Water Resources

1. Change in absorption rates, drainage patterns, or rate and amount of surface runoff;
2. Discharge into surface waters or other alteration of surface water quality;
3. Changes in the amount of surface water in a water body;
4. Changes in the course of direction of water movement;
5. Changes in the quantity of groundwater, either through direct additions or withdrawals, or through interceptions of an aquifer by cuts or excavations, or through substantial loss of groundwater recharge capability; and
6. Impacts to groundwater quality.

Biological Resources

1. Impacts to federally listed species or their habitats;
2. Impacts to species identified as a sensitive or special status species in local or regional plans or listing maintained by the DFG;
3. Impacts to locally important natural communities;
4. Impacts to wetland habitats;
5. Impacts to wildlife dispersal or migration corridors; and
6. Impacts to wildlife resources pursuant to Section 711.2 of the California Fish and Game Code.
7. Compliance with the Western Riverside County Multiple Species Habitat Conservation Plan and the SKR Habitat Conservation Plan

Cultural Resources

1. Impacts involving the demolition, alteration, restoration, or relocation of historic resources; and
2. Disturbance of archaeological resources or human remains.

Air Quality

1. Temporary air pollutant emissions associated with Phase I construction activities.
2. Air pollutant emissions associated with operation of the Core Distribution System; and
3. Cumulative air pollutant emissions associated with development pursuant to the City of Riverside 2025 General Plan.

Document Organization

Required Contents

This PEIR includes all of the sections required by CEQA. Table 1-2 identifies the required contents of an EIR and the corresponding section of this draft PEIR.

Table 1-2. Required EIR Contents

Requirement/CEQA Section	Location in This Draft PEIR
Table of contents (Section 15122)	Table of Contents
Summary (Section 15123)	Summary
Project description (Section 15124)	Chapter 2
Significant environmental impacts (Section 15126.2)	Chapters 3A–3C
Environmental setting (Section 15125)	Sections 3A–3C
Mitigation measures (Section 15126.4)	Sections 3A–3C
Effects found not to be significant (Section 15128)	Chapter 1, Sections 3A–3C
Cumulative impacts (Section 15130)	Chapter 4
Growth-inducing impacts (Section 15126.2)	Chapter 5
Unavoidable significant environmental impacts (Section 15126.2)	Chapter 5
Alternatives to the proposed project (Section 15126.6)	Chapter 6
References / organizations and persons consulted (Section 15129)	Chapter 7
List of preparers (Section 15129)	Chapter 8

Contents of the Draft PEIR

The organization and content of the this draft PEIR are as follows:

"Executive Summary" presents a summary of the proposed project and alternatives, potential impacts and mitigation measures, and impact conclusions regarding growth inducement and cumulative impacts.

Chapter 1, "Introduction" describes the purpose and scope of this draft PEIR, and identifies its required contents and organization.

Chapter 2, "Project Description" presents the objectives, background, details, location, and regulatory requirements for the proposed project.

Chapter 3, "Environmental Setting and Analysis," is divided into three major sections: Sections 3A, "Water Resources," 3B, "Biological Resources," and 3C, "Cultural Resources." Each subsection describes the existing conditions for

the resource of concern before project implementation, methods and assumptions used in the impact analysis, criteria for determining significance, impacts that would result from the proposed project, and applicable mitigation measures that would eliminate or reduce significant impacts.

Chapter 4, "Cumulative Impacts," discusses impacts that could be created as a result of the combination of the project evaluated in the draft PEIR together with other projects causing related impacts.

Chapter 5, "Other CEQA Considerations" includes a discussion of direct and indirect growth-inducing impacts that could be caused by the proposed project. It also identifies unavoidable significant environmental impacts and significant adverse irreversible commitments of resources.

Chapter 6, "Alternatives Analysis," evaluates the environmental effects of project alternatives, including the No-Project Alternative. It also identifies the environmentally superior project alternative.

Chapter 7, "References" is a composite list of the plans, studies, reports, personal communications, and other materials cited in the draft PEIR. It identifies federal, state, or local agencies, other organizations, and private individuals consulted during preparation of this draft EIR.

Chapter 8, "List of Preparers," lists the individuals involved in preparing this draft PEIR.

Technical Appendices provide information and technical studies that support the environmental analysis contained within this document.

Public Review of the Draft PEIR

The draft PEIR has been distributed to agencies, organizations, and interested groups and persons for comment during the 45-day formal review period, in accordance with CEQA Guidelines Section 15087.

During the 45-day public review period, which began on October 13, 2006, and ends on November 27, 2006, the draft PEIR is available for general public review at the following location:

City of Riverside
Public Utilities Department
3901 Orange Street
Riverside, CA 92501

The document will also be available online at www.riversidepublicutilities.com.

Interested parties may provide written comments on the draft PEIR that must be postmarked by November 27, 2006. Please address comments to:

Mr. Kevin Milligan, P.E.
Assistant Director - Water
City of Riverside Public Utilities Department
3901 Orange Street
Riverside, CA 92501
Fax: (951) 826-2498

Upon completion of the 45-day public review period, written responses to all comments on environmental issues discussed in the draft PEIR will be prepared and incorporated into the final PEIR. A public meeting on the final PEIR will be held at the City of Riverside, 3900 Main Street, Riverside, CA 92522. Comments from the community and interested parties are encouraged at all public meetings.

Written responses to comments received during the official comment period from any public agencies will be made available to these agencies at least 10 days before the board meeting, at which the certification of the final PEIR will be considered. These comments, and their responses, will be included in the final PEIR for consideration by the City, as well as any other decision makers. For details on the project schedule, please contact the City.

Chapter 2

Project Description

Chapter 2

Project Description

Overview

The City proposes to:

- adopt the Master Plan as the framework for planning, building, and operating a recycled water distribution system;
- implement capital projects and other activities necessary to distribute recycled water from the RWQCP for municipal, industrial, irrigation, and agricultural uses; and
- direct up to 41,400 afy of treated effluent from the RWQCP into the city's recycled water system.

The Master Plan calls for the phased expansion of the city's existing recycled water distribution system, beginning with improvements within a 2-mile radius of the RWQCP and ultimately extending throughout the City and into unincorporated areas served by the RWQCP. The ultimate capacity of the recycled water system would be approximately 41,400 afy, which is the amount indicated in the City's application for Santa Ana River water rights. The estimate is based on the projected volume of wastewater treated at the RWQCP as population and employment in Riverside and surrounding areas continue to grow. The estimate also assumes that:

- the permitted wastewater treatment capacity of the RWQCP would be expanded over time;
- as required under an existing agreement, the RWQCP would continue to discharge at least 15,250 afy into the Santa Ana River; and
- approximately 20,000 afy of the recycled water would be used for agricultural irrigation and approximately 21,400 afy would be used for landscape irrigation and other municipal and industrial purposes.

Project Objectives

With regard to the Master Plan, the City's objective is to establish the framework for planning and implementing a recycled water distribution system, including capital projects and operation and maintenance programs. The Master Plan is needed to guide the phased expansion of the system, allowing the City to reduce its dependency on groundwater and contract water supplies by increasing the availability and use of recycled water for municipal, industrial, irrigation, and agricultural purposes.

With regard to the projects and activities required to implement the recycled water program, the City's objective is to ensure that proposed facilities and capital improvements are consistent with the Master Plan and all applicable environmental regulations.

With regard to the water rights appropriation, the City's objective is to ensure the continuous beneficial use of the water by directing treated effluent from the RWQCP to recycled water users while contributing to the flow and protecting the water quality and biological resources of the Santa Ana River.

Project Background

The RWQCP is located on a 121-acre site at 5950 Acorn Street, Riverside, California, and is south of the Santa Ana River, near the intersection of Van Buren Boulevard and Jurupa Avenue. It consists of two secondary treatment plants, one tertiary treatment plant, and sludge handling facilities. The RWQCP started operation in 1946 as a small primary treatment plant and underwent major upgrading in 1992. In 1995, approximately 50 acres of wetlands were constructed and are now being used for additional treatment (nitrogen removal) of RWQCP effluent. The RWQCP treats wastewater from Riverside and three community service districts (Edgemont, Jurupa, and Rubidoux). It currently is permitted to treat 40 million gallons per day (mgd) of wastewater and is master planned to treat 60 mgd. Presently the RWQCP produces approximately 36,000 afy of effluent and discharges almost all of that amount into Reach 3 of the Santa Ana River.

The City's recycled water distribution system is an outgrowth of reclamation studies and programs from the early 1990s. In 1992, the City prepared a reclamation report/master plan that focused on the evaluation of recycled water quantity and quality, options for use of recycled water, market assessment, development of a distribution system, and management of excess recycled water. Although the City did not formally adopt and implement the report, it gradually increased the use of recycled water around the RWQCP on a case-by-case basis. Presently, the City operates a small recycled water system composed of 8-inch and 12-inch diameter distribution mains. Riverside supplies approximately 290 afy of recycled water to the Van Buren Golf Center, Van Buren Urban Forest, and Toro Manufacturing Company, and has existing recycled water pipelines in Van Buren Boulevard and Doolittle Avenue.

In response to increased water demands and environmental needs, the City initiated an update of the 1992 reclamation report to include an economic analysis of the development and phased implementation of a citywide recycled water system. The update was completed in 2003 and produced the Master Plan that the City now proposes to adopt and implement.

The City's application for a water appropriation is in response to the SWRCB's Order WR 2000-12. In Section 6.3 of the order, the board found that increased releases of treated wastewater, increased runoff due to urbanization, and increased availability of water during wet years have substantially increased flows in the Santa Ana River since the entry of previous judgments regarding water appropriations and that it was reasonable to expect further increases in flow in the future. In addition, the SWRCB found that the construction of the Seven Oaks Dam was a significant change in conditions that affect flow conditions below the dam following storm events, making it feasible to divert more water. Finally, the board found that the possibility of using Seven Oaks Dam for water storage if federal approval was obtained could further increase the quantity of water potentially available for appropriation in some years. In addition to the City's application, the SWRCB has received four applications from water agencies and four applications from individuals. DFG has filed a protest contesting the determination that conditions warrant changing the Santa Ana River's status as "fully-appropriated."

Project Location

Region and Watershed

The proposed project is located in northwestern Riverside County, California, east of Orange County and south of San Bernardino County (Figure 2-1).

As described in more detail in Section 3A, "Water Resources," the recycled water facilities and uses would occur in the central reaches of the Santa Ana River watershed, upstream of Prado Dam (Figure 2-2). The Santa Ana River watershed stretches from the San Bernardino Mountains to the Pacific Ocean.

City Boundaries and Sphere of Influence

Riverside is the largest inland city in southern California, with an estimated 2003 population of approximately 274,000 and a total area of approximately 52,000 acres. As shown in Figure 2-1, the city shares boundaries with three other Riverside County cities: Norco, Corona, and Moreno Valley. Unincorporated communities border the city along the north and south. The Santa Ana River runs along the city's northern border.

Riverside's sphere of influence extends south to below Lake Mathews; it also includes unincorporated lands along the city's northeast boundary. Combined,

Riverside's current boundaries and sphere of influence encompass approximately 93,000 acres.

Project Area

As described in the market analysis within the Master Plan, the City proposes to distribute recycled water throughout the city and to connection points in the three community service districts that currently use the RWQCP: Jurupa and Rubidoux to the north and Edgemont to the east. The Jurupa and Rubidoux Community Service Districts are located in the Jurupa Area Plan, as identified in Riverside County's Regional Comprehensive Integrated Project (RCIP) (Riverside County 2003b). The Edgemont Community Service District is largely encompassed by Riverside's sphere of influence. The Master Plan also indicates a large potential market for the recycled water south of the city.

To ensure that the area potentially affected by the proposed project is not understated, the project area studied for this draft PEIR (see Figure 2-3) includes:

- Riverside's current boundaries,
- Riverside's sphere of influence as shown in the Draft Riverside General Plan 2025 (City of Riverside 2004a), and
- the Jurupa Area Plan as shown in the 2003 RCIP.

Project Components and Details

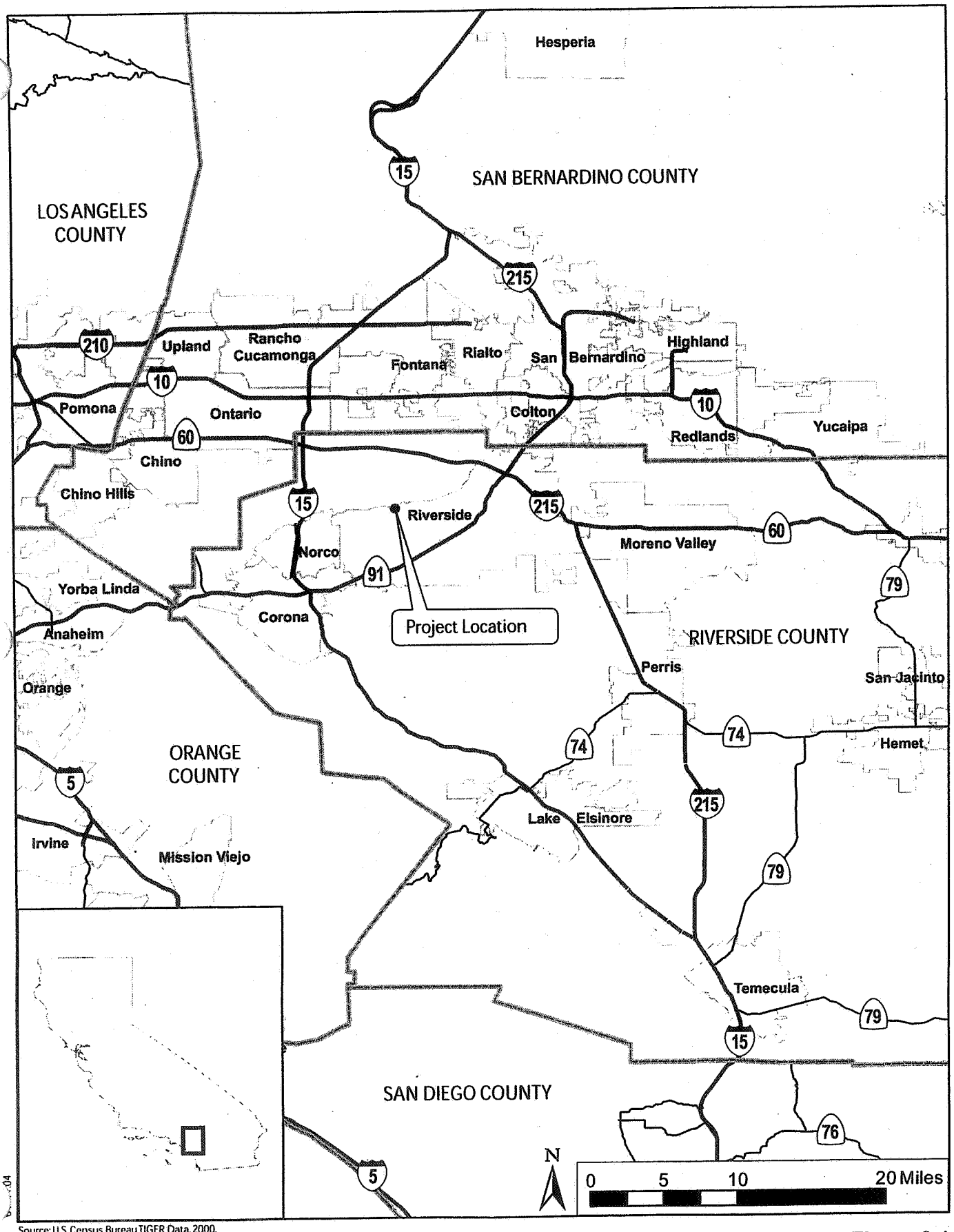
The proposed project has three components:

- adoption of the Master Plan;
- implementation of near-term and long-term projects to deliver recycled water from the RWQCP to users in the project area; and
- appropriation of 41,400 afy of Santa Ana River water rights to the City, in the form of treated effluent diverted from the RWQCP for use as recycled water.

Master Plan

The primary purpose of the Master Plan is to:

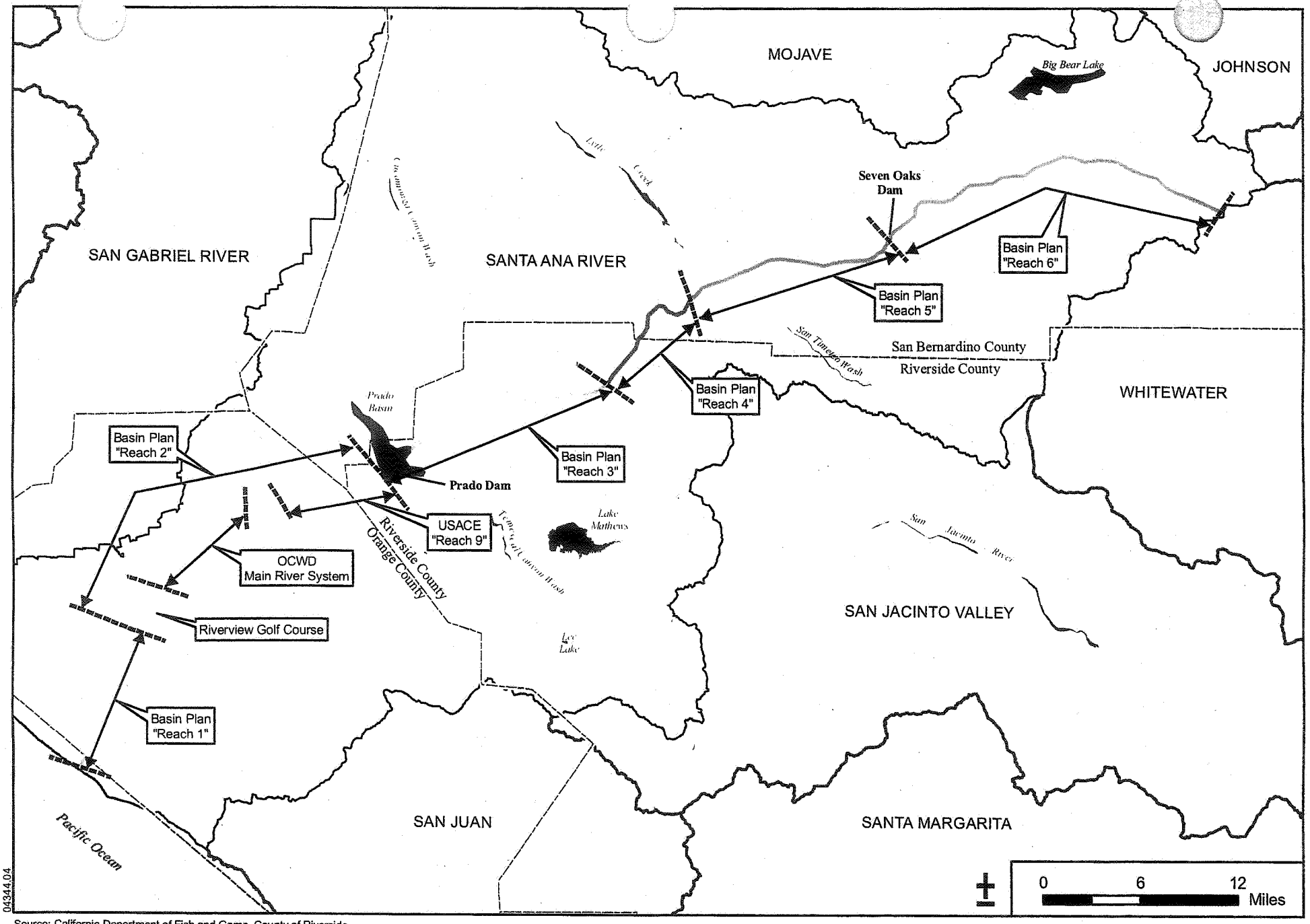
- identify potential uses of recycled water from the RWQCP,
- provide guidance for planning and implementing the phased expansion of the distribution system within Riverside, and
- provide the basis for analyzing project economics.



Source: U.S. Census Bureau TIGER Data, 2000.

Jones & Stokes

Figure 2-1
Regional Location

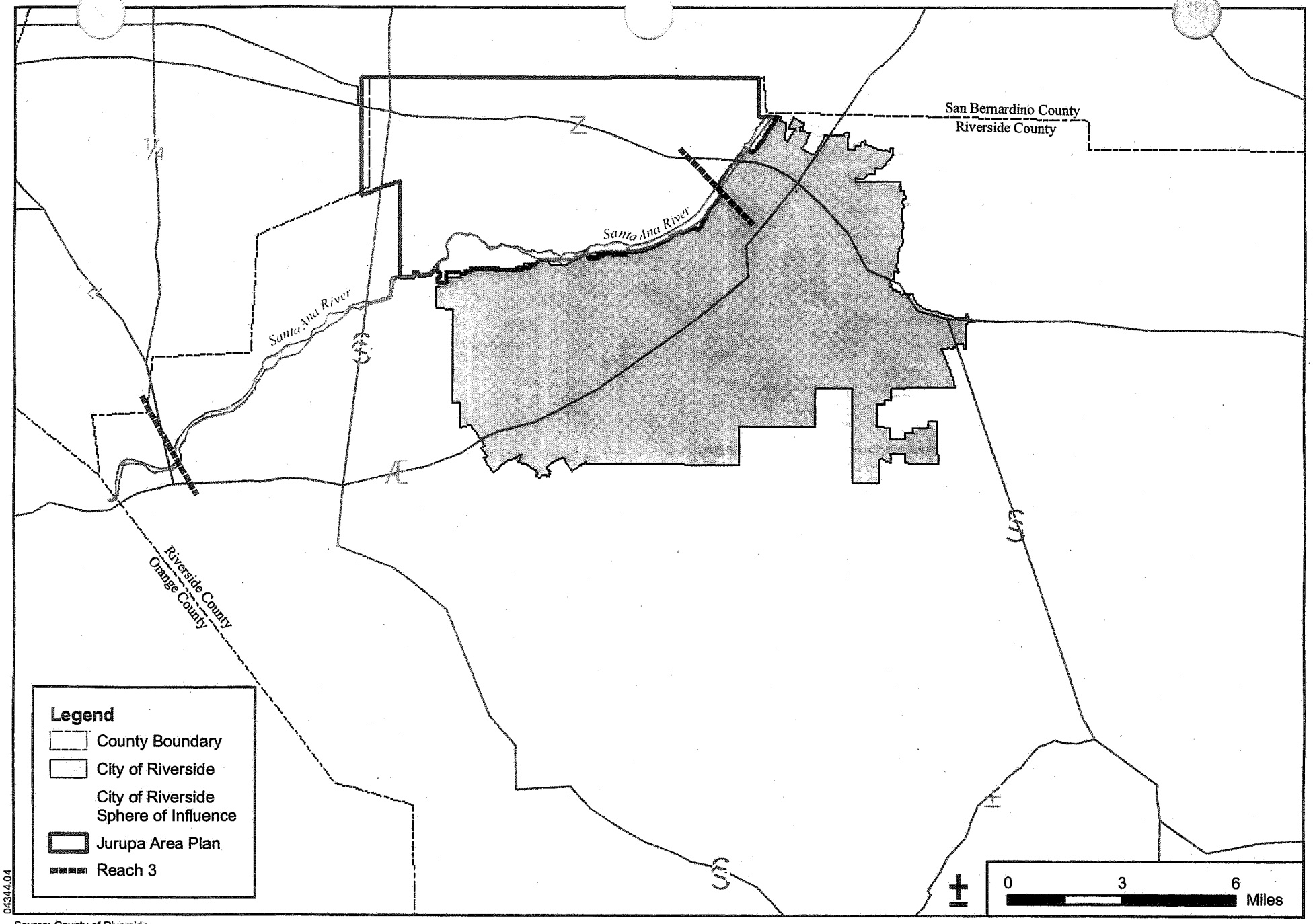


04344.04

Source: California Department of Fish and Game, County of Riverside

Jones & Stokes

Figure 2-2
Santa Ana River Watershed



04344.04

Source: County of Riverside

Jones & Stokes

Figure 2-3
Project Area

The City anticipates that the Master Plan will be updated and amended over time to include new information about recycled water technologies, facilities, and markets, together with new and changed regulations affecting the distribution and use of recycled water.

With regard to potential uses of recycled water from the RWQCP, the Master Plan indicates the following regarding existing and future demand within Riverside and the three community service districts currently served by the RWQCP:

- **Landscape Irrigation within City Limits.** Approximately 9,900 afy of recycled water could be used to irrigate cemeteries, schools, golf courses, parks, freeway/city greenbelts, and other landscapes. Schools, golf courses, and parks account for approximately 70% of the projected demand.
- **Industrial/Commercial Uses within City Limits.** Approximately 1,700 afy could be used for industrial and commercial non-irrigation purposes. This estimate is conservative and is based on information from the early 1990s.
- **Non-Agricultural Uses outside City Limits.** Approximately 2,700 afy could be used for landscape irrigation and industrial/commercial uses outside the city limits but within the RWQCP's existing service area. This estimate does not include potential uses within Riverside's 15,000-acre southerly sphere of influence.
- **Agricultural Uses.** The Master Plan estimates that up to 30,000 afy could be directed to agricultural uses in Riverside and the community service districts, provided that issues regarding irrigation conveyance and delivery obligations with other agencies can be resolved. A conservative estimate of 6,000 afy is identified in the Master Plan market analysis based on existing levels of use.

Near- and Long-Term Projects

This draft PEIR considers three types of projects:

1. **Core Distribution System.** Long-term development of a core distribution system that provides recycled water for landscape irrigation and other municipal and industrial uses within the project area.
2. **Phase 1 Expansion.** As the initial phase of the distribution system, near-term improvements to the existing system to expand delivery capacity within a 2-mile radius of the RWQCP.
3. **Agricultural Use System.** A combination of near-term planning and long-term development of a system to deliver recycled water for agricultural uses.

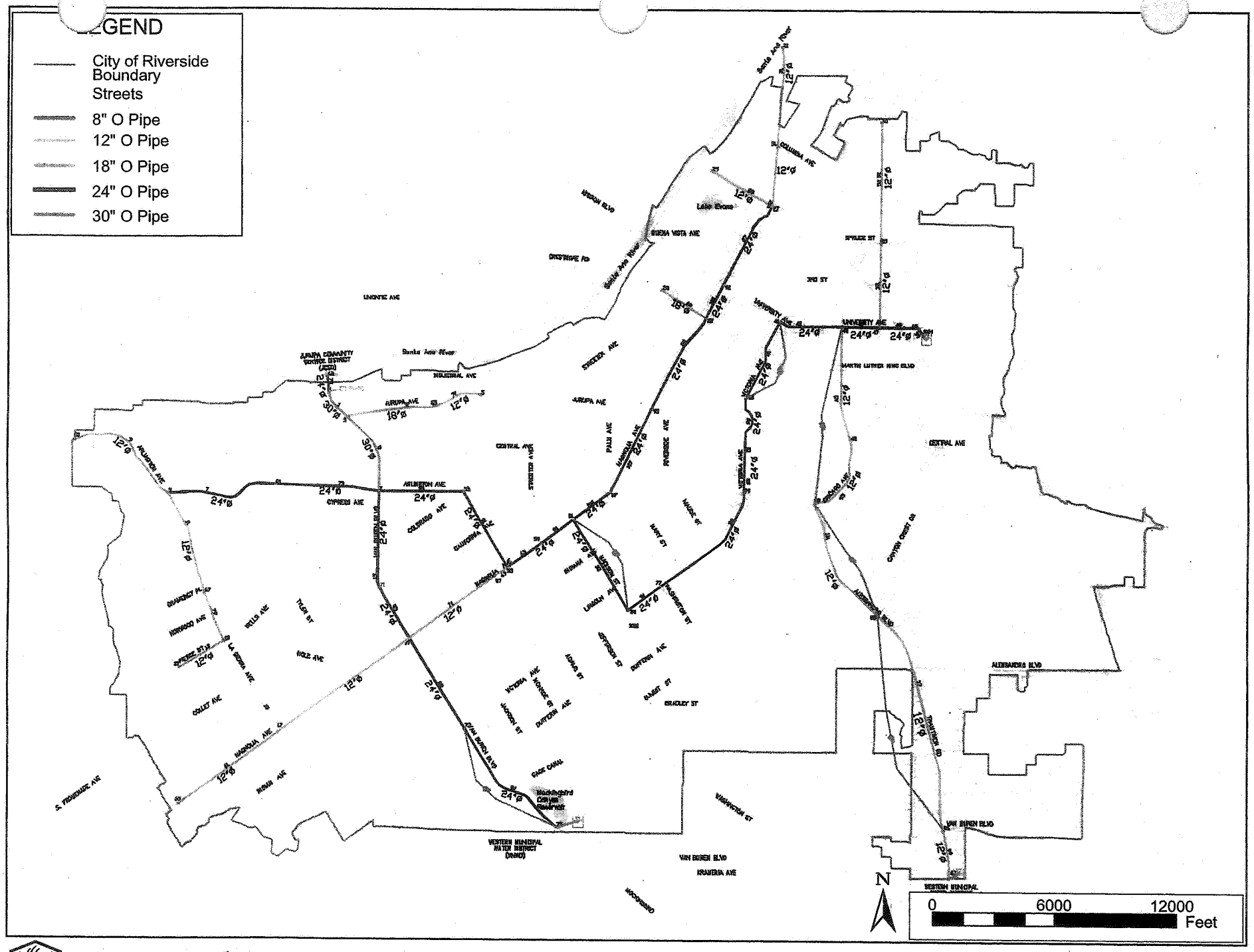
Of these three types of projects, the Master Plan provides the most detail about the Phase 1 expansion of the existing recycled water system. A conceptual plan for the entire core distribution system is presented, but the location and extent of future phases after the initial expansion are too speculative to identify or analyze at this time. Likewise, the location of specific customers relative to the

distribution system, including customers outside the City, is too speculative at this point. As customers are identified and signed up for water service, detailed plans for the distribution system, including connections to points of use, will be completed and additional CEQA analysis will be conducted. As with the future phases of the core distribution system, the agricultural use system is presented in conceptual terms in the Master Plan and will be subject to further planning and environmental review.

Core Distribution System

Figure 2-4 shows a conceptual alignment of the core distribution system based on the location of the largest potential users and user clusters identified in Section 4 of the Master Plan and modeling of the system's hydrologic requirements. Details of the assumptions and design criteria used in the calculations for the core system are presented in Section 5 of the Master Plan. Results of the modeling and analysis of the core distribution system are summarized below. The estimates do not include lateral distribution from the core system to individual users or land costs.

- **Uses.** As described in the Master Plan, the core distribution system would be designed to deliver approximately 20,400 afy of recycled water for landscape irrigation and other municipal, industrial, and commercial uses.
- **Pipelines.** The core distribution system will require approximately 272,000 feet of pipeline, ranging in diameter from 12 to 30 inches and in length from 1,000 to 12,737 feet.
- **Junction Nodes.** Approximately 39 junction nodes will be required, handling average daily demands of 11 to 911 gpm and peak hour demands of 32 to 4,478 gpm.
- **Storage Facilities.** Assuming an 8-hour irrigation period, 16 hours of peak day storage will be required. With a peak hourly demand of 25,600 gpm, about 7 million gallons of operational storage are required. Two 3-million-gallon facilities and one 1-million-gallon facility are recommended. The recommended locations for the facilities are at the University of California, Riverside, and at the service boundary between the City and Western Municipal Water District.
- **Pumping Stations.** Seven booster-pumping stations will be required for the core distribution system to operate on a 24-hour continuous basis: six new pump stations with capacity ranging from 1,000 to 4,000 gpm and an additional booster pump at the RWQCP with capacity of 7,300 gpm.
- **Capital Costs.** Table 2-1 summarizes the preliminary capital cost estimate for the citywide core distribution system. Total capital costs (excluding lateral distribution from core system to individual users) are estimated in the 2003 Master Plan at approximately $64,670,000.
- **Operation and Maintenance Costs.** Power costs for the core system are estimated in the 2003 Master Plan at $27,000 per month. Standard operation and maintenance costs assume five additional full-time staff and are



Jones & Stokes

Figure 2-4

Potential Alignment of Recycled Water Core Distribution System

estimated at $50,000 per month. Miscellaneous repair and maintenance costs are estimated at $10,000 per month. Depending on how the capital costs are financed (general funds only or general funds plus grants and loans), loan annuities costs are estimated $112,000 to $445,000 per month.

- **Estimated Production Costs (Pricing Options).** Depending on how capital costs are financed, the estimated production cost (and potential price) for the City ranges from $197 to $309 per afy. This estimate assumes that some costs would be shared with the Jurupa Community Service District.

Table 2-1. Citywide System Preliminary Capital Cost Analysis

System Component	Quantity	Cost
1. RWQCP Facilities		
Booster pump station (including disinfection and miscellaneous structures)	7,300 gpm	$1,314,000
2. Transmission Pumps		
1,000-gpm booster pump station (3 ea.)	3,000 gpm	$540,000
3,000-gpm booster pump station (1 ea.	3,000 gpm	$540,000
4,000-gpm booster pump station (2 ea.)	8,000 gpm	$1,440.000
Transmission Pump Total	*14,000 gpm*	*$2,520,000*
3. Transmission Pipelines		
12" pipelines	119,483 LF	$10,036,572
18" pipelines	9,630 LF	$1,213,380
24" pipelines	135,191 LF	$22,712,088
30" pipelines	7,649 LF	$1,606,290
Transmission Pipeline Total	*272,000 LF*	*$35,570,000*
4. Reservoir Storage		
3 MG reservoir (2 ea.)	6 MG	$4,800,000
1 MG reservoir (1 ea.)	1 MG	$800,000
Reservoir Storage Total	*7 MG*	*$5,600,000*
5. Onsite Conversion @ Average of $10,000 per Site	186 EA	$1,860,000
TOTAL ESTIMATED COST		
Total Estimated Cost		$46,864,000
Contingency @ 20%		$9,372,800
Engineering, Legal, and Administration @ 15%		$8,435,520
TOTAL ESTIMATED COST		**$64,672,320**

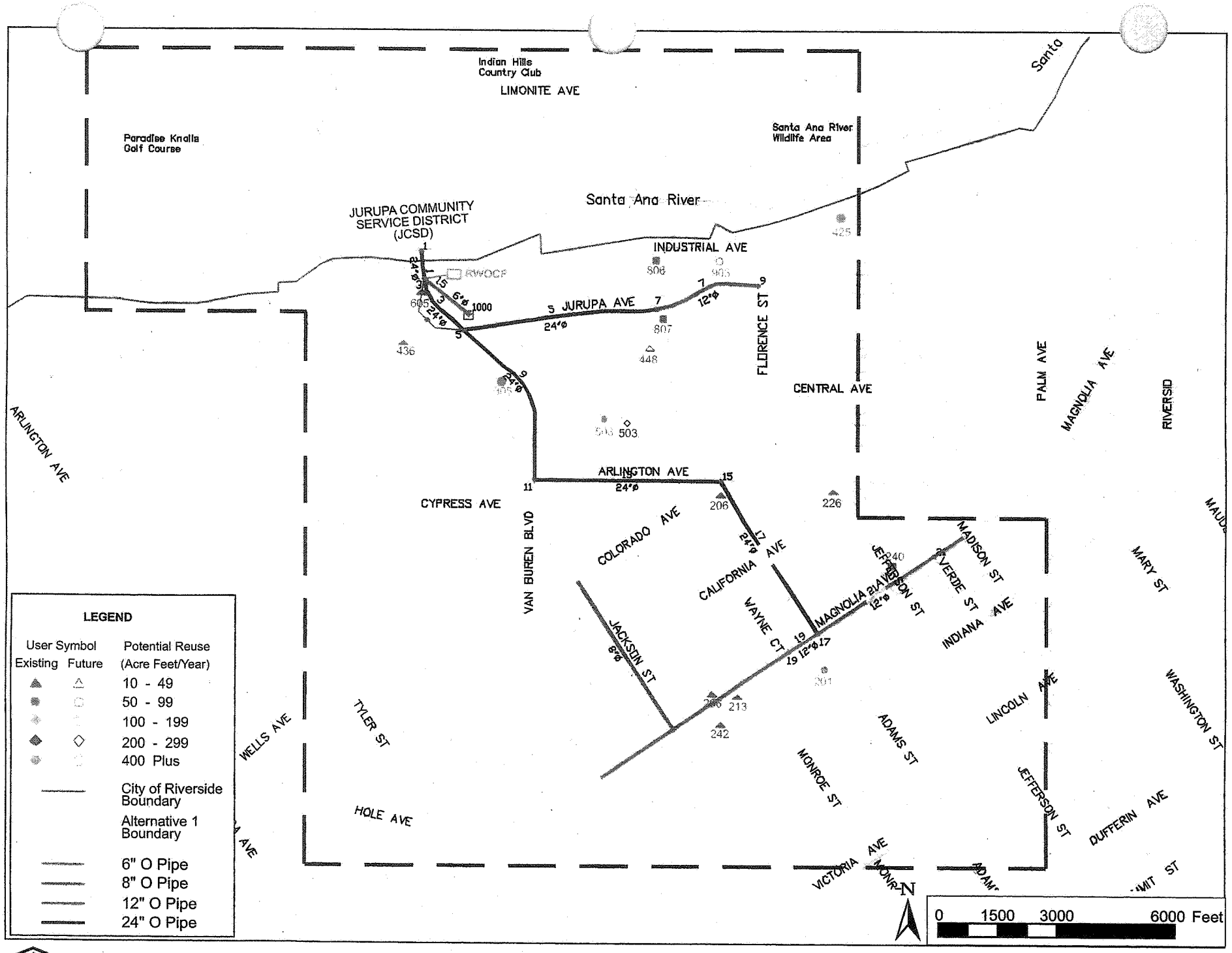
Note: The ultimate capital costs will vary due to increases in fuel and utilities costs since preparation of the Master Plan.

Source: Parsons 2003.

Phase 1 Expansion

The Phase 1 expansion encompasses a radius of approximately 2 miles around the RWQCP (Figure 2-5). This area includes major potential users within Riverside and Jurupa and Rubidoux Community Service Districts. The Master Plan considers two primary scenarios and a range of variations for Phase 1. The variation described below encompasses the largest geographic area and provides the greatest quantity (in afy) of recycled water among the options presented. All Phase 1 variations considered in the Master Plan assume that the distribution pipelines would be placed within existing city rights-of way.

- **Uses.** Phase 1 would provide approximately 2,270 afy for recycled water users up to north of State Route 91 (SR-91) on Magnolia Avenue between Madison Street and Van Buren Boulevard (see Figure 2-5). Approximately 770 afy would be delivered to users outside city limits, including approximately 60 afy to areas currently using potable water, 640 afy to new areas of reuse, and 60 afy for use by industries. Approximately 1,500 afy would be delivered for uses in Riverside, including 360 afy for school irrigation; 195 afy for golf courses; 600 afy for parks; 413 afy for hospital, airport, and other uses; 270 afy for industry and power plant use; and up to 130 afy for California Department of Transportation projects.
- **Pipelines.** The core distribution system for Phase 1 will require approximately 47,026 linear feet of pipeline, ranging in diameter from 8 to 24 inches and in length from 5,440 to 7,700 linear feet. In analyzing pipe size for Phase 1, consideration was given to the ultimate pipe size required for the citywide core distribution system. This approach increases the initial costs for Phase 1 due to the installation of larger diameter pipes. However, installing the larger pipes during Phase 1 will avoid the cost of installing parallel pipes when the citywide system is implemented in the future.
- **Storage Facilities.** The RWQCP chlorine contact tanks would be used as operational storage facilities for Phase 1. No new facilities would be required.
- **Pumping Stations.** A booster pumping station would be installed at the chlorine contact tanks. The pumping facility at the RWQCP requires a total firm capacity of 6100 gpm. The station would include multiple pumps with one standby pump equal to the largest pump used in operation.
- **Capital Costs.** Table 2-2 summarizes the estimated capital costs for the Phase 1 system based on the assumption that citywide system design requirements are addressed. Total capital costs (excluding lateral distribution from core system to individual users) are estimated at approximately $10,600,000. If the citywide requirements are not taken into consideration, the total estimated capital cost is approximately $10,100,000. The reduced cost reflects a design change to use more 12- and 24-inch pipes and no 18- or 30-inch pipes.
- **Operation and Maintenance Costs.** Power costs for the Phase 1 system are estimated at $7,200 to $9,300 per month, depending on whether citywide system requirements are taken into consideration in the design. Labor costs assume the addition of one staff person at half-time and are estimated at



Jones & Stokes

Figure 2-5

Potential Alignment for Phase 1 Expansion Area

$2,500 per month. Miscellaneous repair and maintenance costs are estimated at $3,000 per month. Depending on how the capital costs are financed, loan-related costs are estimated at $16,100 to $64,500 per month.

- **Estimated Production Costs (Alternative Pricing Options).** Depending on how capital costs are financed, the estimated production cost for the City (and potential price) ranges from $277 to $594 per afy. This estimate assumes that some costs would be shared with the community service districts.

Table 2-2. Phase 1 Capital Cost Analysis

System Component	Quantity	Cost
1. RWQCP Facilities		
Booster pump station (including disinfection and miscellaneous structures)	6,100 gpm	$1,098,000
2. Transmission Pipelines		
8" pipelines	5,440 LF	$304,604
12" pipelines	10,727 LF	$901,068
18" pipelines	6,104 LF	$769,104
24" pipelines	17,055 LF	$2,865,240
30" pipelines	7,700 LF	$1,617,000
Transmission Pipeline Total	*47,026 LF*	*$6,457,052*
5. Onsite Conversion @ Average of $10,000 per Site	13 EA	$130,000
TOTAL ESTIMATED COST		
Total estimated cost		$7,685,052
Contingency @ 20%		$1,537,010
Engineering, legal, and administration @ 15%		$1,383,309
TOTAL ESTIMATED COST		**$10,605,372**

Note: Analysis assumes system is designed to take into account citywide core distribution system requirements.

Source: Parsons 2003.

Agricultural Use System

As described in Section 4 of the Master Plan, agricultural uses that currently are met with the use of non-potable water supplies are a large potential market for recycled water. However, the non-potable water supply provided in Riverside's service area is cheap and easily accessible. There also are a number of institutional issues related to the delivery of recycled waters. The City anticipates that a combination of interagency agreements, delivery system modifications, and related changes will be required to incrementally expand use of recycled water for certain type of agriculture.

A brief description of existing transmission systems operated by the City is provided below.

Gage Transmission System

The City owns the Gage Transmission System, which is operated by the Gage Canal Company. The present capacity of the system is approximately 30,000 gallons per minute (gpm), of which the City owns 19,000 gpm. Gage Canal gets 24,000 gpm from the Gage well system and 6,000 gpm from city potable wells.

The total length of the Gage Transmission System is approximately 54,300 linear feet. In the upper reach of transmission system, the pipeline increases in diameter from 24 to 30, 36, 42, and 48 inches. The remainder of the pipeline varies in diameter from 48 to 60 inches. At the terminal point (Linden Street), a 36-inch diameter pipeline delivers potable water to the Linden and Evans Reservoirs. Based on the City's share of the Gage Canal Company and water exchange agreements, the City's continuous delivery of domestic water to the two reservoirs is approximately 24,000 gpm. Typically, for a period of two months in winter, the lower portion of the transmission system is taken out of service for maintenance and the entire capacity is available for use by the City. All deliveries up to 27,000 gpm flow by gravity through a 36-inch diameter pipeline, which connects the turnouts on Linden Street to the two reservoirs.

As one component of the agricultural use system, the lower reaches of the Gage Transmission System potentially could be used for recycled water. This utilization would reduce the amount of groundwater pumping required for irrigation.

Riverside Water Company Canal

The City operates a second canal, the Riverside Water Company Canal, which is used for irrigation water conveyance and storm water control. Non-potable wells in the Colton and Riverside groundwater basins are pumped to provide the exchange change with the Gage Canal Company and to meet irrigation conveyance and delivery obligations with other agencies.

Approximately 8,000 afy of non-potable water is delivered to the Gage Canal Company through a pumping system on the Riverside Canal. An additional 6,000 afy may be delivered to the Western Municipal Water District under the terms of a 2003 agreement. In addition, the Riverside Canal conveys water produced on behalf of the San Bernardino Valley Municipal Water District for delivery to the OCWD and water produced for delivery to the Elsinore Valley Municipal Water District.

Water Rights Appropriation

The City has filed an application with the SWRCB for an appropriation of 75 cubic feet per second and up to 41,400 afy of Santa Ana River water rights. Specifically, the City proposes to direct up to 41,400 afy of treated effluent from the RWQCP into Riverside's recycled water system. The diversion would occur incrementally in proportion to the expansion of Riverside's recycled water system. As identified in the City's application (Appendix C), approximately 21,400 afy of the recycled water would be used for municipal and industrial uses, and approximately 20,000 afy would be used for agricultural irrigation. These estimates are consistent with the assumptions and projected uses in the Master Plan.

The City currently does not have an appropriation of Santa Ana River water rights. The City's existing water rights include:

- approximately 77,000 afy of groundwater from wells in the Bunker Hill, Colton, Riverside North, Riverside South, and Arlington groundwater basins;
- approximately 365 afy of imported water under contracts with the Western Municipal Water District; and
- approximately 20,000 afy of imported water from Gage Canal Company.

Regulatory and Planning Context

This section describes the regulatory context for the decisions to be made on the Master Plan, short- and long-term projects, and water rights appropriation. It also describes the relationship of the proposed projects to other plans and programs and to other pending applications for Santa Ana River water rights.

Regulatory Context

Section 2 of the Master Plan includes a detailed description of the criteria and regulations that apply to recycled water uses and facilities. In general, to implement the Master Plan and ensure the beneficial uses proposed in the City's water rights application, the City will need to:

- amend the RWQCP's National Pollutant Discharge Elimination System permit to revise the estimated amount of treated effluent discharged to the Santa Ana River, identify the ultimate discharge point of the treated effluent diverted for use as recycled water, include the monitoring program for the recycled water program, and increase the permitted capacity of the facility;

- comply with Title 22 of the California Code of Regulations, which sets bacteriological water quality standards for recycled water based on the expected degree of public contact and requires preparation of an engineering report describing the production, transmission, existing and future users, and administration methods for the recycled water system;
- comply with Title 17 of the California Code of Regulations which requires protection against cross-connections between potable water systems and recycled water systems; and
- comply with the applicable provisions of the federal Endangered Species Act (ESA), federal Clean Water Act (CWA), and California Fish and Game Code.

Additional information about specific regulatory requirements is provided in Section 3A, "Water Resources," and Section 3B, "Biological Resources."

Relationship to Other Plans and Programs

The following plans and programs are relevant to the proposed project. As indicated in the Initial Study (Appendix A), there are no known inconsistencies between the project and other existing plans and programs. Additional details regarding the project's relationship to applicable plans and programs are provided in Sections 3A, 3B, and 3C.

- **Santa Ana River Basin Water Quality Control Plan** (Santa Ana RWQCB 1995a). This plan is prepared and updated every three years by the Santa Ana RWQCB. The 2005 review was initiated in late 2004.
- **Southern California Comprehensive Water Reclamation and Reuse Study, Phase II** (DWR 2002). The City and the Western Municipal Water District (and several neighboring agencies) are participants in the Southern California Comprehensive Water Reclamation and Reuse Study, Phase II. Phase II (completed in 2002) focuses on developing a long-term regional recycling strategy and identifying short-term opportunities for implementation. The analyses examined two distinct time-horizons: 2010 (short-term) and 2040 (long-term). Projects in Riverside are identified as part of the short- and long-term strategy. Short-term projects in southern California have the potential to produce approximately 451,500 afy.
- **2002 Integrated Water Resources Plan** (SAWPA 2002). The 2002 Integrated Water Resources Plan is part of the Santa Ana Watershed Project Authority's overall Integrated Watershed Plan. It focuses on changes noted in planning updates from water districts in the watershed; planning horizons for estimating water demands and supplies (2010, 2025, and 2050); water resource plans by district; water resource projects by category; and identification of regional problems and solutions. Water recycling is encouraged as a means to reduce the area's overall water consumption and dependence on imported supplies.

- **RCIP.** The RCIP includes Riverside County's Revised General Plan, the WRC MSHCP, and land use plans for the Jurupa area and other unincorporated areas adjacent to Riverside.
- **WRC MSHCP.** The project area is within the plan area of the approved WRC MSHCP. The WRC MSHCP covers approximately 1.26 million acres in western Riverside County, provides for the ongoing conservation and management of 500,00 acres, and provides authorization under the federal and California ESA for incidental take of 116 species (of 146 covered by the plan). The WRC MSHCP directly covers activities of the City, other participating cities, and Riverside County; special provisions apply to special districts and utility companies (potential users of recycled water).
- **Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County (SKR HCP)** (RCHCA 1996). The City is within the plan and incidental permit area covered by the SKR HCP. Lands north of the City and some lands west of the City are not covered by the SKR HCP. However, the WRC MSHCP includes those lands and provides authorization for incidental take of SKR in those outlying areas. Only lands in Riverside County are covered by the SKR HCP.

Other Pending Water Appropriations

The City's application is one of several under consideration by the SWRCB involving water appropriation from the Santa Ana River. The other applicants (and their pending application numbers) include the following.

- **Chino Basin Water Master (WA 31369).** The Chino Basin Water Master is requesting a right to divert 97,000 afy of water to groundwater storage.
- **San Bernardino Valley Municipal Water District/Western Municipal Water District (WA 31370).** The San Bernardino Valley Municipal Water District/Western Municipal Water District proposes to appropriate up to 50,000 afy of water to surface storage at Seven Oaks Dam, up to 100,000 afy to existing underground storage facilities, and 1,110 cfs by direct diversion, operated so the combination of storage and direct diversion does not exceed 200,000 afy.
- **San Bernardino Valley Water Conservation District (WA 31371).** The San Bernardino Valley Water Conservation District proposes to divert a 52,172 afy from the Santa Ana River and Mill Creek to groundwater and surface storage, including 41,772 afy from the Santa Ana River (in addition to 10.400 afy under existing licenses) and 19,800 afy from Mill Creek.
- **Orange County Water District (WA 31174).** OCWD proposes to increase its existing diversion of 250,000 afy of water by an additional 255,000 afy, resulting in a new diversion total of up to 505,000 afy.

Additional information about the above applications is in Chapter 4, "Cumulative Effects." In addition to the above-listed applications, four individuals have submitted applications for direct diversion of comparatively small volumes from Lytle Creek, which is a tributary of the Santa Ana River.

Chapter 3

Environmental Impacts and Mitigation Measures

Chapter 3

Environmental Impacts and Mitigation Measures

Introduction

The City prepared an initial study for the proposed project in December 2003 (see Appendix A). Based on the findings of the initial study, the City determined that an EIR would be required for the project. The City used the initial study, as well as agency input received during the notice of preparation comment period, to determine the scope of the evaluation for the EIR. This chapter discusses the following environmental issues:

- water resources,
- biological resources; and
- cultural resources.

Sections 3A, 3B, and 3C provide a detailed discussion of the environmental setting, impacts associated with the proposed project, and mitigation measures designed to reduce significant impacts to a less-than-significant level (or to reduce the severity of significant impacts). Potential air quality impacts associated with the project are addressed in a technical appendix to this EIR.

Organization of Environmental Analysis

To assist the reader in comparing information about the various environmental issues, each section (Sections 3A–3C) contains the following information:

- introduction,
- applicable regulations,
- setting, and
- impacts and mitigation (including methodology, criteria for determining significance, and project impacts.

In addition, the Executive Summary includes a table comparing impacts by environmental issue.

Terminology Used in this EIR

For each impact identified in this EIR, a statement of the level of significance of the impact is provided. Impacts are categorized in one of the following categories:

- A *beneficial impact* would result when the proposed project would have a positive effect on the natural or human environment, and no mitigation would be required.
- A designation of *no impact* is given when no adverse changes in the environment are expected;
- A *less-than-significant impact* would cause no substantial adverse change in the environment;
- A *significant* (but mitigable) *impact* or *less-than-significant impact with mitigation* would have a substantial adverse impact on the environment, but could be reduced to a less-than-significant level with mitigation; and
- A *significant unavoidable impact* would cause a substantial adverse effect on the environment and no feasible mitigation measures would be available to reduce the impact to a less-than-significant level.

Section 3A

Water Resources

Section 3A

Water Resources

Introduction

This section examines the potential impacts of the proposed project related to water resources. The aspects of water resources that are specifically analyzed are surface water hydrology and flooding, groundwater hydrology, surface water quality, and groundwater quality.

The acceptability of recycled water for any particular use is dependent on the physical, chemical, and microbiological quality of the water. Factors that affect the quality of recycled water include source water quality, wastewater treatment processes and treatment effectiveness, treatment reliability, and distribution system design and operation.

Regulatory Setting

Federal General Water Quality Regulations

Clean Water Act

In 1972, the Federal Water Pollution Control Act—hereafter referred as the Clean Water Act—was amended to require National Pollutant Discharge Elimination System (NPDES) permits for discharge of pollutants into so-called "waters of the United States" that include oceans, bays, rivers, streams, lakes, ponds, and wetlands from any point source. In 1987, the Clean Water Act was amended to require that the U.S. Environmental Protection Agency (EPA) establish regulations for permitting under the NPDES permit program of municipal and industrial stormwater discharges. The EPA published final regulations regarding stormwater discharges on November 16, 1990. The regulations require that municipal separate storm sewer system (MS4) discharges to surface waters be regulated by a NPDES permit.

In addition, the Clean Water Act requires the states to adopt water quality standards for water bodies and have those standards approved by the EPA. Water quality standards consist of designated beneficial uses—e.g., wildlife

habitat, agricultural supply, fishing, etc.—for a particular water body, along with water quality criteria necessary to support those uses. Water quality criteria are prescribed concentrations or levels of constituents—such as lead, suspended sediment, and fecal coliform bacteria—or narrative statements that represent the quality of water that supports a particular use. Because California has not established a complete list of acceptable water quality criteria, the EPA established numeric water quality criteria for certain toxic constituents in the form of the California Toxics Rule (40 CFR 131.38).

Water bodies not meeting water quality standards are deemed "impaired" and, under Clean Water Act Section 303(d), are placed on a list of impaired waters for which a Total Maximum Daily Load (TMDL) must be developed for the impairing pollutant(s). A TMDL is an estimate of the total load of pollutants from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards (with a "factor of safety" included). Once established, the TMDL is allocated among current and future pollutant sources to the water body.

Reach 3 of the Santa Ana River is listed on the 303(d) list as being impaired for pathogens related to dairy facilities. Lake Evans, Mockingbird Reservoir, Hole Lake, and Gage Canal, which are the other receiving waters in the direct vicinity of the project, are not listed on the most recent 303(d) list as being impaired. Reaches 1 and 2 of the Santa Ana River, which are downstream of the proposed project, are also not listed on the 303(d) list of impaired waters.

Clean Water Act Dredge and Fill Permits and Water Quality Certifications

Clean Water Act Section 404 regulates the discharge of dredged and fill materials into waters of the United States. Project proponents must obtain a permit from the U.S. Army Corps of Engineers (Corps) for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. Before any actions that may affect surface waters are carried out, a delineation of jurisdictional waters of the United States must be completed following Corps protocols (Environmental Laboratory 1987), in order to determine whether the project area encompasses wetlands or other waters of the United States that qualify for Clean Water Act protection. These waters include any or all of the following:

- areas within the ordinary high water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned, and
- seasonal and perennial wetlands.

Wetlands are defined for regulatory purposes as areas "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" (33 CFR 328.3, 40 CFR 230.3).

Section 404 permits may be issued only for the "least environmentally damaging practicable alternative." That is, authorization of a proposed discharge is prohibited if there is a practicable alternative that would have less adverse impacts and lacks other significant adverse consequences.

Under Clean Water Act Section 401, applicants for a federal license or permit such as a Section 404 permit must obtain certification from the state that the activity will not adversely affect water quality. The Section 401 certification or waiver for the proposed project is under the jurisdiction of the Santa Ana RWQCB.

NPDES Permit

The NPDES permit for discharge into Santa Ana River requires secondary treatment, virus control, in-line coagulation and filtration, and improved disinfection—or their equivalents—for all wastewater discharges in order to protect the health of the people who use the Santa Ana River for contact recreation. Control of inorganic nitrogen levels in discharged water is also required to protect the aquatic habitat from un-ionized ammonia toxicity and to manage nitrate levels in groundwater for subsequent municipal uses. Control of residual chlorine levels in discharges is also a requirement of the NPDES permit (Parsons 2003).

Current NPDES Permit Requirements

The RWQCP operates under the NPDES permit designated as Order No. 01-3, NPDES No. CA0105350 with Adoption Order No. R8-2006-0009 (referred to as Permit under this section), which includes requirements that implement the Santa Ana River Basin Plan (Basin Plan). See below for a description of the Basin Plan. The Permit is based on the wastewater treatment plant's current design rating of 40 million gallons per day. The Permit covers discharges to surface waters under NPDES and discharges to groundwater from the reclaimed water distribution system under the State Water Code. The Santa Ana RWQCB defines the beneficial uses of the receiving waters and the Basin Plan objectives necessary to support these beneficial uses in the Basin Plan. Effluent quality standards require tertiary treatment with filters and disinfection equivalent to Title 22 requirements for recycled water because of use of receiving waters for water contact recreation. In issuing the Permit, the Santa Ana RWQCB must make a finding that the discharge limitations will support attainment of the objectives. Therefore, by definition, to the extent that the project will meet the discharge limitations, there will be no impact to the receiving waters. Table 3A-1 presents a summary of the key NPDES effluent requirements. The total inorganic nitrogen (TIN) limits at RWQCP are expected to be reduced to perhaps as low as 8 to 10 milligrams per liter (mg/L) at the conclusion of the Santa Ana River TIN/Total Dissolved Solids (TDS) Study in the near future. Irrigation with recycled water must be performed in a manner that will ensure the groundwater quality objectives for TIN are met. As the applicant, the City must demonstrate

that the application rates for recycled water would not exceed the plant nitrogen uptake. Such a precaution would prevent nitrogen from migrating to the groundwater.

Table 3A-1. Summary of Key NPDES Effluent Requirements

Parameter	Weekly Average	Monthly Average	Annual Average	Daily Max	Notes
BOD	30 mg/L	20 mg/L	--	--	
TSS	30 mg/L	20 mg/L	--	--	
Chlorine Residual	--	5.0 mg/L	--	--	
TIN	--	--	10 mg/L	--	For flow > 38 MGD
			13 mg/L	--	For flow < 38 MGD
TDS	--	--	650 mg/L	--	250 mg/L incremental limit
Turbidity	--	--	--	--	Daily avg 2 NTU
					5 NTU for 5% of time during any 24 hours
Coliform	< 2.2 MPN	--	--	--	Max 23 MPN, once per month
pH	--	--	--	6.5-8.5	99% compliance

Source: Santa Ana RWQCB 1995b

California Toxics Rule

The California Toxics Rule is a federal regulation issued by the EPA that provides water quality criteria for toxic constituents in waters with human health or aquatic life designated uses in California. Criteria established under this rule would apply to the recycled water that would be discharged as a result of implementation of the proposed project.

California Toxics Rule criteria apply to the receiving water body and must be calculated based upon the probable hardness values of the receiving waters, where higher hardness values result in copper, lead, and zinc being more likely to be complexed (bound) with other components, which reduces the bioavailability and resultant toxicity of these metals.

The California Toxics Rule establishes acute and chronic surface water quality standards for certain waterbodies, as discussed above. Acute criteria provide benchmarks for the highest concentrations to which aquatic life can be exposed for a short period of time without deleterious effect. Chronic criteria provide benchmarks for the highest concentrations of a particular pollutant to which aquatic life can be exposed for an extended period of time—e.g., 4 days or more—without deleterious effect.

Safe Drinking Water Act

The 1986 federal Safe Drinking Water Act requires each state to develop a wellhead protection plan to describe how areas around wells will be protected from potential contamination. A major element of a wellhead protection program is the determination of protection zones around public supply wellheads. Within these zones, potential protection measures could include limitations on land uses to preclude industrial or agricultural uses with the potential to result in spills of chemicals or overuse of fertilizers and other chemicals.

General Construction Activity Permit

Pursuant to Clean Water Act Section 402(p), which requires regulations for permitting of certain stormwater discharges, the SWRCB has issued a statewide general NPDES permit for stormwater discharges from construction sites ([NPDES No. CAS000002] California Water Resources Control Board Resolution No. 2001-046; Modification of Water Quality Order 99-08-DWQ SWRCB NPDES General Permit for Stormwater Discharges Associated with Construction Activity [adopted by the SWRCB on April 26, 2001).

Under this statewide NPDES construction general permit, discharges of stormwater from construction sites with a disturbed area of 1 acre or more—effective March 2003—are required to either obtain individual NPDES permits for stormwater discharges or to be covered by the construction general permit. Coverage under the construction general permit is accomplished by completing and filing a Notice of Intent with the SWRCB. Each applicant under the construction general permit must ensure that a Stormwater Pollution Prevention Plan (SWPPP) is prepared prior to grading and is implemented during construction. The primary objective of the SWPPP is to identify, construct, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants in stormwater discharges and in authorized non-stormwater discharges from the construction site during construction. Permittees are further required to conduct monitoring and reporting to ensure that BMPs are correctly implemented and are effective in controlling the discharge of pollutants. Projects constructed in California Department of Transportation (Caltrans) facilities or rights-of-way must comply with the requirements of Caltrans' statewide NPDES permit, which has requirements similar to those of the construction general permit.

Federal Flood Insurance Program

Congress responded to increasing costs of disaster relief by passing the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. These acts reduce the need for large publicly funded flood control structures and disaster relief by restricting development on floodplains. The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program and issues Flood Insurance Rate Maps for communities

participating in the program. These maps delineate flood hazard zones in the community.

State Water Quality Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act provides the statutory authority for SWRCB and the RWQCBs to regulate water quality and was amended in 1972 to extend the federal Clean Water Act authority to these agencies (see Clean Water Act above). Porter-Cologne established the SWRCB and divided the state into nine regions, each overseen by a RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the State's surface and groundwater supplies, but much of the daily implementation of water quality regulations is carried out by the nine RWQCBs.

Basin Plan

The Porter-Cologne Water Quality Control Act provides for the development and periodic review of water quality control plans (also known as basin plans). The basin plan for the Santa Ana River Basin (Santa Ana RWQCB 1995b, as amended) designates beneficial uses and water quality objectives for water bodies in the region. The Santa Ana Basin Plan identifies beneficial uses for the area's surface and groundwater, as shown in Table 3A-2 (Santa Ana RWQCB 1995b). Specific objectives are provided for the larger water bodies within the region as well as general objectives for ocean waters, bays and estuaries, inland surface waters, and groundwaters. In general, narrative objectives require that degradation of water quality not occur because of increases in pollutant loads that will impact the beneficial uses of a water body. Water quality criteria apply within receiving waters and do not apply directly to runoff; therefore, water quality criteria from the Santa Ana Basin Plan are used as benchmarks for comparison in the quantitative assessments and are also examined in the qualitative assessments in the discussion of project impacts below. Basin plans are primarily implemented by using the NPDES permitting system to regulate waste discharges so that water quality objectives are met.

Potential receiving waters for the project consist of Santa Ana River, Lake Evans, Mockingbird Reservoir, Hole Lake, and Gage Canal. The Santa Ana Basin Plan lists beneficial uses of major water bodies within this region, including the reaches of Santa Ana River that could be affected (Table 3A-2). However, Hole Lake and Gage Canal are not listed in the Santa Ana Basin Plan. Groundwater basins that could receive recycled effluent from RWQCP comprise Riverside, Arlington, and Orange County Coastal Plain Groundwater Basins (Table 3A-2). Groundwater basins within the Santa Ana Basin Plan are broken into Management Zones. Management Zones in the Basin that could be affected by the proposed project include Riverside A through Riverside E, inclusive, and those in the Orange County Coastal Plain, which include La Habra, Santiago,

Orange, and Irvine Management Zones (see Figures 3A-1a and 3A-1b). Tables 3A-3 and 3A-4 present the Santa Ana Basin Plan's water quality objectives for the surface waters and groundwater basins, respectively, that could be affected by implementation of the proposed project.

Table 3A-2. Beneficial Uses Identified in Basin Plan for Potential Receiving Waters and Groundwater Basins in the Project Area[1]

	MUN	AGR	IND	PROC	GWR	REC1	REC2	WARM	COLD	WILD	RARE
Surface Water Body											
Santa Ana River Reach 1	+					X[2]	X	I		I	
Santa Ana River Reach 2	+	X			X	X	X	X		X	X
Santa Ana River Reach 3	+	X			X	X	X	X		X	X
Santa Ana River Reach 4	+				X[3]	X		X			
Lake Evans	+					X	X	X	X	X	
Mocking-bird Reservoir	+	X				X[4]	X	X		X	
Groundwater Basin											
Arlington	X	X	X	X							
Riverside A	X	X	X	X							
Riverside B	X	X	X	X							
Riverside C	X	X	X	X							
Riverside D	X	X	X	X							
Riverside E	X	X	X	X							
Riverside F	X	X	X	X							
La Habra	X	X									
Santiago	X	X	X								
Orange	X	X	X	X							
Irvine	X	X	X	X							

Notes

[1] Only uses allowed in project area; see Basin Plan for other categories of beneficial uses.

[2] Access prohibited in all or part by Orange County Environmental Management Agency.

[3] Access prohibited in some portions by San Bernardino Flood Control District.

[4] Access prohibited in some portions by Gage Canal Company.

I = Intermittent Beneficial Use.

X = Present or Potential Beneficial Use.

Source: Santa Ana RWQCB 1995b.

Table 3A-3. Basin Plan Surface Water Quality Objective (mg/L)

Surface Water Body	TDS	Hardness (as $CaCO_3$)	Sodium (Na)	Chloride (Cl)	TIN	Sulfate (SO_4)	Chemical Oxygen Demand (COD)
Santa Ana River Reach 1	1500	–	–	–	13	–	90
Santa Ana River Reach 2	720	–	–	–	5	–	–
Santa Ana River Reach 3	700	350	110	140	10	150	30
Santa Ana River Reach 4	550	–	–	–	10	–	30
Lake Evans	490	–	–	–	–	–	–
Mocking-bird Reservoir	650	–	–	–	–	–	–

Sources: Santa Ana RWQCB 1995b, 2004a

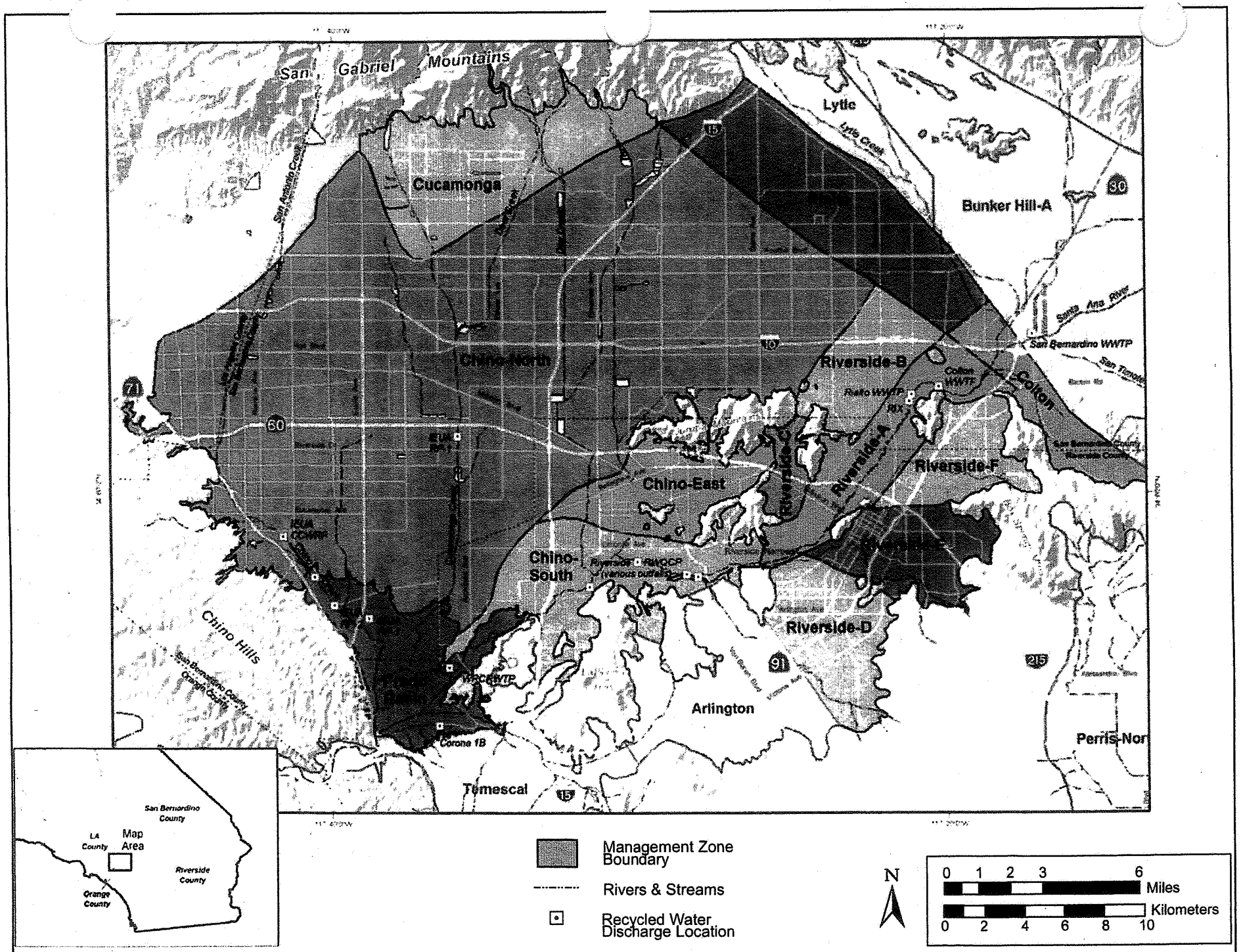
Table 3A-4. Groundwater Quality Objectives (mg/L)

Groundwater Management Zones	TDS	Hardness	Sodium (Na)	Chloride (Cl)	NO_3-N	Sulfate (SO_4)
Arlington	980	500	125	180	10	160
Riverside A	560	270	50	50	6.2	85
Riverside B	290	360	70	85	7.6	100
Riverside C	680	500	125	170	8.3	135
Riverside D	810	360	70	85	10.0	100
Riverside E	720	360	70	85	10.0	100
Riverside F	660	500	125	170	9.5	135
La Habra	–	–	–	–	–	250
Santiago	–	–	–	–	–	–
Orange	580	240	45	55	3.4	100
Irvine	910	380	100	150	5.9	240

Source: Santa Ana RWQCB 1995b.

Municipal Separate Storm Sewer System Permit

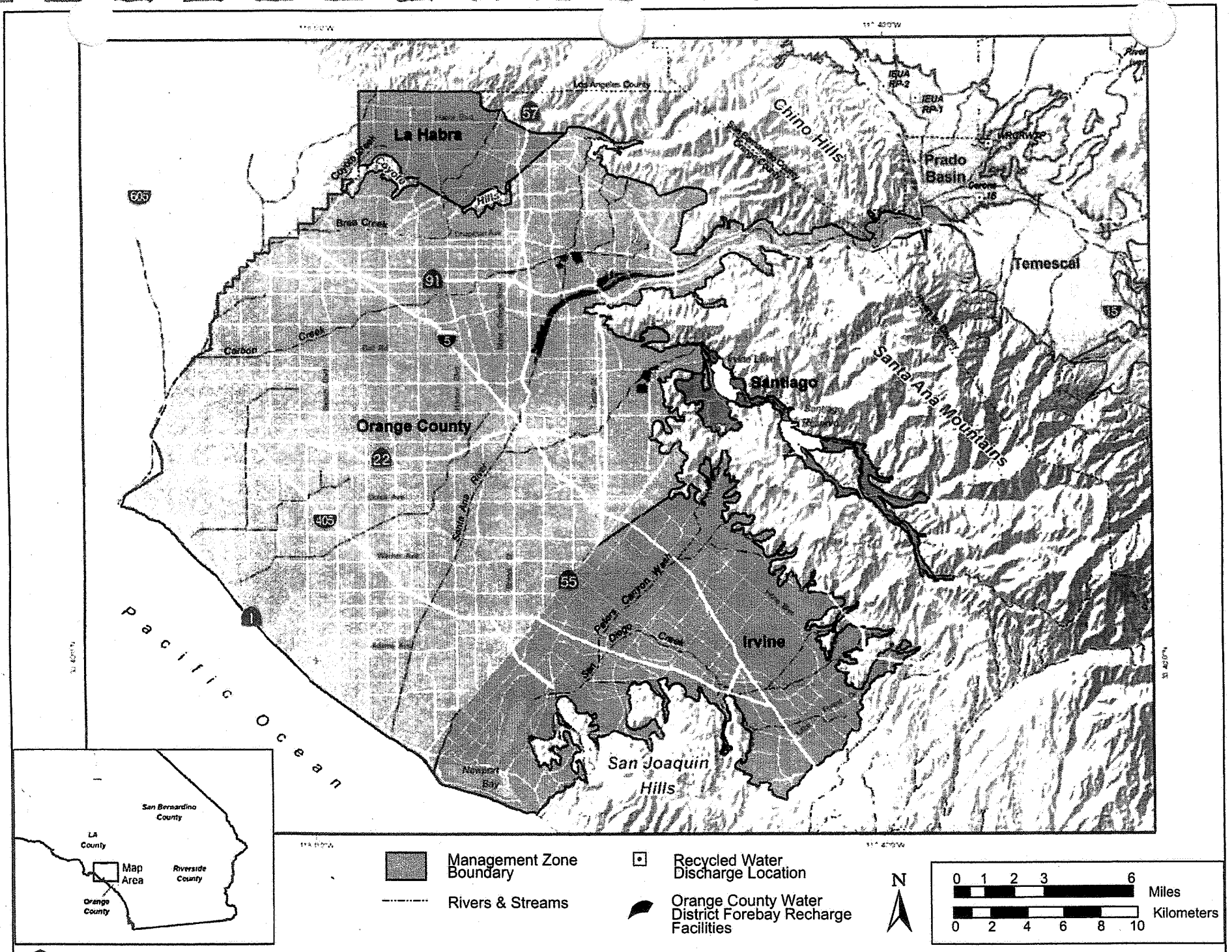
MS4s are any conveyance or system of conveyances that are owned or operated by a state or local government entity and are designed for collecting and conveying stormwater that is not part of a Publicly Owned Treatment Works (i.e., not a combined sewer). MS4 regulations apply to MS4s serving populations of 100,000 or more, although some MS4s with populations under 100,000 can be designated for permit coverage.



Jones & Stokes

Figure 3A-1a

Groundwater Management Zone Boundaries - Chino, Rialto-Colton, and Riverside Basins



Jones & Stokes

Figure 3A-1b

Groundwater Management Zone Boundaries - Orange County Basins

The RWQCBs issue MS4 permits that regulate stormwater discharges in the vicinity and downstream of the proposed project area. Such permits regulate stormwater discharges in the proposed project area. They are required to establish controls to the maximum extent practicable and effectively prohibit non-stormwater discharges to the MS4. The MS4 permits detail requirements for new development and significant redevelopment projects, and includes specific sizing criteria for treatment BMPs.

Permittees that are signatory to the various MS4 permits that are in areas that could be affected by implementation of the proposed project have developed drainage area management plans that have associated water quality management plans. The proposed project would need to conform to the requirements within those plans. However, because it is a program-level analysis, the MS4 permitting process would not directly affect the project, as proposed here. Further discussion of the effects of the recycled water program on local MS4s and the respective drainage area and water quality management plans would be provided in project-level environmental analyses of recycled water use within the districts of specific local MS4s.

Watershed Management Initiative

The Watershed Management Initiative (WMI) is an integrated planning process designed to more effectively direct state and federal funds to the highest priority water quality activities. Its distinguishing feature is the integration of the various regional, state, and EPA programs on a watershed basis. The participating agencies in the WMI are the nine RWQCBs, the SWQCB, and the EPA. Implementation of the WMI is described in a document called the Integrated Plan for Implementation of the WMI (Integrated Plan), which is updated annually. The Integrated Plan is composed of individual chapters written by each of the nine RWQCBs, as well as chapters prepared by the SWQCB and the EPA. The Santa Ana Region is divided into 10 Watershed Management Areas (WMAs). The proposed project lies on and near the border between the Chino Basin and Middle Santa Ana River WMAs (Santa Ana RWQCB 2004b).

Local Water Quality Regulations

Santa Ana Watershed Project Authority

Santa Ana Watershed Project Authority (SAWPA) is a Joint Powers Authority, classified as a Special District (government agency) in which SAWPA carries out functions useful to member agencies. SAWPA works with planners, water experts, design and construction engineers, and other government agencies to identify issues and solutions and then use innovation to resolve many water-related problems. Major aspects of SAWPA's work include major interagency water quality programs (e.g., TIN/TDS), facilitation of regulatory programs (e.g., Chino Basin TMDL), development of future plans (e.g., the Integrated Watershed

Plan), and administration of other major programs (e.g., the Lake Elsinore/San Jacinto Watersheds Authority-Lake Elsinore/San Jacinto Watershed Authority).

TDS/TIN Task Force

The TDS/TIN Task Force was set up by SAWPA and is composed of approximately 20 water, wastewater, and groundwater agencies in the Santa Ana Watershed. It was formed to evaluate the impact of TIN and TDS on water resources in the Santa Ana River watershed.

City of Riverside Recycled Water Regulations

The City of Riverside published an Urban Water Management Plan (City of Riverside 2005) that contains a recycled water plan component. The recycled water plan outlines current uses of recycled water, projected use, and various planning efforts for use of recycled water. The City of Riverside Water Rule 18 is the local regulatory document for the use of recycled water. Water Rule 18 covers the goals, definitions of recycled water use, provisions, and detailed recycled water use system specifications and requirements.

Regulations and Criteria Specific to Recycled Water Quality

Water reclamation and reuse criteria are principally directed at health and environmental protection and typically address wastewater treatment, recycled water quality, treatment reliability, distribution systems, and use area controls. There are no federal regulations governing water reclamation and reuse in the U.S.; the regulatory burden rests with the individual states, although the EPA published guidelines in 1992 that are intended to provide guidance to states that have not developed their own criteria or guidelines (Ref.USEPA/625/R-92/004). Within California, it is primarily the California Department of Health Services (California DHS) and Title 22 and Title 17 that govern recycled water quality. In addition, the City of Riverside has updated the Urban Water Management Plan, which contains information on recycled water use. This language is consistent with local, state, and federal criteria.

EPA Water Reuse Guidelines

The EPA, in conjunction with the U.S. Agency for International Development, published Guidelines for Water Reuse in 1992 (Ref.USEPA/625/R-92/004). The primary purpose of the document is to provide guidelines, with supporting information, for utilities and regulatory agencies, particularly in states where standards do not exist or are being revised or expanded. California's comprehensive standards are discussed later in this section. The guidelines address all of the important aspects of water reuse, including recommended

treatment processes, recycled water quality limits, monitoring frequencies, setback distances, and other controls for various water reuse applications. The guidelines address water reclamation and reuse for non-potable applications as well as indirect potable reuse by groundwater recharge and augmentation of surface water sources of supply. The treatment processes and recycled water quality limits recommended in the guidelines for various recycled water applications are presented in Table 3A-5. The guidelines suggest that, regardless of the type of recycled water use, a certain level of disinfection should be provided to avoid adverse health consequences from inadvertent contact or accidental or intentional misuse of a water reuse system.

Table 3A-5. EPA Guidelines for Water Reuse

Type of Use	Treatment	Recycled Water Quality
Urban uses, Food crops eaten raw, Recreational impoundments	▪ Secondary ▪ Filtration ▪ Disinfection	▪ pH = 6–9 ▪ 10 mg/L NO_3-N ▪ 2 nephelometric turbidity units (NTU)[a] ▪ No detectable fecal coli/100 mL[b] ▪ 1 mg/L Cl_2 residual[c]
Restricted access area irrigation, Processed food crops, Nonfood crops, Aesthetic impoundments, Construction uses, Industrial cooling[d], Environmental reuse	▪ Secondary ▪ Disinfection	▪ pH = 6–9 ▪ 30 mg/L BOD ▪ 30 mg/L TSS ▪ 200 fecal coli/100 mL[e] ▪ 1 mg/L Cl_2 residual [c]
Groundwater recharge of non-potable aquifers by spreading	▪ Site specific and use dependent ▪ Primary (minimum)	Site specific and use dependent
Groundwater recharge of non-potable aquifers by injection	▪ Site specific and use dependent ▪ Secondary (minimum)	Site specific and use dependent
Groundwater recharge of potable aquifers by spreading	▪ Site specific ▪ Secondary and disinfection (minimum)	▪ Site specific ▪ Meets drinking water standards after percolation through vadose zone
Groundwater recharge of potable aquifers by injection, Augmentation of surface supplies	▪ Includes the following: ▪ Secondary ▪ Filtration ▪ Disinfection ▪ Advanced wastewater treatment	▪ Includes the following: ▪ pH = 6–8.5 ▪ 2 NTU[a] ▪ No detectable fecal coli/100 mL[b] ▪ 1 mg/L Cl_2 residual[c] ▪ Meets drinking water standards

Notes:

[a] Should be met prior to disinfection. Average based on a 24-hour time period. Turbidity should not exceed 5 NTU at any time.

[b] Based on a 7-day median value. Should not exceed 14 fecal coli/100 mL in any sample.

[c] After a minimum contact time of 30 minutes.

[d] Recirculating cooling towers.

[e] Based on a 7-day median value. Should not exceed 800 fecal coli/100 mL in any sample.

Source: City of Riverside 2003.

California Water Recycling And Reuse Criteria

California Department of Health Services

The California DHS has determined that recycled water should essentially be free of pathogenic organisms. The California DHS specifies treatment processes (secondary treatment, filtration, and disinfection), operational requirements (filtration rates, chlorine contact time, etc.), and water quality parameters (turbidity and coliform organisms) that have been demonstrated to result in the production of water of desired quality. The California DHS has promulgated comprehensive regulations (Title 22 and Title 17 requirements) and prescribes water quality standards and treatment reliability criteria for water recycling according to the end use of the water. The California reuse criteria include requirements for treatment reliability that address standby power supplies, alarm systems, multiple or standby treatment process units, emergency storage or disposal of inadequately treated wastewater, elimination of treatment process bypassing, monitoring devices and automatic controllers, and flexibility of design. The criteria are based on a variety of considerations, including the following:

- **Public Health Protection.** Recycled water should be safe for the intended use. Most existing water reuse regulations are directed at public health protection.
- **Use Requirements.** Many agricultural, industrial, and other applications have specific physical and chemical water quality requirements that are not related to health considerations. Water quality requirements not associated with public health or environmental protection are seldom included in water reuse criteria by regulatory agencies.
- **Irrigation Effects.** The effect of individual constituents or parameters on crops or other vegetation, soil, and groundwater or other receiving water affects the water quality requirements. User water quality concerns often fall outside the scope of regulatory responsibility.
- **Environmental Considerations.** The natural flora and fauna in and around recycled water use areas and the recycled water should not adversely impact receiving waters.
- **Aesthetics.** For high level uses—e.g., urban irrigation and toilet flushing—the recycled water should be no different in appearance than potable water, i.e., clear, colorless, and odorless. For recreational impoundments, recycled water should not promote algal growth.
- **Economics and Political Realities.** Regulatory decisions regarding water reclamation and reuse are influenced by public policy, technical feasibility, and economics.

Title 22

Title 22 sets bacteriological water quality standards based on the expected degree of public contact with recycled water. Pursuant to the water quality standards set for bacterium content, Title 22 requires water treatment systems levels of treatment that are appropriate for achieving the desired bacteriological water quality for the use for which the water is intended. For example, for water reuse applications with a high potential for the public to come in contact with the recycled water, Title 22 requires disinfected tertiary treatment to achieve a coliform (bacteriological) limit of 2.2/100 milliliter (mL). For applications with lower potential for public contact, Title 22 requires three levels of secondary treatment, differing by the amount of disinfection required, and coliform limits of 23/100 mL for uses such as non-structural firefighting, and no limits on uses such as irrigation of fodder, fiber, and seed crops. In addition to establishing recycled water quality standards, Title 22 specifies the reliability and redundancy for each recycled water treatment and use operation. Tables 3A-6 and 3A-7 present California treatment and quality criteria for non-potable uses of recycled water and proposed California groundwater recharge criteria, respectively. The criteria presented in Table 3A-7 are useful when considering the quality of the effluent that would be recycled as part of the proposed project.

Title 17

Title 17 provides protection against cross-connections between potable water systems and recycled water systems.

Water Rights Regulations

A water right is a legally protected right, granted by law, to take possession of water and put it to beneficial use. The two most common types of surface water rights in California are appropriative and riparian rights. The SWRCB is responsible for allocating water rights and permitting the diversion and use of water in California.

The appropriative water right system in place today as codified in the Water Code (California Code of Regulations, Title 23, Division 2, Part 2) applies to the appropriation for reasonable and beneficial uses of surface water or of groundwater that flows in a defined subterranean channel. The process requires submittal of an application to the SWRCB to define diversion quantities, storage requirements, and season of use. When considering a water rights application, the SWRCB has a duty to exercise continued supervision over so-called "public trust resources" for the benefit of the people of California pursuant to the state's "public trust doctrine." The scope of the public trust doctrine was traditionally defined to protect navigation, commerce, and fisheries, but over the years, the courts have broadened the definition to include recreational and ecological values.

Table 3A-6. California Treatment and Quality Criteria for Non-potable Uses of Recycled Water

Type of Use	Total Coliform Limits	Treatment Required
[5]Irrigation of fodder, fiber, and seed crops, orchards and vineyards, and processed food crops; Flushing sanitary sewers	None required	Secondary
Irrigation of pasture for milking animals, landscape areas, ornamental nursery stock, and sod farms; Landscape impoundments; Industrial or commercial cooling water where no mist is created; Non-structural fire fighting; Industrial boiler feed; Soil compaction; Dust control; Cleaning roads, sidewalks, and outdoor areas	[2]23/100 mL	Secondary and disinfection
[3]Surface irrigation of food crops; Restricted landscape impoundments	[1]2.2/100 mL	Secondary and disinfection
[4]Irrigation of food crops and open access landscape areas; Non-restricted recreational impoundments; Toilet and urinal flushing; Industrial process water; Decorative fountains; Commercial laundries; Snow making; Structural fire fighting; Industrial or commercial cooling where mist is created	[1]2.2/100 mL	Secondary, Coagulation, filtration, and disinfection

Notes:

[1]Based on running 7-day median.

[2]Based on not exceeding 1 sample in 30 days. At no time shall any sample exceed 240 mL. Applicable uses include: cemeteries, freeway landscaping, restricted access golf courses, and other controlled access irrigation areas.

[3]No contact between recycled water and edible portion of crop.

[4]Contact between recycled water and edible portion of crop; includes edible root crops.

[5]Not required if the turbidity of the influent to the filters does not exceed 5 NTU more than 5% of the time.

The turbidity of filtered effluent cannot exceed a daily average of 2 NTU. Applicable uses include: parks, playgrounds, schoolyards, residential landscaping, unrestricted access golf courses, and other uncontrolled access irrigation areas.

Source: California DHS 2001. (Excerpts from the Health and Safety Code, Water Code, and Titles 22 and 17 of the California Code of Regulations).

Table 3A-7. Proposed California Groundwater Recharge Criteria

	Project Category[a]		
	I	II	III
Treatment Requirements[b]			
▪ Secondary	X	X	X
▪ Filtration	X	X	X
▪ Disinfection	X	X	X
▪ Organics removal	X		X
Recharge Site Requirements			
Depth to groundwater at initial percolation rate of:			
▪ < 0.5 centimeters (cm)/minute (min)	3 meters (m) (10 feet [ft])	3 m (10 ft)	N/A
(< 0.2 inches [in]/min)	6 m (20 ft)	6 m (20 ft)	N/A
▪ < 0.8 cm/min (< 0.3 in/min)			
Minimum retention time underground (months)	6	6	12
Horizontal separation[c]	150 m (500 ft)	150 m (500 ft)	600 m (2000 ft)
Water Quality Limits	Drinking water standards except nitrogen, 10 mg/L total nitrogen, and 1 mg/L total organic carbon of wastewater origin in extracted water		

Notes:

[a] Categories I and II are for surface spreading projects. Category III is for injection projects.

[b] X = treatment process is required.

[c] From edge of recharge operation to the nearest portable water supply well.

Source: California DHS 1999.

Environmental Setting

Topography and Climate

In general, Southern California has a mild climate with warm, dry summers and cool, wet winters, with nearly all precipitation occurring during the months of December through March. Storms occur very infrequently in late summer and early fall, and rainless periods of several months during summer are common. At higher elevations, although some precipitation occurs as snow, it characteristically occurs in the form of rainfall. Both temperature and precipitation vary considerably with distance from the ocean, elevation, and topography. For example, whereas yearly precipitation in the lower reaches of the Santa Ana River is typically about 13 inches, precipitation at Big Bear Lake Dam in the upper reaches of the basin at 6,815 feet above sea level has averaged about 33 inches per year between 1987 and 2002, ranging from 14 inches to 82

inches per year. Precipitation at Seven Oaks Dam, which is 40 miles upstream from Prado Dam and 1,950 feet above sea level (Corps 2000), averaged 14 inches of precipitation per year between 1987 and 2002, and ranged from 6 to 25 inches per year. The unusually heavy rainfall of 2004-05 does not significantly affect the discussion presented herein.

Hydrology

The Santa Ana River is the largest river system in Southern California, with a basin that encompasses approximately 2,450 square miles. Approximately 37% of the basin lies in mountain areas. The remaining area consists of lower-sloped valleys formed by a series of broad alluvial fan surfaces that abut the base of the mountain front.

Surface Hydrology

Santa Ana River Basin and River

The headwaters of the Santa Ana River are in the San Bernardino Mountains, more than 75 miles inland from the Pacific Ocean, and about 10,000 feet above sea level. The Santa Ana River Basin lies within San Bernardino, Riverside, and Orange Counties, and is generally considered to consist of an upper and lower watershed that is divided at Prado Dam, just east of the Santa Ana Mountains. Downstream from Prado Dam, the basin discharges into the Pacific Ocean between the Cities of Newport Beach and Huntington Beach in Orange County. Of the total basin area, 2,255 square miles lie upstream of Prado Dam. Seven Oaks Dam, which works in concert with Prado Dam to control flooding, is 40 miles upstream of Prado Dam, and regulates drainage from a 177-square-mile portion of the drainage area above Prado Dam. One hundred and ninety-five square miles of the Santa Ana River Basin lie downstream of Prado Dam.

Major tributaries include the San Antonio Creek, Chino Creek, San Timoteo Creek, Temescal Creek, Cucamonga Creek, Lytle Creek, and Bear Creek as shown on Figure 2-2 in Chapter 2, "Project Description." Bear Creek connects Big Bear Lake with the Santa Ana River. San Antonio Creek flows from Mount Baldy in the San Gabriel Mountains through Pomona to the Prado Basin. The Prado Basin constitutes a potential inundation area behind Prado Dam but is not a full reservoir. The inundation area consists of seasonal wetlands, constructed treatment wetlands, open space, and other land uses. The San Jacinto subwatershed drains the southern slope of the San Jacinto Mountains, feeding Lake Elsinore, which occasionally overflows into Temescal Creek and drains into the Santa Ana River. Downstream of Prado Dam, the Santa Ana River crosses into Orange County and traverses the Santa Ana Mountains. In this area, demarcated by the Corps as Reach 9, the river supports some riparian habitats leading into the urbanized coastal areas.

The mainstem of the Santa Ana River is divided by the RWQCB into six reaches that represent hydrologic and water quality units:

- upstream of Seven Oaks Dam;
- Seven Oaks Dam to San Bernardino at the San Jacinto fault;
- San Jacinto fault to Mission Boulevard Bridge in Riverside, which marks the upstream limit of rising water induced by the flow constriction at Riverside Narrows;
- Mission Bridge to Prado Dam;
- Prado Dam to Orange County; and
- 17th Street to the tidal prism at the ocean, a reach that consists of a flood control facility.

The proposed project is located in Reach 3. Figures 2-2 and 2-3 in Chapter 2, "Project Description" provide an overview of the watershed, demarcating the six reaches of the river, as described in the Basin Plan.

Other Local Surface Water Resources

Local lakes include the Mockingbird Reservoir, which is toward the southerly border of the proposed distribution system; Hole Lake, which is about 0.25 mile south of the RWQCP; and Lake Evans, which is about 0.5 mile from the Santa Ana River in the northern portion of the proposed distribution area. Mockingbird Reservoir is fed by Gage Canal, and Hole Lake and Lake Evans are tributaries of the Santa Ana River.

Streamflow

Santa Ana River

Streamflow is perennial in the canyons of the Santa Ana River and in the headwaters of most of its tributaries, and has generally been historically ephemeral in most valley segments of the river, where streamflow in the basin increases rapidly in response to effective precipitation. High-intensity precipitation, in combination with the effects of steep gradients and episodic denudation by wildfire, has periodically resulted in intense sediment-laden floods, with some debris load in the form of shrubs and trees. However, the urbanization that is taking place in the valley areas of the basin tends to make the basin more responsive to rainfall, with peak discharges increased and with the pre-peak lag time decreased, in comparison with historical conditions.

From San Bernardino and downstream, the river flow is perennial and sustained by runoff from urban areas, surfacing groundwater, and treated wastewater effluent. Water rises as a result of flow constriction through Riverside Narrows and upstream groundwater and wastewater discharges from the Cities of San

Bernardino, Colton, and Rialto. The rising water feeds several small tributaries—Sunnyslope Channel, Tequesquite Arroyo, and Anza Park Drain—that are important breeding and nursery areas for native fish. From Riverside to the recharge basins below Imperial Highway, river flow consists of treated effluent, urban runoff, irrigation runoff water, imported water applied for groundwater recharge, and groundwater forced to the surface by underground barriers.

The U.S. Geological survey has monitored stream flows just upstream (Santa Ana River at MWD, 11066460) of the site of the proposed project since 1970. Baseline flows for various time periods are presented in Table 3A-8. The average annual stream flow from 1970 to 2003 is 92,160 afy. During multiple time frames covering the 1970 to 2003 period, flows have gradually increased on the Santa Ana River at the MWD monitoring location.

Table 3A-8. Santa Ana River Baseline Flows for Various Periods at MWD Monitoring Station

Time Period	Average Annual Stream Flow (afy)
1970-1984	80,280
1985-2003	102,420
1993-2003	121,392
1970-2003	92,160

Notes:

Stream flow monitored at United States Geologic Survey (USGS) monitoring station 11066460, known as the MWD crossing on Santa Ana River.

Other Local Rivers

The Gage Canal is flooded periodically to irrigate local orange crops. About 36,000 to 39,000 acre-feet flow through the canal, yearly (Riverside-Corona Resources Conservation District 2002).

Flooding

Historical references to flood conditions in the general region date back to approximately 1769, and several medium to large floods are noted to have occurred through the 19th century. Recorded data from 1897 to 1988 indicate that medium to large winter floods occurred in 1903, 1910, 1914, 1916, 1921, 1922, 1927, 1938, 1943, 1965, 1966, 1969, 1978, 1980, and 1983. 1993 and 1995 also saw medium-sized winter floods.

Flood Control and Water Conservation Facilities

Three major flood control dams, all constructed by the Corps, are located in the upper Santa Ana River Basin: Seven Oaks Dam, Prado Dam, and San Antonio Dam. Other flood control improvements include channelization, debris basins, storm drains, levees, stone and wire-mesh fencing, and local walls along the banks of stream channels. Both the upper and lower basin contains spreading grounds and recharge basins for water conservation.

Seven Oaks Dam is a single-purpose flood control facility, located in the upper Santa Ana River Canyon, which operates in tandem with Prado Dam, 40.3 miles downstream. Seven Oaks Dam stores stormwater runoff in the early part of the flood season to build a debris pool to protect the outlet works, where small releases are continually made so as to maintain downstream water flow. During a flood, Seven Oaks Dam stores water for as long as the reservoir pool at Prado Dam is rising, at which time operators begin releasing stored floodwater at a faster rate. The reservoir behind Seven Oaks Dam is thusly and gradually drained, a process that is one of the components of the perennial Santa Ana River flow.

The Riverside County Flood Control and Water Conservation District is the local entity responsible for providing flood protection in Riverside County. The district's activities include hazards identification, floodplain delineation and management, drainage administration, and construction of flood control structures.

Channel Condition

Although levees and bank protection have been constructed along segments of the Santa Ana River, large portions of the riverbed in the upper watershed remain without improvements having been made to them. Above Colton, the riverbed is wide and rocky. Downstream between Colton and Riverside, the river course becomes more sandy and narrow and is partially controlled by levees. Below Mt. Rubidoux at Riverside, the river course meanders widely in its shallow natural entrenchment, past the flat, agricultural lands in the middle of the upper Santa Ana Valley, along the base of Norco bluffs, and into the Prado Basin. Approximately 50% of the river's flow is diverted through the Prado Wetlands, which were constructed to remove nitrates from Santa Ana River waters.

Groundwater Hydrology

Groundwater in the Santa Ana River watershed is highly controlled by the geology of the area (configuration of bedrock and the extensive faulting). Most groundwater basins are unconfined, which can be visualized as a bowl full of sand that has its bottom half saturated with water. However, the variable depth to bedrock and the presence of faults cause pressure zones where water flows toward the ground surface, sometimes saturating the surface and pooling. In

general, groundwater flows in the same direction as surface water, flowing from the easterly and northerly mountains to the Pacific Ocean in the west. There are about 40 groundwater basins in the watershed, depending on how they are defined and how boundaries are drawn. Many of the basins are interrelated. Some of the largest groundwater basins in the Santa Ana River watershed include the Bunker Hill Basin (San Bernardino), San Timoteo Basin (Yucaipa/Banning/Beaumont areas), Riverside Basin, Chino Basin (Chino/Ontario/Fontana areas), San Jacinto/Hemet Basins, and the Orange County Basin. (SAWPA 2004a.) As specified in the discussion of the Basin Plan, above, the basins and subbasins have been divided and grouped into Management Zones (see Figures 3A-1a and 1b).

Groundwater in the Santa Ana River watershed originates in the San Bernardino Mountains, from where rain and snow percolate into the ground and are naturally filtered through the sand and gravel of the Bunker Hill and Riverside Basins in San Bernardino and Riverside Counties. Riverside Public Utilities uses 51 wells to tap water for domestic use by city residents. These underground resources, which include water from the Arlington and Riverside North and South basins, account for 99% of Riverside water supply. (Riverside Public Utilities Department 2004.)

Local Groundwater Hydrology

Chino Subbasin

The Chino Subbasin, which lies directly under the RWQCP, is bounded on the east by the Rialto-Colton fault, southeast by the contact with impermeable rocks forming the Jurupa Mountains, south by contact with impermeable rocks of the Puente Hills and by the Chino fault, northwest by the San Jose fault, and north by impermeable rocks of the San Gabriel Mountains and the Cucamonga fault. San Antonio Creek and Cucamonga Creek drain the surface of the subbasin southward to join the Santa Ana River. Annual mean precipitation ranges from 13 to 29 inches across the surface of the subbasin and averages about 17 inches. (California Department of Water Resources [DWR] 2004.)

The water-bearing units in the Chino Subbasin include Holocene and Upper Pleistocene alluvium. Holocene alluvium consists mainly of alluvial fan deposits with maximum thickness of 150 feet that are coarsest in and near the mouths of the canyons, and are finer away from canyon mouths in the southern part of the subbasin. The Pleistocene alluvium, which is exposed mainly in the northern part of the subbasin and supplies most of the water to wells in the subbasin, is about 600 to 700 feet thick throughout most of the subbasin and contains interfingering finer, alluvial fan deposits and coarser, fluvial deposits. Most of the wells producing water from the eastern half of Chino Subbasin draw from the coarse portion of the Pleistocene alluvium. The combined effects of sorting and weathering give the Pleistocene alluvium in the central part of the subbasin the lowest clay content and the highest well yields with 500 to 1,000 gallons per minute (gpm). In the southern part of the area, where the sediments tend to contain more clay, wells generally yield between 100 and 500 gpm (DWR 2004).

The Chino Subbasin is bounded by three major fault systems. Many of the faults within the subbasin form groundwater barriers marked by discontinuities in groundwater elevations. The Rialto-Colton fault forms the eastern boundary of the Chino Basin. Although it has no surface expression, it forms a major barrier to groundwater movement. The San Jose fault forms the northwest boundary of the Chino Basin. It displaces the base of fresh water from 250 feet to 400 feet. The Cucamonga fault zone forms part of the northern boundary of the Chino Basin. Displacement on this fault amounts to about 1,000 feet on the west end to 4,000 feet at its east end. Low scarps in Holocene and Pleistocene alluvium near the mouths of Cucamonga, Day, and Etiwanda Canyons indicate recent geologic activity, and rising water at the base of Guard Station Hill indicates it forms a groundwater barrier. Groundwater recharge to the subbasin occurs by direct infiltration or precipitation on the subbasin floor, by infiltration of surface flow, and by underflow of groundwater from adjacent basins. The five recharge facilities in the subbasin are Deer Creek, Day Creek, East Etiwanda, San Sevaine, and Victoria (DWR 2004).

Groundwater Levels and Budget (Type A)

By 1980, groundwater levels declined about 80 feet from historical high marks in the 1920s. By 2000, water levels had recovered about 20 feet.

Groundwater Storage

Total storage within the subbasin is 18,300,000 af. In 1982, water in storage was estimated to be 8,600,000 af. In the fall of 1997, water in storage is estimated to have been 5,300,000 af, and, in the fall of 2000, it's estimated to have been 5,325,000 af. In 1978, the Chino Subbasin was adjudicated, and pumping within the subbasin is managed and reported by the Chino Basin Watermaster. During the 1997–1998 water year, total groundwater production in the Chino Subbasin is estimated at 145,735 af; 162,267 af for 1998–1999; 178,820 for 1999–2000; and 161,475 for 2000–2001 (DWR 2004).

Riverside-Arlington Subbasin

The Riverside-Arlington Subbasin underlies part of the Santa Ana River Valley in northwest Riverside County and southwest San Bernardino County. It composes most of what were referred to, above, as the Riverside Management Zone and Arlington Management Zone. This subbasin lies below much of the area that would compose Phase 1 of the citywide recycled water distribution system. Western Municipal Water District pumps water from this basin for water delivery to customers (San Bernardino Valley Municipal Water District and Western Municipal Water District 2004). This subbasin, which has a 92-square-mile surface area, is bound by impermeable rocks of Box Springs Mountains on the southeast, Arlington Mountain on the south, La Sierra Heights and Mount Rubidoux on the northwest, and the Jurupa Mountains on the north. The northeast boundary is formed by the Rialto-Colton fault, and a portion of the northern boundary is a groundwater divide beneath the community of Bloomington. The Santa Ana River flows over the northern portion of the subbasin. Annual average precipitation is about 10 to 14 inches (DWR 2003).

Groundwater in the subbasin is found chiefly in alluvial deposits. Quaternary age alluvial deposits in the subbasin consist of sand, gravel, silt, and clay deposited by the Santa Ana River and its tributaries. Near the City, the upper 50 feet of deposits are principally clay; however, deposits near the City of Arlington have considerable sand and little clay. At the northern end of the subbasin, coarser gravels with cobbles 4 to 6 inches in diameter are common. Based on data from wells, a minimum specific yield of 15% was assigned to unweathered gravels at the extreme northern end of the subbasin. The specific yield increases sharply to 18% near the Santa Ana River, and then increases gradually to a maximum of 20% near the City of Arlington (DWR 2003).

The Rialto-Colton fault to the northeast separates the Riverside-Arlington Subbasin from the Rialto-Colton Subbasin. The fault is a barrier to groundwater flow along the fault-length, especially in its northern reaches. A groundwater divide in the alluvium separates the Riverside portion from the Arlington portion of the subbasin (DWR 2003).

The Riverside-Arlington Subbasin is replenished by infiltration from Santa Ana River flow, underflow past the Rialto-Colton fault, intermittent underflow from the Chino Subbasin, return irrigation flow, and deep percolation of precipitation (DWR 2003).

Groundwater Levels and Budget (Type A)

Groundwater moves northwest near Arlington, then flows southwest to Arlington Gap, through which it flows into the Temescal Subbasin. In the northeastern part of the subbasin, groundwater levels near the Santa Ana River fluctuated about 20 feet during 1985 through 2001 and declined about 10 feet during 1995 through 2000. In the central part of the subbasin near Riverside, groundwater levels were fairly steady during 1965 through 1985, fluctuating about 4 feet. About 10,100 af were pumped from the Riverside portion of the subbasin for municipal water uses during the 2000–2001 fiscal year (DWR 2003).

Groundwater Storage

The total storage capacity of the Riverside-Arlington Subbasin has been estimated to be 243,000 af. The Riverside portion of the subbasin is estimated to have a storage capacity of about 207,000 af and the Arlington portion a storage capacity of 36,000 af. There is no information on the actual amount of groundwater in storage in this subbasin (DWR 2003).

Water Demand

There are numerous demands on water in the Santa Ana River watershed. The area is rich in agricultural history and still contains concentrations of citrus, dairy, and other agricultural areas that demand significant quantities of water. The area has a large industrial/commercial base, and the rapidly expanding population requires a large quantity of water. In the year 2000, the watershed required 1.4 million acre-feet of water (467 billion gallons) to meet demand.

Projections are that this demand will increase 47% in the next 50 years, so that in 2050, the watershed will require 2.1 million acre-feet (687 billion gallons) of water to meet demands (SAWPA 2004a).

Water Quality

Surface water and groundwater quality levels are intimately connected, with the quality of one affecting that of the other as a result of the flow that occurs between them. Below San Bernardino, effluent from wastewater treatment plants is the major contributor to baseline surface water flows in terms of volume. The total volume of wastewater flows into the Santa Ana River has increased between 1970 and 1990 from 50,000 to more than 130,000 af per year. Santa Ana River water quality has increased steadily during this time, largely because of improvements in the wastewater treatment processes.

The acceptability of recycled water for any particular use is dependent on the physical, chemical, and microbiological quality of the water. Factors that affect the quality of recycled water include source water quality, wastewater treatment processes and treatment effectiveness, treatment reliability, and distribution system design and operation. Local considerations include the following.

- Industrial wastes discharged to municipal sewage systems can introduce chemical constituents that may adversely affect biological wastewater treatment processes and subsequent recycled water quality. California requires implementation of industrial source control programs to limit the input of chemical constituents that may adversely affect biological treatment processes and subsequent acceptability of the water for specific uses.
- Assurance of treatment reliability is an obvious yet sometimes overlooked quality control measure.
- Distribution system design and operation is important to ensure that the recycled water is not degraded before use and not subject to misuse.
- Open storage may result in water quality degradation by microorganisms, algae, or particulate matter, and may cause objectionable odor or color in the recycled water.

Making recycled water suitable and safe for reuse applications is achieved by eliminating or reducing the concentrations of microbial and chemical constituents of concern through wastewater treatment and/or by limiting public or worker exposure to the water via design and operational controls.

Toxic and Microbial Constituents. The presence of toxic chemicals and microbial pathogens in wastewater creates the potential for adverse health effects where there is contact, inhalation, or ingestion of chemical or microbiological constituents of health concern. The principal infectious agents that may be found in raw municipal wastewater can be classified into three broad groups: bacteria, parasites (protozoa and helminths), and viruses. However, notwithstanding the potential transmission of infectious disease by such pathogenic agents and

excluding the use of raw sewage or primary effluent on sewage farms in the late 19th century, the U.S. has never had a confirmed case of infectious disease resulting from recycled water use.

Organic Constituents. Health effects related to the presence of organic constituents are of primary concern with regard to potable reuse. Both organic and inorganic constituents must be considered for recycled water that is used for food crop irrigation, where recycled water—from irrigation or other beneficial uses—reaches potable groundwater supplies, or where organics may bioaccumulate in the food chain, e.g., in fish-rearing ponds. The effect of organic constituents in recycled water used for crop irrigation may warrant attention if industrial wastes contribute a significant fraction to the wastewater.

Chemical Constituents and Physical Parameters. The chemical constituents potentially present in municipal wastewater generally are not a major health concern for urban uses of recycled water but may affect the acceptability of the water for uses such as food crop irrigation, industrial applications, and indirect potable reuse. Chemical constituents may be of concern when recycled water percolates into potable groundwater aquifers because of irrigation, groundwater recharge, or other uses. Effects of physical parameters—e.g., pH, color, temperature, and particulate matter—and chemical constituents—e.g., chlorides, sodium, and heavy metals—are well known, and recommended limits have been established for many constituents.

Inorganic Constituents

Inorganic constituents that are found in surface and groundwater waters in the Santa Ana River watershed include TDS, inorganic nitrogen, phosphorous, aluminum, arsenic, chloride, fluoride, iron, manganese, perchlorate, and sulfate. All of these occur naturally in groundwater, but some of them are exacerbated by human activities. Indeed, water quality degradation from high concentrations of TDS and nitrogen is the most significant regional water quality problem in the Santa Ana River watershed, as a result of human activities. This problem is especially true in the Chino and Upper Santa Ana WMAs (Santa Ana RWQCB 2004b) because of local land uses within their boundaries and other downstream WMAs. Water quality decreases in the Santa Ana River with distance from the mountains, showing increasing levels of TDS, TIN, and other nutrients with increasing distance from headwaters. Historically, the Santa Ana River likely flowed during most of the year, recharging deep alluvial groundwater basins in the inland valleys and the coastal plain. However, irrigation projects eventually led to the diversion of all surface flow in the river, and the quantity of groundwater recharge diminished greatly. Recently, the Santa Ana River has become effluent dominated, resulting from discharge from wastewater treatment plants (e.g., the RWQCP). All of these factors result in a water quality that generally degrades with distance from the headwaters of the Santa Ana River. Such increases can pose threats to humans with excessive concentrations collectively rendering water unfit for drinking, as well as posing threats to the ecosystem.

TDS in Surface Water

United States Geologic Survey (USGS) data from a 3-year study ending in September 2001 indicate that streams on the valley floor below the San Gabriel Mountains had mean TDS concentrations ranging from approximately 400 to 600 mg/L; the mean concentrations generally increased downstream along the main stem of the Santa Ana River. Median TDS concentrations from sample collection sites in tributaries of Reaches 3 and 5 of the Santa Ana River have measured 410 mg/L and 470 mg/L, respectively. The MWD crossing, in Reach 3, has had median TDS concentration measurements of 560 mg/L. Sample collection sites at Prado Dam, which is at the upstream terminus of Reach 2, and at Imperial Highway, which is 11 miles downstream of Prado Dam in Reach 2, have had median TDS concentration measurements of 600 mg/L and 620 mg/L, respectively. (USGS 2004b.)

TIN in Surface Water

The USGS data also indicated baseline TIN concentrations in the Santa Ana River. Median TIN concentrations range from between 4.9 mg/L and 6.7 mg/L at four locations below the outfall of the uppermost wastewater treatment plant, and only 4% of the samples collected from sites receiving treated wastewater had TIN concentrations greater than 10 mg/L, which is well below the EPA limit for drinking water and Basin Plan Water Quality Objectives. Data from the MWD crossing data collection station indicate TIN concentrations of 6.7 mg/L, which is below the EPA TIN limit. Of 23 samples taken in this location, only one was above the EPA limit for TIN. (USGS 2004b.)

TDS and TIN in Groundwater

Some waters in the Santa Ana River watershed have assimilative capacity for additions of TDS and/or nitrogen; that is, wastewaters with higher TDS/TIN concentrations than the receiving waters are diluted sufficiently by natural processes, including rainfall or recharge, such that the TDS and nitrogen objectives of the receiving waters are met. The amount of assimilative capacity, if any, varies widely depending on the individual characteristics of the waterbody in question.

One of the ways assimilative capacities are assessed is relative to the "maximum benefit" objectives established for certain management zones. If the current quality of a management zone is the same as or poorer than the specified water quality objectives, then that management zone does not have assimilative capacity. If the current quality is better than the specified water quality objectives, then that management zone has assimilative capacity. The difference between the objectives and current quality is the amount of assimilative capacity available. Table 3A-9 presents the water quality objectives and the current ambient quality for TDS and nitrate (NO_3)-nitrogen, respectively, for each management zone. This table also lists the TDS and nitrate-nitrogen assimilative capacity of the management zones, if any. Some of the management zones that

could be affected by the proposed project have insufficient data to calculate TDS and/or nitrate-nitrogen water quality objectives, and, therefore, the river's assimilative capacity in those zones. For regulatory purposes, such management zones are assumed to have no assimilative capacity. Dischargers to these management zones may demonstrate that assimilative capacity for TDS and/or that nitrate-nitrogen is available. If the Santa Ana RWQCB approves this demonstration, then the discharger would be regulated accordingly.

Table 3A-9. TDS and TIN Assimilative Capacity

	TDS (mg/L)			TIN (mg/L)		
	Water Quality Objective	Current Ambient	Assimilative Capacity	Water Quality Objective	Current Ambient	Assimilative Capacity
Riverside A	560	440	120	6.2	4.4	1.8
Riverside B	290	320	None	7.6	8.0	None
Riverside C	680	760	None	8.3	15.5	None
Riverside D	810	NED	None	10.0	NED	None
Riverside E	720	720	None	10.0	14.8	None
Riverside F	660	580	80	9.5	9.5	None
Arlington	980	NED	None	10.0	NED	None
Irvine	910	910	None	5.9	7.4	None
La Habra	NED	NED	None	NED	NED	None
Orange County	580	560	None	3.4	3.4	None
Santiago	NE	NED	None	NED	NED	None

Notes:

NED = Not enough data (fewer than 3 data points for a given well or not enough wells to develop meaningful contours of water quality statistics)

Source: Santa Ana RWQCB 2004b.

Assimilative capacity is significant from a regulatory perspective. If there is assimilative capacity in the receiving waters for TDS, nitrogen, or other constituents, a waste discharge may be of poorer quality than the objectives for these constituents for the receiving waters as long as the discharge does not cause violation of the objectives and provided that antidegradation requirements are met. However, if there is no assimilative capacity in the receiving waters such as the management zones identified in Table 3A-9, the numerical limits in the discharge requirements cannot exceed the receiving water objectives, or the degradation process would be accelerated.

If a discharger proposes to discharge wastes that are at or below—i.e., better than—the current ambient TDS and/or nitrogen water quality, then the discharge will not be expected to result in the lowering of water quality, and no antidegradation analysis will be required; TDS and nitrogen objectives are expected to be met. Such discharges clearly implement the Santa Ana River Basin Plan and the Santa Ana RWQCB can permit them to proceed. Of course, other pertinent requirements such as those of CEQA must also be satisfied. For groundwater management zones, current ambient quality is as defined in Table 3A-3 and Table 3A-4, or alternatively as these tables may be revised (through the Santa Ana River Basin Plan amendment process) pursuant to the detailed monitoring program to be conducted by dischargers in the watershed.

If a discharger proposes to discharge wastes that exceed the current ambient TDS and/or nitrogen quality, then the Santa Ana RWQCB will require the discharger to conduct an appropriate antidegradation analysis. The purpose of this analysis will be to demonstrate whether and to what extent the proposed discharge would result in a lowering of ambient water quality in affected receiving waters. That is, to what extent, if any, would the discharge use available assimilative capacity. If the discharger demonstrates that no lowering of water quality would occur, then antidegradation requirements will be met and water quality objectives will be achieved; the Santa Ana RWQCB can permit such discharges to proceed. If the analysis indicates that a lowering of current ambient water quality would occur—other than on a minor or temporally or spatially limited basis—then the discharger must demonstrate that:

1. beneficial uses would continue to be protected and the established water quality objectives would be met,
2. the resultant water quality would be consistent with maximum benefit to the people of California, and
3. best practicable treatment or control has been implemented.

Best practical treatment or control means levels that can be achieved using best efforts and reasonable control methods. For affected receiving waters, the discharger must estimate the amount of assimilative capacity that would be used by the discharger. The Santa Ana RWQCB would employ discretion in determining the amount of assimilative capacity that would be allocated to the discharger. Rather than allocating assimilative capacity, the Santa Ana Regional Board may require the discharger to mitigate or offset discharges that would result in the lowering of water quality.

Volatile Organic Compounds and Other Synthetic Compounds

Volatile organic compounds (VOCs) are a class of chemicals that have important properties in common: They evaporate or vaporize readily (volatile), and they contain carbon (organic). They may have a variety of harmful health effects, especially at high levels of exposure when they can cause central nervous system depression and birth defects. The EPA estimates that VOCs are present in one-

fifth of the nation's water supplies (North Carolina Cooperative Extension Service 1996).

VOCs can enter groundwater from a variety of sources. Benzene, for example, may enter groundwater from gasoline or oil spills on the ground surface or from leaking underground fuel tanks. Other examples of commonly detected VOCs are dichloromethane (methylene chloride), an industrial solvent; trichloroethylene, used in septic system cleaners; and tetrachloroethylene (perchloroethylene), used in the dry-cleaning industry (North Carolina Cooperative Extension Service 1996).

Trihalomethane (THM) is one of a family of organic compounds—composed of chloroform, dibromochloromethane, bromodichloromethane, and bromoform—so-named as a derivative of methane. THMs are generally byproducts of chlorination of drinking water that contains organic material. A recent California study suggests a link between miscarriages and THMs. The EPA currently regulates trihalomethanes by imposing a maximum allowable level in drinking water of 100 parts-per-billion on the average. To reduce potential exposure, the EPA has proposed to lower that level in the future to an average of 80 parts-per-billion. Women in the early stage of pregnancy may wish to consult their physicians for advice. However, health officials who reviewed the THM study agreed that in general they would not advise someone in early pregnancy to stop drinking water from public supplies (New England Water Works Association 2004).

A synthetic compound that is not a VOC but is also of concern with respect to its production during the wastewater treatment process is a specific synthetic compound called N-nitrosodimethylamine (NDMA). NDMA is formed during disinfection of wastewater appearing to form as a result of several different reactions that are thought to occur in the chlorine contact phase when treatment plants use chloramines instead of other species of chlorine. NDMA causes cancer in laboratory animals. It is reasonably anticipated to be a human carcinogen, and is classified as a probable human carcinogen. In 1987, NDMA was added to the list of chemicals known to the state to cause cancer. The California DHS has an action level of 0.01 (California DHS 2003).

Existing Wastewater and Recycled Water System

Although the City's Recycled Water Master Plan indicates that the treatment capacity of the RWQCP has been planned to expand to 67,900 afy, the existing facilities have a processing and permitted capacity of 45,300 afy. The plant currently produces about 36,200 afy of treated wastewater on an annual average basis (Parsons 2003), of which between 17,000 and 23,000 afy are discharged directly into the Santa Ana River and between 11,000 and 23,000 afy are discharged into the Hidden Valley Wildlife Area Wetlands (HVWA Wetlands), which is a natural denitrifier and reduces the concentration of TIN in RWQCP-produced wastewater before it enters the Santa Ana River.

At present, the City operates a small recycled water system, composed of 8-inch and 12-inch diameter distribution mains that supply approximately 290 afy of recycled water to the Van Buren Golf Center, Van Buren Urban Forest, and Toro Manufacturing Company, and has existing recycled water pipelines in Van Buren Boulevard and Doolittle Avenue.

RWQCP Effluent Quality

The RWQCP produces effluent that consistently exceeds the Title 22 requirements. As stated above, the final effluent is being used for water recycling, limited to a few instances. Tables 3A-10 through 3A-13 summarize the major effluent quality parameters.

Table 3A-10. Potable Water—Weighted Average Constituent Concentrations

	12-Month Average Data			1-Month Average Data						
Date	Potable Water TDS	Effluent TDS	Increment	TDS	Cl	SO_4	HARD	Na	NO_3	B
01/01	331	531	200	322	30	54.1	176	37	20.5	0.084
02/01	332	524	192	340	33	56.4	187	40	22.6	0.083
03/01	332	518	186	327	32	55.4	179	39	20.4	0.083
04/01	329	515	186	317	29	56.6	179	38	20.4	0.078
05/01	330	515	185	328	30	54.1	189	40	23.0	0.080
06/01	329	516	186	326	31	53.2	188	38	23.3	0.085
07/01	329	513	184	326	31	52.9	187	39	23.5	0.079
08/01	329	518	189	328	31	53.4	190	39	23.8	0.078
09/01	329	521	192	332	31	54.6	189	39	23.1	0.078
10/01	330	524	194	334	31	54.2	189	39	23.2	0.077
11/01	330	527	197	328	30	57.3	183	39	21.5	0.081
12/01	328	532	204	332	32	57.8	185	41	20.3	0.082

Source: Parsons 2003.

Table 3A-11. RWQCP Effluent Monitoring Part I

Constituent	12-Month Average Limit (mg/L)	12-Month Average (mg/L)	Number Expected	12-Month Average Emission Rate Limit (pounds [lbs]/day)	12-Month Average Emission Rate Value (lbs/day)
Total Filterable Residue	650	531	0	216,840	140,629
Total Hardness	275	207	0	91,740	54,797
Chloride	140	88	0	46,704	23,342
Sodium	110	91	0	36,696	24,370
Sulfate	125	85	0	41,700	21,718
Boron	0.75	0.4	0	250	103
Fluoride	1	0.4	0	334	121
Barium	1	0.02	0	334	6
Iron	0.3	<0.10	0	100	<27
Manganese	0.05	<0.02	0	17	<5
Total Inorganic Nitrogen	13	10.1	0	5,004	2,690

Source: Parsons 2003.

Table 3A-12. Effluent Monitoring on January 16, 2001

	Sample Date	Monthly Average (mg/L)	Daily Max (mg/L)	Sample Type
Total Organic Carbon	01/16/2001	7.7	–	Comp
Carbonate	01/16/2001	0	–	Comp
Bicarbonate	01/16/2001	150	–	Comp
Calcium	–	–	64	Comp
Magnesium	–	–	11.7	Comp
Specific Condition in umhos/cm	Continuous	928	952	Continuous
Ammonia Nitrogen	–	0.2	Limit = 5.0 mg/L monthly average	Grab

Source: Parsons 2003

Table 3A-13. Influent Monitoring on January 16, 2001

	Monthly Average	Daily Maximum	Daily Minimum
Ammonia Nitrogen (mg/L)	–	28.1	–
Total Inorganic Nitrogen (mg/L)	–	27.3	–
TDS (mg/L)	579	–	–
Specific Conductivity (umhos/cm)	1163	1242	–
pH (standard units)	–	8.92	6.13

TDS/TIN Taskforce Measurements of Effluent

The concentrations of TDS and TIN in treated wastewater discharge from the RWQCP averaged 550 mg/L and 11.58 mg/L, respectively, between the years of 1998 and 2001. TDS and TIN concentrations in the portion of the reclaimed wastewater that was discharged into the HVWA Wetlands averaged 575 mg/L and 5.91 mg/L, respectively. The reduction in TIN is appreciable, being reduced to 50% of the concentration present in discharge flowing directly into the Santa Ana River from the RWQCP. (Malone pers. comm.)

Impacts and Mitigation

This section describes the proposed project's impacts relating to hydrology and water quality. First, it describes the methods used to determine the proposed project's impacts and lists the thresholds used to conclude whether an impact would be significant. Mitigation measures to avoid, minimize, rectify, reduce, eliminate, or compensate for significant impacts immediately follow each impact discussion, as necessary.

Assumptions

Because implementation of the recycled water program in the City's Recycled Water Master Plan will require site-specific planning and would occur over several years, the following assumptions were made regarding the final planning and phasing of the recycled water system and the duration of the proposed project's effects:

1. Based on the conceptual design in the Master Plan, the Phase I Expansion would serve already-developed areas of the City and Jurupa Community Service District. Approximately 47,026 linear feet of core system pipeline, in addition to an unknown amount of lateral distribution pipeline, would be installed. No new storage facilities or pumping stations would be needed to

implement Phase I. Phase I also could be built as a stand-alone system (i.e., the rest of the core system would not be built).

2. Based on the conceptual design in the Master Plan, the Core Distribution System would serve already-developed and new communities within the City, its sphere of influence, and the Jurupa Area Plan. Except for Phase I, the phasing of the entire core system is not specified in the Master Plan. For purposes of this PEIR, it is assumed that the system would be built over a 20-year period. Approximately 272,000 linear feet of pipeline (plus an unknown amount of lateral distribution pipeline), three storage facilities, and seven booster pumping stations would be needed for a 21,400-afy-capacity system.

3. The Agricultural Use System would be designed to deliver up to 21,000 afy of recycled water for wide-scale agricultural use in the Project Area. The delivery system would likely include a combination of canals and pipelines. For purposes of this PEIR, it is assumed that the Agricultural Use System would connect with the Core Distribution System for its supply of recycled water.

4. The amount of treated effluent diverted to the recycled water system would increase incrementally over a 20-year period and would reach 41,400 afy (which is the full amount of the requested appropriation of water rights) by 2025. Under this assumption, the Core Distribution System and Agricultural Use System would be completed by 2025, and approximately 41,400 afy of recycled water would be used in the project area. Table 3A-14 presents the projected levels of recycled water diversion/use.

5. The amount of treated effluent discharged into the Santa Ana River would gradually decrease over the same 20-year period but would never drop below 25,000 afy (see Table 3A-14). The permitted wastewater treatment capacity of the RWQCP would need to be increased, and the facility itself would likely require expansion to treat 67,400 afy of wastewater.

6. Our analysis assumes base-line flow conditions in all calculations. Future flows may be subject to change based on the SWRCB's accepting appropriation applications, upstream discharges, and upstream withdraws.

Table 3A-14. Estimated Amount of Recycled Water Diverted and Effluent Discharged from Riverside Regional Water Quality Control Plant from 2000 through 2050 (in acre-feet per year)

	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Diverted to Recycled Water System	300	2,270	11,000	21,000	31,000	41,400	41,400	41,400	41,400	41,400	41,400
Discharged into Santa Ana River	36,000	39,730	37,000	33,000	29,000	25,000	26,000	26,000	26,000	26,000	26,000
Total	36,300	42,000	48,000	54,000	60,000	66,400	67,400	67,400	67,400	67,400	67,400

Source: Riverside Public Utilities Department (2004).

Methodology

The evaluation of effects on hydrology and water quality is based on professional standards and the conclusions of technical reports prepared for the proposed project. The key effects were identified and evaluated based on the physical characteristics of the project study area and the magnitude, intensity, and duration of activities. It is assumed that the City would conform to relevant building standards, grading permit requirements, and erosion control requirements.

Significance Criteria

For the purposes of this analysis, an impact pertaining to hydrology and water quality was considered significant if it would result in any of the following, which are based on professional practice and Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.):

- substantial alteration in the quantity or quality of surface runoff;
- substantial degradation of water quality;
- violation of any water quality standards or waste discharge requirements;
- substantial reduction in groundwater quantity or quality;
- creation of or contribution to runoff that would exceed the capacity of an existing or planned stormwater management system;
- substantial alteration of the existing drainage pattern of the site area, such that flood risk and/or erosion and siltation potential would increase;
- placement of structures that would impede or redirect floodflows within a 100-year floodplain; or
- exposure of people, structures, or facilities to significant risk from flooding, including flooding as a result of the failure of a levee or dam.

Impact Analysis

In the analysis, three categories of impacts as evaluated:

- water quality impacts (WR-IMP-1)
- impacts to surface water and groundwater flows (WR-IMP-2)
- flood control impacts (WR-IMP-3)

Table 3A-15 lists the potential impacts and their level of significance (potentially significant impacts are highlighted in bold). Mitigation measures for significant impacts are identified in the analysis of individual effects and described in detail in "Mitigation for Significant Impacts."

Table 3A-15. Summary List of Impacts and Level of Significance

Impact ID	Type of Impact	Level of Impact
Water Quality		
WR-IMP-1A	**Decreased surface water quality from construction of all project components**	**Potentially significant (less than significant with mitigation incorporated)**
WR-IMP-1B	**Decreased water quality from construction below the water table**	**Potentially significant (less than significant with mitigation incorporated)**
WR-IMP-1C	Decreased groundwater and surface water quality from wastewater collection pipeline rupture or facility rupture	Less than significant
WR-IMP-1D	Decreased water quality from discharge of recycled water to surface water bodies	Less than significant
WR-IMP-1E	Degradation of surface water or groundwater quality from use of recycled water	Less than significant
WR-IMP-1F	Risk to human health as a result of use and/or exposure to the treated and disinfected recycled water	Less than significant
Surface and Groundwater Flow		
WR-IMP-2A	Changes in the flow of the Santa Ana River from diversion of 21.3 cfs (15,400 afy)	Less than significant
WR-IMP-2B	Changes in groundwater table from use of recycled water	Less than significant
Flood Control		
WR-IMP-CA	Construction in flood zone	Less than significant

WR-IMP-1: Water Quality

WR-IMP-1A: Construction of Project Components

Construction, operation, and maintenance of the Phase I Expansion would occur primarily in already-developed areas of the City and Jurupa Community Service Districts. Construction-related earth-disturbing activities related to all project components could cause soil erosion and sedimentation to local waterways.

Construction of pipelines for the core distribution and agriculture system and any facility expansions and pump stations would require heavy equipment such as earth-moving devices. Such machines have potential to leak hazardous materials that may include oil and gasoline. It is expected that the City or its contractors will use standard containment and handling protocols to ensure that these vehicles do not leak any material that might harm the quality of local surface or groundwater. In addition, improper use of fuels, oils, and other construction-related hazardous materials, such as pipe sealant, may also pose a threat to surface water or groundwater quality.

In addition, some locations may require jack-and-bore technology to install pipelines beneath waterways, or other structures. The microtunneling process may use a mixture of bentonite (an inert clay) and petroleum as a lubricant for the drilling mechanism. Drilling near the ground surface or close to the bed of a surface water body introduces the potential for an unplanned "frac-out," in which the pressure of the bentonite or other drilling lubricant generates a surface rupture, causing a release of bentonite to the ground surface or water column. Although bentonite is not toxic, it can smother habitat and increase turbidity and suspended sediments in the water column.

Although there would be no construction activities in creek bed or drainage channel that would result in direct temporary or permanent fill to the waterways, construction activities could result in indirect sedimentation, erosion, or inadvertent disruption of the area around the concrete structure.

These impacts are considered potentially significant. Implementation of mitigation measures WR-MM-1A-1 to WR-MM-1A-3 would reduce these impacts to a less-than-significant level. WR-MM-1A-1 is: *Implement requirements of the NPDES General Construction Permit.* WR-MM-1A-2 is: *Implement a spill prevention, control, and countermeasure program.* WR-MM-1A-3 is: *Prepare a frac-out contingency plan for any jack-and-bore construction activities.*

WR-IMP-1B: Construction below Water Table

Trenching and excavation activities associated with any pipe construction could reach a depth that can expose the water table, through which it would immediately and directly become available for contaminants to enter the groundwater system. Primary construction-related contaminants that could reach

groundwater would include sediment, oil and grease, and hazardous materials. In addition, discharge of construction-related dewatering effluent could result in the release of contaminants to surface water or groundwater.

These impacts are considered potentially significant. Implementation of mitigation measures WR-MM-1A-1, WR-MM-1A-2, and WR-MM-1B-1 would reduce these impacts to a less-than-significant level. WR-MM-1A-1 is: *Implement requirements of the NPDES General Construction Permit.* WR-MM-1A-2 is: *Implement a spill prevention, control, and countermeasure program.* WR-MM-1B-1 is: *Implement provisions for dewatering.*

WR-IMP-1C: Pipeline or Facility Rupture

In the event of a pipeline or facility rupture resulting from exceedances of pipeline or tank capacity; improper design, installation, or maintenance; seismic activity; or other catastrophic events, water quality could be negatively impacted by increased erosion, sediment, or discharge of any contaminants contained in the water released from the pipeline (e.g., sewage from influent pipelines). To minimize adverse water quality impacts in the event of an upset, shut-off valves would be installed. Further, the pipeline would be designed and engineered with sufficient capacity to accommodate anticipated peak flows, reducing the potential for pipeline rupture to below a level of significance. Finally, the pipeline would be designed to relevant seismic and other standards to avoid potential for pipeline rupture from seismic activity or other geologic hazards. No further mitigation is required.

WR-IMP-1D: Discharge to Surface Water

Treatment technologies involved in the proposed project will be the same as pre-project conditions. The total treated effluent that will be discharged into the Santa Ana River will be less than the amount that is currently discharged. Although there may be residual contaminants in the effluent, the reduced quantity of discharge could indirectly improve surface water quality.

Impacts will be less than significant. No mitigation is required.

WR-IMP-1E: Water Quality Degradation

With the proposed treatment, inorganic constituents would be similar to current effluent discharges from the RWQCP, the biological oxygen demand (BOD), and total suspended solids (TSS) less than 10 mg/L, the turbidity less than 2 mg/L, and the coliform count less than 2.2 most probable number (MPN) per 100 milliliters (ml) after disinfection. Also, all requirements for CCR, Title 22, Division 4, would be met for the use of disinfected tertiary recycled water. However, recycled water may contain TDS, nitrates, and other constituents that would degrade water quality if irrigation application resulted in runoff that could reach surface water or groundwater.

Much of the Riverside RWQCP-treated effluent is polished through the Hidden Valley Wetlands Enhancement Project prior to its confluence with the Santa Ana River. Typical nitrate concentrations average around the 20 mg/L. As a result of the wetland polishing, nitrate levels are reduced by approximately 50% (City of Riverside 2003).

As part of the project, the City will ensure that all entities involved in distribution and in use of its recycled water will perform their activities in accordance with all applicable rules and regulations governing implementation of a recycled water program. To accomplish this, the City will need to provide a recycled water use ordinance and recycled water system construction and user standards. This requirement will include the provision of inspection contractors by the City to enforce the standards and ordinance and to implement a cross-connection control program. These documents will cover all of the design, construction, operations, and maintenance of the recycled water distribution system and use areas, as well as use area control measures. Specifically, the documents will meet all the requirements of applicable state laws, including the following, as compiled in the June 2001 edition of *California Health Laws Related to Recycled Water—"The Purple Book"* (California DHS 2001):

- Health and Safety Code, Division 104, Part 12, Chapter 5, Article 2 (Cross-Connection Control by Water Users), Sections 116800–116820;
- CCR, Title 22, Division 4, Chapter 3 (Water Recycling Criteria), Sections 60303–60310; and
- CCR, Title 17, Division 1, Chapter 5, Group 4 (Sanitation [Environmental]/Drinking Water Supplies), Sections 7583–7586 and 7601–7605.

The City has the authority to implement and enforce the recycled water standards and ordinance.

In addition, users of recycled water will be limited to applications of recycled water at the agronomic rate, such that applications would not exceed the evapotranspiration rate of the crops under irrigation (i.e., all applied reclaimed water would be taken up by the irrigated plants with no excess runoff). Therefore, there is no potential for surface runoff or deep percolation to groundwater.

This impact is considered less than significant. No mitigation is required.

WR-IMP-1F: Human Health Risk from Use/Exposure to Recycled Water

Only treatment processes accepted by the California DHS, as listed in the *Treatment Technology Report for Recycled Water* (California DHS 2003), would be used during wastewater treatment. These treatment processes include influent screening, grit removal, biological treatment, filtration, and disinfection. The City would ensure that all entities involved in distribution and use of its recycled

water perform their activities in accordance with all applicable rules and regulations governing implementation of a recycled water program. To accomplish this, the City is developing a recycled water use ordinance and recycled water system construction and user standards. As a result, the general public will have access to the information contained in these two documents. Therefore, there is no significant health risk involved in the proposed project.

This impact is considered less than significant. No mitigation is required.

WR-IMP-2: Surface Water and Groundwater Flows

WR-IMP-2A: Change in Santa Ana River Flow

A detailed analysis was done using data from USGS station 11066460 at MWD crossing located approximately 0.25 mile upstream of the Riverside RWQCP outfall. Recent years (1998–2002) were used in the analysis to ensure most accurate results for two reasons. First, the Santa Ana River flow record has increased in more recent years (see Table 3A-8) because of growing population demands resulting in more treated effluent discharged to the watershed and because of increased amounts of impervious surfaces from urbanization. Second, using more recent years in this analysis ensures that historical Riverside RWQCP records are consistent with current conditions.

Currently the City discharges 36,000 afy to the Santa Ana River. As a result of the proposed recycled water project, by the year 2050, the City will direct 41,400 afy (see Table 3A-14) to its recycled water system, and will reduce its discharge to the Santa Ana River to 26,000 afy. Accordingly, the net loss of flow to the Santa Ana River upon buildout of the proposed project would be the difference between 41,400 afy and 26,000 afy, which equals 15,400 afy (21.3 cfs). Current flow data (1998–2002) indicates that a 15,400 afy (21.3 cfs) loss would range from 12% to 17% (percent loss equals withdraw/existing flow * 100) of the flow within Reach 3 of the Santa Ana River during dry seasons (June–September) (see Figures 3A-2 through 3A-6, and Table 3A-16 below).

Table 3A-16. Projected Loss of Santa Ana River Flow Resulting from Project Buildout (during dry seasons, June–September)

Year	1998	1999	2000	2001	2002
Percentage	12.2%	14.4%	17.0%	17.2%	16.4%

Notes:

Calculations based on base-line flow conditions and future loss of 15,400 afy (21.3 cfs). Based on USGS gage 11066460, Santa Ana River at MWD Crossing.

Figure 3A-2 shows the real-time flow (light blue) of the Santa Ana River at the MWD crossing for 1998 just upstream of the outfall. The red line represents current flow downstream of the outfall, which was calculated based on upstream flow (at the MWD crossing) plus the discharge. The future flow (dark blue line)

was calculated by using the upstream flow (at the MWD crossing) and the future discharge (26,000 afy), and then subtracting the loss of flow (15,400 afy or 21.3 cfs). The 1997–1998 water year was considered a very wet year. During wet years, the 15,400-afy (21.3-cfs) loss as a result of the proposed project is a much smaller fraction of the total flow even through the dry season (June–September). The flow change is represented by the difference between the future flow (dark blue line), and the existing downstream flow (red line).

Figure 3A-3 shows the real-time flow (light blue) of the Santa Ana River at the MWD crossing for 1999. The 1998–1999 water year was considered a significantly dryer year than the 1997–1998 water year. During dry years, the 15,400-afy (21.3-cfs) loss as a result of the proposed project can be equal to a larger fraction of the total flow during the dry seasons (June–September). With the exception of the spike in flow during July 1999, dry season future flow staggered around the 125 to 150 cfs. A 21.3 cfs (15,400 afy) loss could be as much as 17% (21.3 cfs/125 cfs * 100) of the flow during dry seasons (see Table 3A-16). In addition, Figures 3A-4 through 3A-6 also represent similar water years as 1999. Thus, similar dry season flow conditions occur for these years as well.

As previously described, the City (application WA 31372) has requested an appropriation of 41,400 afy from the Santa Ana River. Table 3A-17 identifies the total percentage of Santa Ana River flows from 1998 to 2002 that would have been appropriated by the quantity sought in the City's application.

The year 2002 showed the worst-case scenario (from 1990 to 2003, but other data are not shown) where the appropriation would have been equal to approximately 2.41% (41,400 afy/1,715,654 afy * 100) of the watershed for the entire year. However, it is important to note that overall, 2002 was a very dry year in comparison to other years. The year 1998 was a very wet year, and the total appropriation would have been equal to only 0.1% (41,400 afy/40,136,559 afy * 100) of the river.

During the worst-case scenario year of 2002, the City's requested appropriation of 41,400 afy would leave approximately 1,674,254 afy of flow in Reach 3 of the Santa Ana River for the entire year. The projected 15,400-afy reduction at project buildout would be equal to only 0.9% of the total river flow. Based on this analysis, a 0.9% loss in flow is considered to be a less-than-significant impact in terms of hydrology and water quality. In the event of increased urbanization east of Riverside, additional runoff and increased water levels in the Santa Ana River would even further reduce the project's potential impacts on total river flow.

In addition, existing hydrologic conditions are subject to change pending upstream dischargers planned recycled water programs. The City's application for appropriation of the Santa Ana River is one of several under consideration at the SWRCB. The potential cumulative impacts to Santa Ana River flows from approval of these applications are addressed in Chapter 4, "Cumulative Impact Analysis."

WR-IMP-2B: Change in Groundwater Table

According to California DHS standards, recycled water will not be used to supply any groundwater recharge ponds, stormwater detention/retention facilities, or any other facilities designed for groundwater recharge. Therefore, there is no potential for recycled water to be used for groundwater recharge.

This impact is considered less than significant. No mitigation is required.

Table 3A-17. Total Santa Ana River Flow Compared to City's Requested Appropriation.

	1998	1999	2000	2001	2002
Total River Flow (afy)	40,136,559	3,679,866	4,163,820	2,720,434	1,715,654
City's Requested Appropriation					
Acre Feet Per Year	41,400	41,400	41,400	41,400	41,400
% of River Flow	0.10	1.13	0.99	1.52	2.41
Loss of Flow at Project Buildout					
Acre Feet Per Year	15,400	15,400	15,400	15,400	15,400
% of River Flow	0.04	0.42	0.37	0.57	0.90

Notes:

Appropriations are based on data from City Application to Appropriate Santa Ana River (2004).

Total river flow is based on USGS gage 11066460, Santa Ana River at MWD Crossing.

WR-IMP-3: Flood Control

Impact WR-3A

Portions of the project area are located within the 100-year floodplain as defined by FEMA's Flood Insurance Rate Map (FIRM). Historically, flooding has occurred in the project area. The RWQCP is located in Zone A25, which is defined as an area of 100-year flood where base elevations and flood hazards have been determined. The distribution system is located in Zone C, which is defined as areas of minimal flooding.

Three major flood control dams, all constructed by the Corps, are located in the upper Santa Ana River Basin: Seven Oaks Dam, Prado Dam, and San Antonio Dam. Other flood control improvements include channelization, debris basins, storm drains, levees, stone and wire-mesh fencing, and local walls along the banks of stream channels. All of these structures are designed to standards to prevent 100-year flooding.

Potential impacts related to flooding would be less than significant. No mitigation is required.

Mitigation for Significant Impacts

WR-MM-1A-1: Implement NPDES Permit Requirements

To reduce or eliminate construction-related water quality effects, before onset of any construction activities, the City or its contractor will obtain coverage under the NPDES general construction permit. The City will be responsible for ensuring that construction activities comply with the conditions in this permit, which will require development of a SWPPP, implementation of BMPs identified in the SWPPP, and monitoring to ensure that effects on water quality are minimized. Constituents to be monitored will be included in the permit along with each constituent's limitations. Monitoring results will need to conclude that the constituents' limitations are being met as required by the NPDES permit. Meeting the water quality requirements of the NPDES permit would help reduce this impact to a less–than-significant level.

As part of this process, the City will implement multiple erosion and sediment control BMPs in areas with potential to drain to surface water. These BMPs will be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. BMPs to be implemented as part of this mitigation measure may include the following.

- Temporary erosion control measures (e.g., silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed to control erosion from disturbed areas.
- Drainage facilities in downstream offsite areas will be protected from sediment using BMPs acceptable to the City and the Santa Ana RWQCB.
- Grass or other vegetative cover will be established on the construction site as soon as possible after disturbance.

Construction of the proposed recycled water facilities may require an encroachment permit from the Riverside County Flood Control and Water Conservation District for activities within the district's right-of-way, easements, or facilities. The district's Master Drainage Plans will (when fully implemented) be intended to provide adequate drainage outlets and relieve Riverside County of serious drainage problems.

Final selection of BMPs will be subject to review by the City. The City will verify that an NOI and SWPPP have been filed before allowing construction to begin. The City or its agent will perform routine inspections of the construction area to verify that the BMPs specified in the SWPPP are properly implemented and maintained. The City will notify its contractors immediately if there is a noncompliance issue and will then require compliance.

WR-MM-1A-2: Implement Spill Prevention, Control, and Countermeasure Program

The City or its contractor will develop and implement a spill prevention, control, and countermeasure program (SPCCP) to minimize the potential for and effects from spills of hazardous, toxic, or petroleum substances during construction activities for all contractors. The SPCCP will be completed before any construction activities begin. Implementation of this measure will comply with state and federal water quality regulations.

The City will review and approve the SPCCP before onset of construction activities. The City will routinely inspect the construction area to verify that the measures specified in the SPCCP are properly implemented and maintained. The City will notify its contractors immediately if there is a noncompliance issue and will then require compliance.

The federal reportable spill quantity for petroleum products, as defined in the 40 CFR 110, is any oil spill that:

- violates applicable water quality standards,
- causes a film or sheen on or discoloration of the water surface or adjoining shoreline, or
- causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

If a spill is reportable, the contractor's superintendent will notify the City, and the City will take action to contact the appropriate safety and clean-up crews to ensure that the SPCCP is followed. A written description of reportable releases must be submitted to the Santa Ana RWQCB. This submittal must contain a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases would be documented on a spill report form.

If an appreciable spill has occurred and results determine that project activities have adversely affected surface water or groundwater quality, a detailed analysis will be performed by a registered environmental assessor to identify the likely cause of contamination. This analysis will conform to American Society for Testing and Materials standards, and will include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, the City and its contractors will select and implement measures to control contamination, with a performance standard that groundwater quality must be returned to baseline conditions. These measures will be subject to approval by the City.

WR-MM-1A-3: Prepare Frac-Out Contingency Plan for Jack-and-Bore Construction

For jack-and-bore tunneling activities that use drilling lubricants, the City or its contractor will prepare and implement a frac-out contingency plan that is intended to minimize the potential for a frac-out associated with tunneling activities, provide for the timely detection of frac-outs, and ensure an organized, timely, and "minimum-impact" response in the event of a frac-out and release of drilling lubricant (i.e., bentonite). The contingency plan will require, at a minimum, the following measures.

- A full-time monitor will attend all drilling to look for observable frac-out conditions or lowered pressure readings on drilling equipment.
- If a frac-out is identified, all work will stop, including the recycling of drilling lubricant. In the event of a frac-out into water, the pressure of water above the tunnel will keep excess mud from escaping through the fracture. The location and extent of the frac-out will be determined, and the frac-out will be monitored for 4 hours to determine whether the drilling lubricant congeals (bentonite will usually harden, effectively sealing the frac-out location).
- If the drilling lubricant congeals, no other actions will be taken that would potentially suspend sediments in the water column.
- Surface releases of bentonite will be allowed to harden and then will be removed.
- The contingency plan will identify additional measures to be taken to contain or remove the drilling lubricant if it does not congeal.

Implementation of the frac-out contingency plan will make impacts less than significant.

WR-MM-1B-1: Implement Provisions for Dewatering

Before discharging any dewatered effluent to surface water, the City or its contractors will obtain an NPDES permit and WDRs from the Santa Ana RWQCB. Depending on the volume and characteristics of the discharge, coverage under the general construction permit or general dewatering permit is possible. If it is determined that a general dewatering permit is needed, the permit will assign effluent and receiving water limitations for required water quality constituents. As part of the permit, the permittee will design and implement measures as necessary so that the discharge limits identified in the relevant permit are met. As a performance standard, these measures will be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. Implemented measures may include retention of dewatering effluent until particulate matter has settled before it is discharged, use of infiltration areas, and other BMPs. Final selection of water quality control measures will be subject to approval by the City.

The City will verify that coverage under the appropriate NPDES permit has been obtained before allowing dewatering activities to begin. The City or its agent will perform routine inspections of the construction area to verify that the water quality effluent and receiving water limitations are met. The City will notify its contractors immediately if there is a noncompliance issue and will then require compliance. If compliance is not achieved, the City may rescind project-related approvals. Implementation of this mitigation will make impacts less than significant.

Section 3B

Biological Resources

Section 3B

Biological Resources

This section identifies the biological resources in the project area and examines the potential effects of the proposed project on those resources. The information and analysis is organized in three sections: Applicable Regulations, Policies, and Programs; Environmental Setting; and Impacts and Mitigation. The information is this section was developed through the review of:

- Volumes I and II of the WRC MSHCP (Riverside County 2003c);
- Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the WRC MSHCP (Riverside County 2003a);
- USFWS's Biological Opinion for the WRC MSHCP (USFWS 2004);
- Draft Riverside General Plan 2025 (City of Riverside 2004a);
- Draft PEIR for the Draft Riverside General Plan 2025 (City of Riverside 2004b);
- California Natural Diversity Database (CNDDB) (DFG 2004);
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2004); and
- existing literature and studies of area resources.

Jones & Stokes conducted a general reconnaissance of biological resources along Reach 3 of the Santa Ana River in August 2004; no focused surveys were conducted.

Regulatory Setting

Many of the biological resources in the area potentially affected by the project are protected and/or regulated by federal, state, and local laws and policies. In addition, the area includes lands and waters covered by federally and state-approved conservation programs for listed and other species and their habitats. The relevant laws, policies, and programs are identified in Table 3B-1. Additional detail regarding the relevant provisions of the WRC MSHCP is provided in Table 3B-2 and Figures 3B-1A and 3B-1B. Figure 3B-1A shows the area covered by the WRC MSHCP and the areas where additional lands will be conserved. Figure 3B-1B shows the lands that have been added to the reserve system since approval of the MSHCP in June 2004. The WRC MSHCP is the

primary vehicle by which the project will demonstrate compliance with USFWS and DFG fish and wildlife regulations.

Table 3B-1. Applicable Regulations and Programs

Regulation, Policy, or Program	Key Provisions	Relevance to Project
Federal		
Endangered Species Act (ESA) (16 USC 153 *et seq.*)	Section 9 prohibits the taking of endangered species, except as provided under Sections 4, 7, and 10. "Taking" means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Section 4(d) allows for the creation of regulations necessary to provide for the conservation of threatened species and allows for Section 9 prohibitions to apply to threatened species. Section 7 requires that federal agencies ensure that their activities will not likely jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated or proposed critical habitat. Section 7 also requires federal agencies to confer and consult with USFWS and the National Marine Fisheries Service (NOAA Fisheries), as appropriate, regarding effects of federal actions on listed species and critical habitat. As part of the consultation process, USFWS and NOAA Fisheries may authorize take of listed species Section 10(a) allows USFWS and NOAA Fisheries to authorize take a listed species that is incidental to otherwise lawful activities. Approval criteria are specified in the ESA and federal regulations. Further guidance is provided in *Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process* and the *Five-Point Policy* (an addendum to the Handbook).	Section 9 applies to the federally listed species and designated and proposed critical habitat in the area potentially affected by the project. The project area and the rest of western Riverside County are within an area covered by the WRC MSHCP, which was approved under Section 10(a).
Migratory Bird Treaty Act (16 USC 703-711)	The Migratory Bird Treaty Act makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10. It also requires that project-related disturbance at active nesting sites be reduced or eliminated during critical phases of the nesting cycle.	Protects active nest sites and nesting birds in areas potentially affected by the project. The WRC MSHCP includes measures to comply with Migratory Bird Treaty Act in the project area and other parts of western Riverside County.

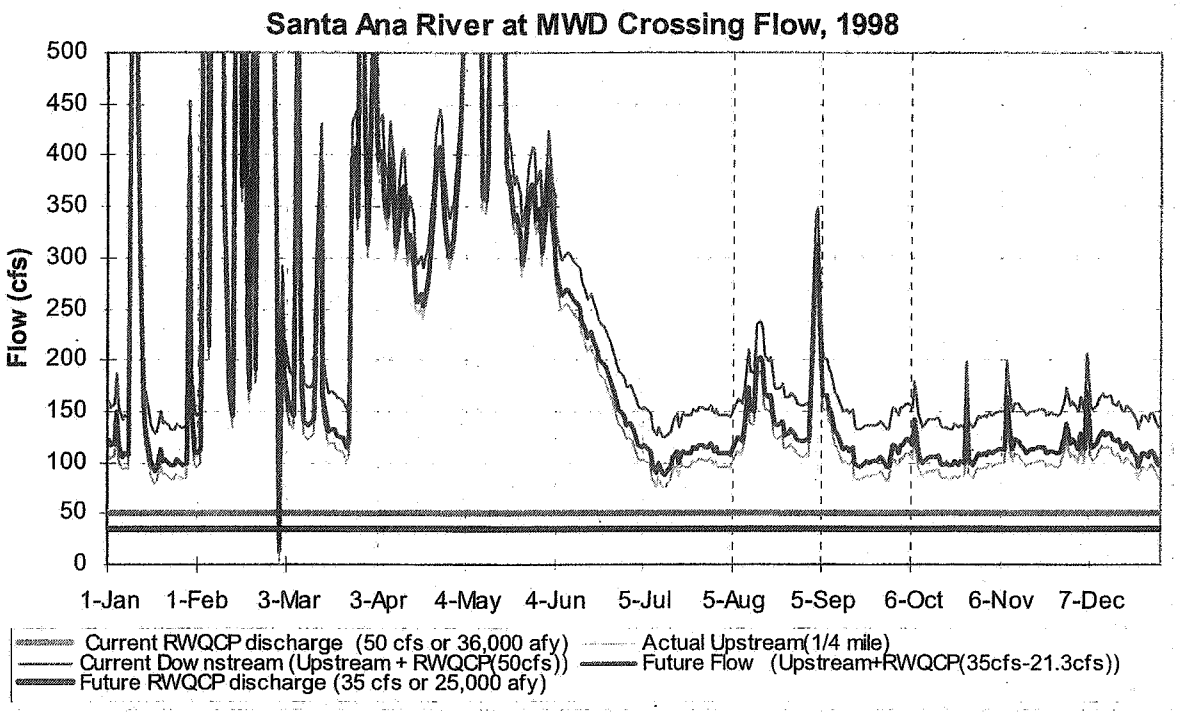


Figure 3A-2: 1998 Santa Ana River Flow (cfs) at MWD Crossing Compared to Calculated Future Flow and City of Riverside Discharges.

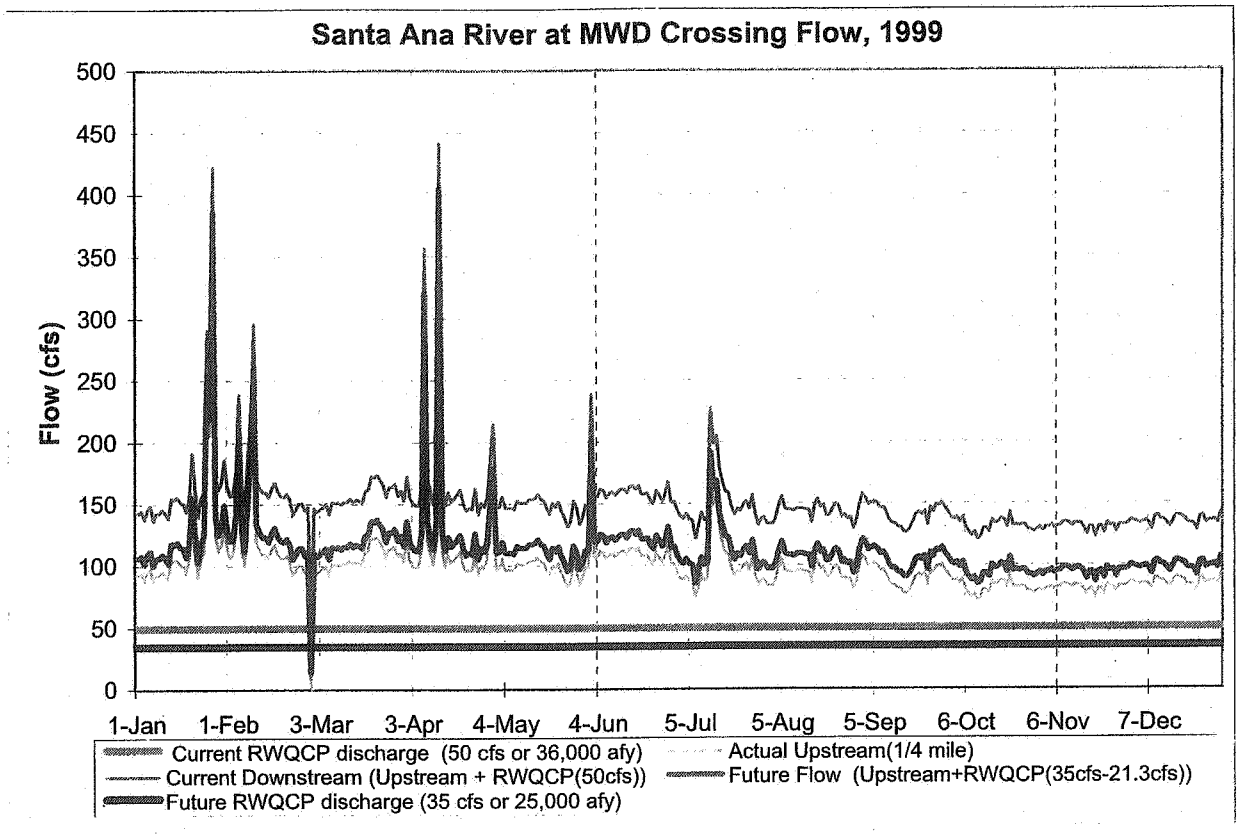


Figure 3A-3: 1999 Santa Ana River Flow (cfs) at MWD Crossing Compared to Calculated Future Flow and City of Riverside Discharges

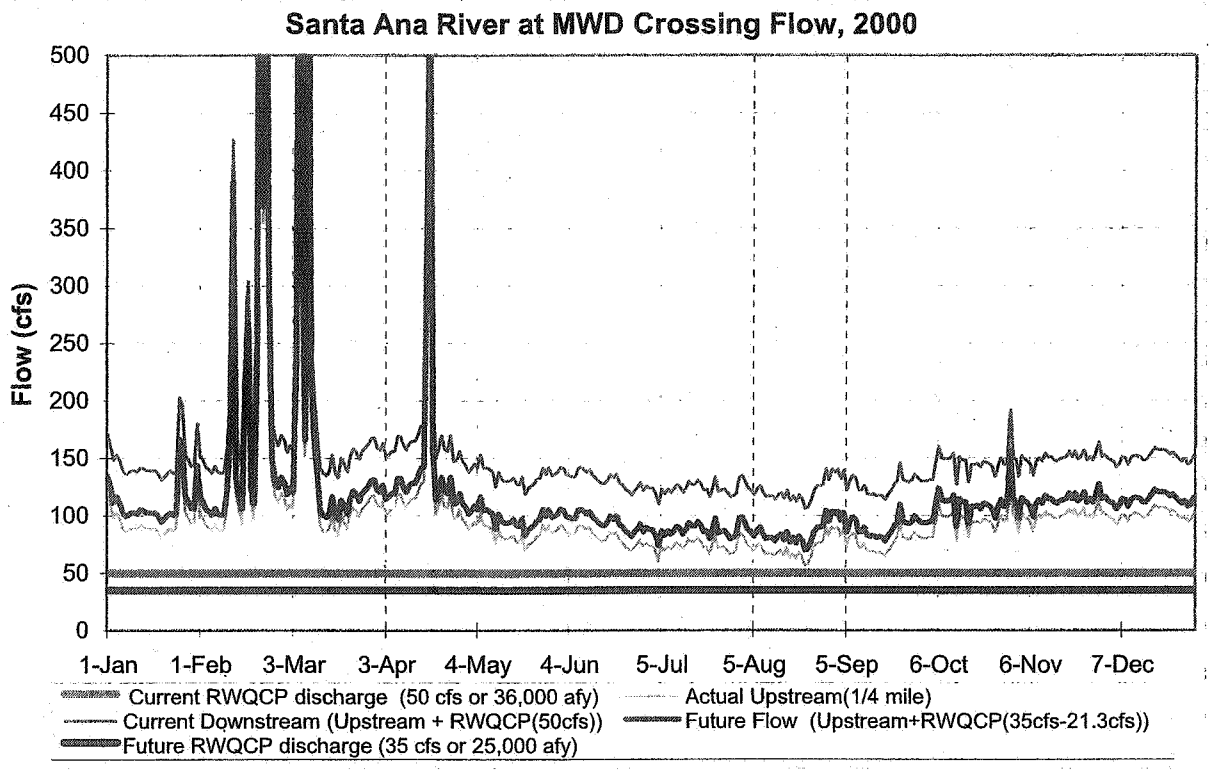


Figure 3A-4: 2000 Santa Ana River Flow (cfs) at MWD Crossing Compared to Calculated Future Flow and City of Riverside Discharges

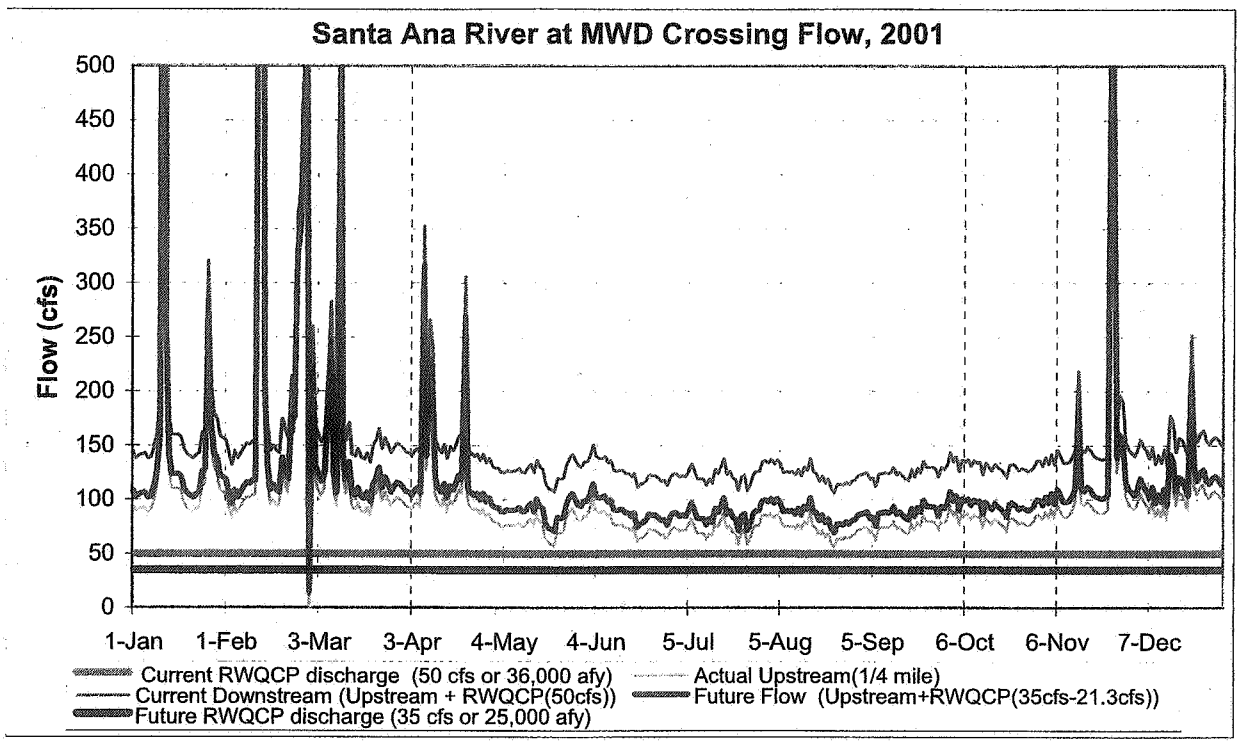


Figure 3A-5: 2001 Santa Ana River Flow (cfs) at MWD Crossing Compared to Calculated Future Flow and City of Riverside Discharges

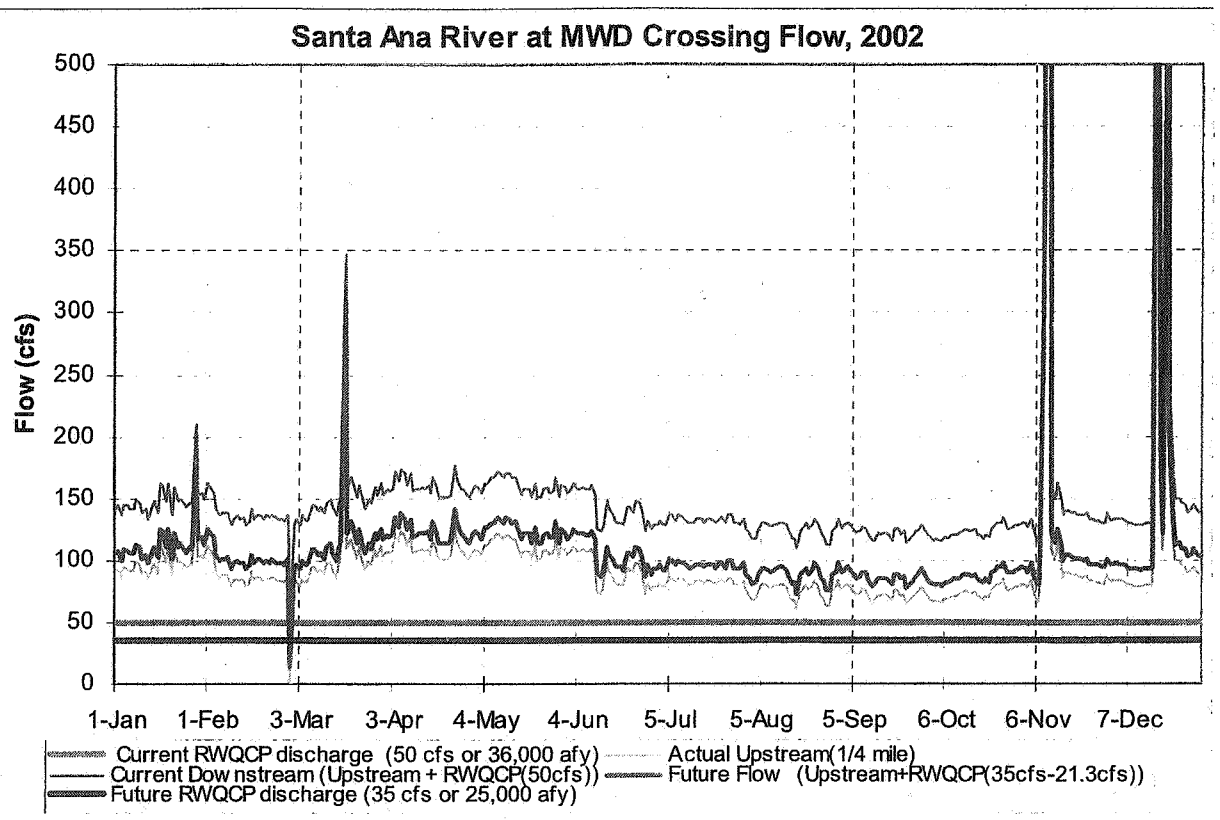
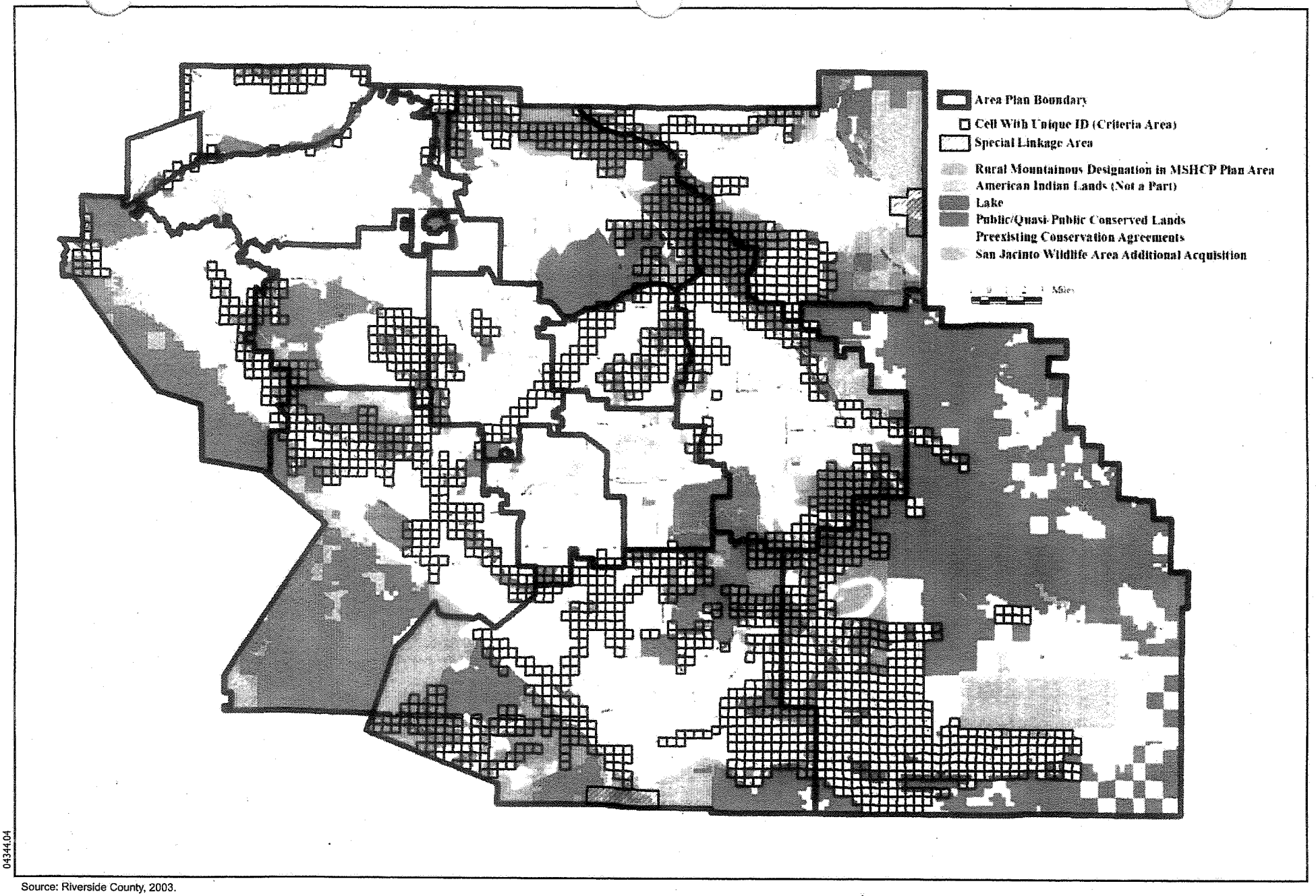


Figure 3A-6: Shows 2002 Santa Ana River Flow (cfs) at MWD Crossing Compared to Calculated Future Flow and City of Riverside Discharges.

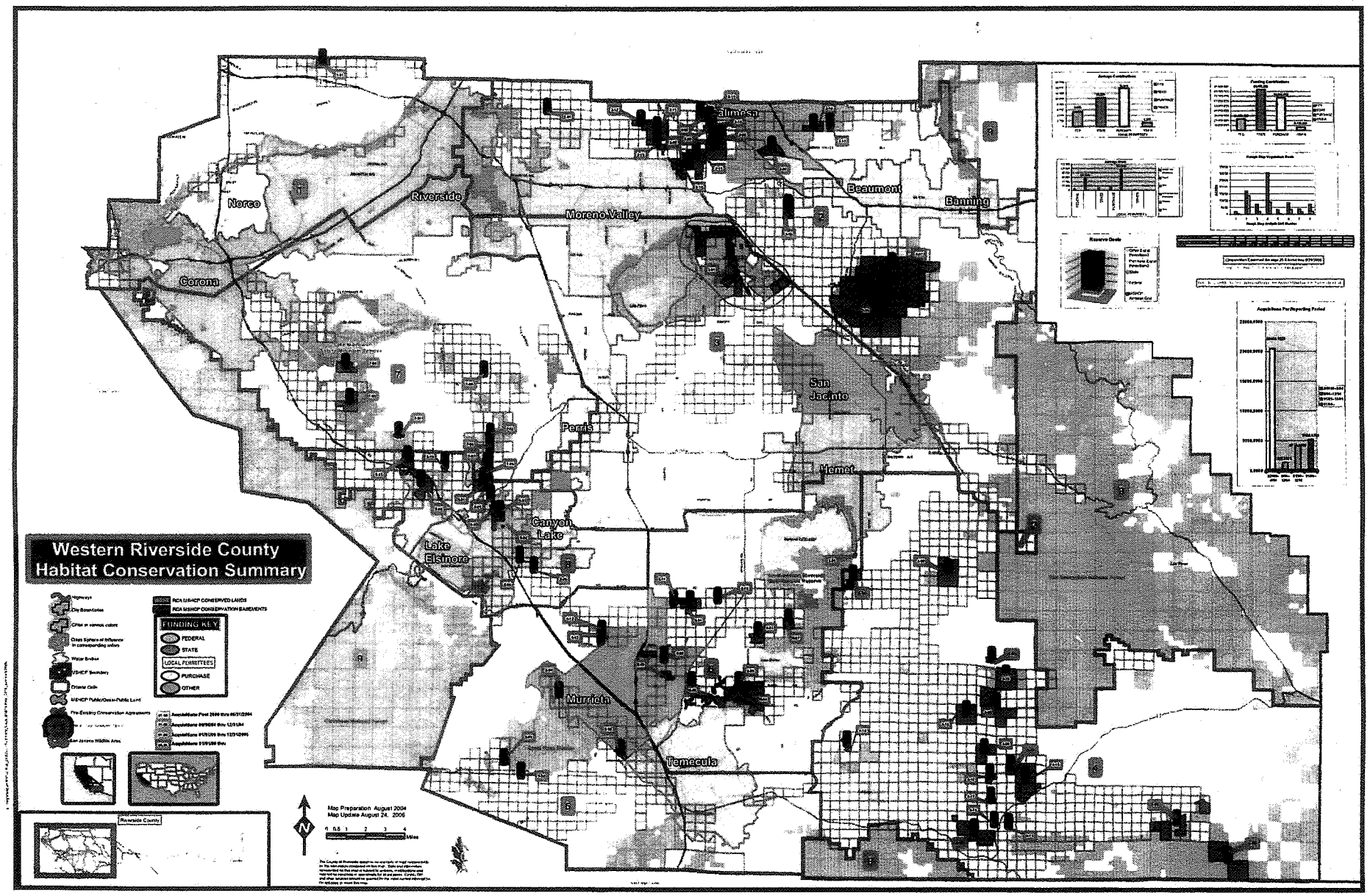


04344.04

Source: Riverside County, 2003.

Jones & Stokes

Figure 3B-1A
Western Riverside County MSHCP Plan Map



Source: Riverside County, 2003.

Jones & Stokes

Figure 3B-1B
Western Riverside County Habitat Conservation Summary (as of 8,24.06)

04344.04

Regulation, Policy, or Program	Key Provisions	Relevance to Project
Bald and Golden Eagle Protection Act (16 USC 668)	The Bald and Golden Eagle Protection Act prohibits, except under specified conditions, the take, possession, and commerce of bald or golden eagles. A special permit is required for any authorized take.	Protects bald and golden eagles and their nests. The WRC MSHCP includes measures to comply with the Bald and Golden Eagle Protection Act.
Clean Water Act (CWA) (33 USD 1252-1376)	Section 401 requires an applicant to obtain certification for any activity that may result in a discharge of a pollutant into waters of the United States. In California, the RWQCBs administer Section 401 and play a role in the review of water quality and wetlands issues. Section 404 requires permits for activities that could discharge fill or dredge materials or otherwise adversely modify wetlands or other non-isolated waters of the U.S. The Corps administers the permitting process. Permit requirements typically entail impact avoidance, impact minimization, and mitigation to ensure no net loss of wetland acres or values.	The proposed project entails continued operation and expansion of a wastewater treatment facility that currently is permitted to discharge waters into Reach 3 of the Santa Ana River. The existing facility also includes wetlands that provide treatment of wastewater.
Protection of Wetlands Policy (Executive Order 11990)	This order established a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative. On projects with federal actions or approvals, impacts must be identified in the environmental document, and impact avoidance must be considered.	Implementation of the proposed project may entail federal actions (e.g., funding).
State		
California Endangered Species Act (CESA)	CESA is a component of the California Fish and Game Code. Sections 2080 *et seq.* prohibit the take of state-listed and state candidate species, except as provided under Sections 2081, 2080.1, 2081, 2835, and the Native Plant Protection Act. Section 2080.1 allows DFG to authorize incidental take of state-listed species covered by an ESA Section 10(a) permit. Section 2081 allows DFG to authorize incidental take of state-listed species.	CESA applies to the state-listed and candidate species potentially affected by the project. The project area and the rest of western Riverside County are within the area covered by the WRC MSHCP, which is an approved Natural Community Conservation Plan (NCCP).
Natural Community Conservation Planning Act	California Fish and Game Code Sections 2800–2835 provide for the development and implementation of NCCPs to sustain and restore habitats and species on an ecosystem or landscape scale. Section 2835 allows DFG to authorize incidental take of listed species covered by approved NCCPs.	The project area and the rest of western Riverside County are within the area covered by the WRC MSHCP, which is an approved NCCP.

Table 3B-2. Provisions of the WRC MSCHP Applicable to the Proposed Project

Component	Applicable Provisions and Relevance to Project
Plan Area	Plan Area: Area where the WRC MSHCP provisions apply to participating entities. Includes 1.26 million acres in western Riverside County. Includes all of the project area. Area Plan: Community planning area identified in the Riverside County General Plan and used for implementation planning in the WRC MSHCP. Plan identifies conservation targets for each Area Plan. Project area is part of four Area Plans. Criteria Area: Approximately 310,000 acres within the WRC MSHCP plan area. Divided into 160-acre cells, from which an additional 153,000 acres will be conserved under the WRC MSHCP. See Figure 3B-1A for Criteria Area cells within the project area. MSHCP Conservation Area: Area conserved and managed for the species covered by the WRC MSHCP. Includes approximately 347,000 acres of existing public and quasi-public lands; approximately 153,000 acres to be added over time. See Figure 3B-1B for acquisitions that have occurred with the Conservation Area between post-2000 and August 24, 2006 Survey Areas: Areas in and outside the Criteria Area where MSHCP requirements for species surveys apply. See Figure 3B-1 for designated survey areas in the project area.
Reserve Assembly	Addition of approximately 153,000 acres to the MSHCP Conservation Area will occur over a 25-year period; will occur concurrently with proposed build-out of recycled water system.
Covered Activities	Outside Criteria Area: Public and private development including construction of buildings, structures, infrastructure, and all alterations of the land, which are carried out by plan participants. Most of project area is outside of the Criteria Area (see Figure 3B-1). Inside Criteria Area: Proposals for new or altered land uses by plan participants must be evaluated for effect on reserve assembly. Allowable uses must comply with plan survey and impact avoidance, minimization, and mitigation requirements. Water and wastewater facilities identified as future land uses anticipated in the criteria area and in some conservation areas. The WRC MSHCP provides guidelines for construction and best management practices. Some portions of the core distribution system and Phase I expansion are within the criteria area. Lateral distribution systems also may fall with the criteria area. Within Conservation Area: Limited primarily to reserve management and monitoring activities, compatible uses identified in the WRC MSHCP, emergency repairs to public infrastructure facilities and utilities carried out by plan participants, and conditionally compatible uses that comply with requirements of the WRC MSHCP. Some portions of the core distribution system may cross existing or future conservation areas.
Project-level Requirements	In and Outside Criteria Area: Habitat assessment must be prepared for review/approval by local agency with land use authority. Assessments determine location of project and whether other survey requirements apply. Project area is in and outside the criteria area. Protection of Riparian/Riverine Areas and Vernal Pools: Requires mapping and avoidance of impacts to riparian, riverine, and vernal pool/fairy shrimp habitat, and other aquatic resources. If avoidance not feasible, local agency must determine that alternative is biologically equivalent or superior to impact avoidance. Proposed project includes a facility located in riparian/riverine

General Plan 2025, the draft PEIR for the draft general plan, the WRC MSHCP (Volume I), and USFWS's Biological Opinion on the WRC MSHCP. The project area vegetation map (Figure 3B-2) is a subsection of the vegetation map for the WRC MSHCP area.

City of Riverside and Its Sphere of Influence

The following land cover types, special features, special status natural communities, and special status plant and animal species occur or potentially occur within the City or its sphere of influence.

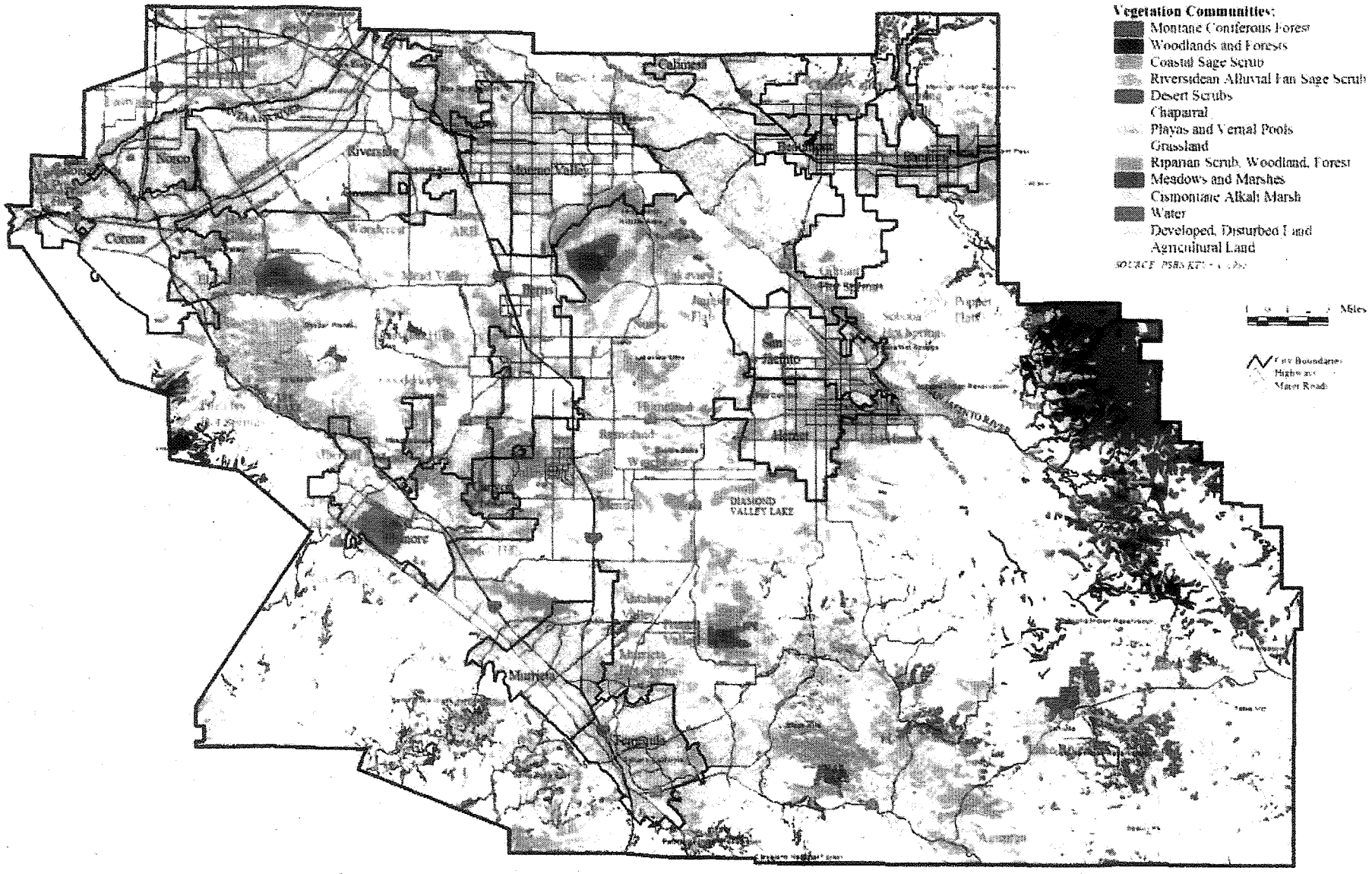
Cover Types

The Riverside General Plan classifies cover types as urban/developed, agriculture, nonnative grassland, coastal scrub, chaparral, oak woodland, riparian woodland, riparian scrub, marsh, open water/reservoir, and Arundo/riparian forest.

Urban or developed land consists of areas of intensive use with much of the land covered by structures. This category includes transportation facilities, power and communications facilities, residences, shopping centers, industrial and commercial complexes and institutions that may, in some instances, be isolated from urban areas. Agricultural land, wetlands, or water areas on the fringe of urban or built-up areas are not included in this category except where they are surrounded and dominated by urban development. Most of Riverside consists of urban/developed land with peripheral areas of open space characterized by agriculture (e.g., Arlington Heights Greenbelt) and native vegetation (e.g., La Sierra/Norco Hills, Sycamore Canyon Park, arroyos).

Agricultural land includes crop fields, orchards, vineyards, and grazing lands. When wetlands are drained for agricultural purposes, they are included in the agriculture category. Agricultural lands that are no longer in use and where wetlands vegetation has reestablished are included in the wetlands category. The Arlington Heights Greenbelt is still characterized by agricultural uses, primarily in the form of citrus orchards and nursery stockyards. There also are citrus orchards in the City's southern sphere of influence.

Nonnative grasslands are characterized by a dense to sparse cover of annual grasses with flowering culms (stems) 0.2 to 1.5 meters high. They are often associated with numerous species of showy-flowered, native wildflowers, especially in years of favorable rainfall. Flowering occurs with the onset of the late fall rains, and growth, flowering, and seed-set occur from winter through spring. With a few exceptions, the plants are dead through the summer-fall dry season, persisting as seeds. Nonnative grasslands occur on fine-textured soils that are moist during the winter rainy season and very dry during summer and fall. Adjacent communities may include oak woodland on moister, better drained soils. Most of the flatter terrain in undeveloped portions of the City is dominated



04344.04

Source: Riverside County, 2003.

Jones & Stokes

Figure 3B-2
Western Riverside County MSHCP Vegetation Map

engelmannii), black walnut (*Juglans californica*), western sycamore (*Platanus racemosa*), toyon, and blue elderberry (*Sambucus mexicana*). Smaller trees and shrubs along with herbaceous plants and grasses that form the vegetative understory include sugar bush (*Rhus ovata*), squawbush (*Rhus trilobata*), poison–oak (*Toxicodendron diversilobum*), coastal wood fern (*Dryopteris arguta*), and bracken fern (*Pteridium aquilinium*). Within the City, oak woodlands are known to occur along El Sobrante Road between La Sierra Avenue and McAllister Street.

Riparian woodlands are dependent on the presence of or proximity to non-seasonal water sources. The water may be surface water or shallow groundwater. Riparian woodlands may measure a few meters in width to much broader, depending on water flow. Where non-seasonal streams flow out of the mountains and onto flatter grasslands, the riparian woodland community may be a relatively broad one, but in the higher elevations where water flows down a narrow passageway often confined by steep hillsides, this community may be very narrow. Riparian woodland may also occupy areas surrounding human-made lakes and reservoirs. Typical species of this community include willows (*Salix* spp.), western sycamore, black walnut, Fremont and black cottonwood (*Populus fremontii* and *P. trichocarpa*), white alder (*Alnus rhombifolia*), coast live oak, mule fat (*Baccharis salicifolia*), and smaller plants such as poison-oak, California blackberry, horsetails (*Equisetum* spp.), and scarlet and creek monkeyflower (*Mimulus cardinalis* and *M. guttatus*). The presence of perennial water in the Santa Ana River, Tequesquite Arroyo, Sycamore Canyon, and Box Springs Canyon has supported the development of riparian woodland plant communities at scattered locations.

Riparian scrub is characterized as a scrubby streamside thicket, dominated by any of several willows, mule fat, or a mix of these. Vegetation may vary from open to impenetrable. Willows typically occur on relatively fine-grained sand and gravel bars that are close to river channels and/or groundwater. Coarser substrate soils or areas where there is relatively great depth to the water table favors dominance by mule fat. This early successional community may precede any of several riparian woodland or forest types absent severe flooding disturbance. Riparian scrub is located throughout the City along streams and drainages. The largest riparian scrub communities are located northeast of Mockingbird Canyon Road and south of Markham Street.

Marsh communities are dominated by perennial, emergent flowering plants (monocots) generally up to four to five meters tall. Vegetation often forms completely closed canopies. Bulrush (*Scirpus* spp.) and cattail (*Typha* spp.) species dominate. Marsh communities in the City are found on sites permanently inundated by fresh water and lacking significant current. Conditions of prolonged saturation permit accumulation of deep, peaty soils in this community.

Open water/reservoir areas are called lacustrine ecosystems and are characterized by inland depressions or dammed riverine channels containing standing water, including both near-shore (limnetic) and deepwater habitats (littoral). Usually, to meet this classification, each area must exceed 20 acres

(8 hectares) and be deeper than 6.6 feet (2 meters). Lake Evans and Mockingbird Canyon Reservoir are classified as open water/reservoir areas.

Arundo/Riparian forests are characterized by dense impenetrable stands of riparian vegetation dominated or exclusively composed of giant reed (*Arundo donax*). The California Invasive Plant Council includes giant reed on its list of "Exotic Pest Plants of Greatest Ecological Concern in California." Giant reed is documented as a widespread, aggressive invader that displaces native plant species and disrupts natural communities. Giant reed is suited to tropical, subtropical, and warm temperate climates of the world. Although it tolerates some salt and can grow on sand dunes, giant reed grows best along riverbanks and in other wet places. Giant reed is best developed in poor sandy soil but is tolerant of all types of soils, from heavy clays to loose sands and gravelly soils. Arundo/Riparian forests are known to occur along the Santa Ana River near Van Buren Boulevard at the City's northern boundary. This community may also be found along lakes, rivers, and other drainages.

Special Features

Six arroyos, recognized by the City's Grading Code (Title 17), traverse the city:

- Springbrook Wash Arroyo,
- Tequesquite Arroyo.
- Woodcrest Arroyo,
- Prenda Arroyo,
- Alessandro Arroyo, and
- Mockingbird Canyon Arroyo.

Springbrook Wash Arroyo starts in Box Springs Mountain and flows to the Santa Ana River. Approximately one-fifth of the stream channel is cemented, with some remaining areas of healthy riparian vegetation.

Tequesquite Arroyo runs through two golf courses, the Andulka Park site, Riverside Community College, the Evans Sports Complex, and the Tequesquite Park site. It is partially channelized at the golf courses and when it passes through Downtown. The banks at the golf courses have been planted with nonnative grasses. Only the portion southeast of SR-91 is mapped for protection under the grading code.

Woodcrest, Prenda, Alessandro, and Mockingbird Arroyos all originate in the southern hills of the City and flow to the Santa Ana River. All of these arroyos are largely in a natural condition south of SR-91 within the Arlington Heights Greenbelt and Alessandro Heights area. Each is also constrained with a dam. North of SR-91, the arroyos are channelized or undergrounded en route to the Santa Ana River.

Outside of the City, there are two arroyos worthy of note: Box Springs and University.

- The **Box Springs Arroyo** runs from the Box Springs Mountains to where it is partially detained at Quail Run. From Quail Run, the water flows into Sycamore Canyon Creek. A small portion of the channel is contained in concrete, where it flows under State Route 60 (SR-60) into the University of California, Riverside, campus. The banks are characterized by healthy riparian communities and rocky outcroppings. Sycamore Canyon Creek flows through the Sycamore Canyon Wilderness Park. The entire length of the creek is un-channelized and characterized by sycamore groves and southern willow.
- The **University Arroyo** also begins in the Box Springs Mountains. It is partially channelized. The banks contain mainly nonnative grasses, although some areas are characterized by rocky outcroppings and riparian vegetation. This arroyo runs through the University of California at Riverside under SR-60/Interstate 215 (I-215), and into developed areas west of the freeway.

Special Status Natural Communities

Special status natural communities, sometimes called sensitive habitats, are vegetation communities that are unique, have relatively limited distribution in the region, or have high wildlife value as defined by federal, state, and local government conservation programs. Many are, or correspond to, vegetation series and associations identified in the CNDDB as, "considered rare and worthy of consideration by CNDDB." Designated and proposed critical habitats for federally listed species are identified separately in this draft PEIR (see "Special status Species" below). Special status communities within the City include:

- vernal pools,
- southern cottonwood-willow riparian forest,
- southern sycamore-alder riparian forest,
- southern willow scrub,
- southern coast live oak riparian forest,
- southern riparian forest,
- cismontane alkali marsh,
- Southern California arroyo chub/Santa Ana sucker stream,
- mule fat scrub,
- Riversidian alluvial fan sage scrub,
- Riversidian sage scrub,
- peninsular juniper woodland and scrub,

- dense Englemann oak woodland, and
- coast live oak woodland.

Vernal pools are seasonal wetlands that form in localized depressions with subsurface hardpans, allowing ponded rainwater to remain above the surface into the dry season. These seasonal wetlands create a moist environment to which a specialized group of plant species is adapted. Species composition varies among pools and among years. However, as noted in Riverside County (2003c), common species in vernal pools in or near the project area include woolly marbles (*Psilocarphus brevissimus*), toad rush (*Juncus bufonius*), spike rush (*Eleocharis* species), wire-stem popcorn flower (*Plagiobothrys leptocladus*), Mexican speedwell (*Veronica peregrina* ssp. *xalapensis*), annual hairgrass (*Deschampsia danthonioides*), alkali pepper-grass (*Lepidium dictyotum*), and water pygmy weed (*Crassula aquatica*); many special status species are also present in this community type. Herbs are typically less than 0.25 meters tall with an intermittent or open canopy. Vernal pools typically occur below 1,400 feet (427 meters) in elevation. They are known to occur adjacent to the Santa Ana River between Main Street and Bandini Avenue.

Southern cottonwood-willow riparian forests are tall, open, broadleaved winter-deciduous riparian forests dominated by Fremont cottonwood, black cottonwood, and several tree willows. Understories consist of shrubby willows. The dominant species require moist, bare mineral soil. Sub-irrigated and frequently overflowed lands along rivers and streams provide the necessary conditions for germination and establishment. Other typical plant species include California mugwort, mule fat, wild cucumber (*Marah macrocarpus*), western sycamore, Goodding's black willow (*Salix gooddingii*), sandbar willow (*Salix exigua*), yellow shining willow (*Salix lasiandra*), arroyo willow (*Salix lasiolepis*), and stinging nettle (*Urtica dioica*). Southern cottonwood-willow riparian forests exist along the Santa Ana River in northwest Riverside and along the middle-upper portions of an unnamed tributary to Walker Canyon, just west of Stovepipe and Bull Canyon roads.

Southern sycamore-alder riparian woodland is a tall, open, broadleaved, winter-deciduous streamside woodland dominated by western sycamore and white alder. These stands seldom form closed canopy forests, and may appear as trees scattered in a shrubby thicket of hard drought-resistant evergreens and deciduous species. Soils consist of very rocky streambeds subject to seasonally high-intensity flooding. White alder increases in abundance on more perennial streams, while western sycamore favors more intermittent hydrographs. Other common forms of vegetation include California mugwort, coast live oak, horsetail, smilo grass (*Piptatherum miiaceum*), California blackberry, poison-oak, blue elderberry, and stinging nettle (*Urtica dioica*). The CNNDB indicates that southern sycamore alder riparian forests occur along an unnamed tributary to the Belvedere Heights area on the west side of Box Springs Mountains.

Southern willow scrub is distinguished by dense, broadleaved, winter-deciduous riparian thickets dominated by several willow species, including black willow, sandbar willow, red willow (*Salix laevigata*), and arroyo willow, with scattered Fremont cottonwood and western sycamore. Most stands are too dense

to allow much understory development. Typical soils include loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. This community requires repeated flooding to prevent succession to southern cottonwood-sycamore riparian forest. It occurs along two tributaries to a small reservoir southwest of Mockingbird Reservoir.

Southern coast live oak riparian forests are characterized by both open and locally dense evergreen riparian woodlands dominated by coast live oak. This community appears to be richer in herbs and poorer in understory shrubs than other riparian communities. Southern coast live oak riparian forests are found in bottomlands and outer floodplains along larger streams, on fine-grained or stabilized, rich alluvial soils in canyons and valleys of coastal southern California. Characteristic plant species include California mugwort, California toothwort (*Cardamine californica*), eucrypta (*Eucrypta chrysanthemifolia*), toyon, bush penstemon (*Keckiella cordifolia*), California honeysuckle (*Loncerahispidula*), wild cucumber, fiesta flower (*Pholistoma auritum*), skunkbrush (*Rhus trilobata*), California wild rose (*Rosa californica*), California blackberry, blue elderberry, and poison-oak.

Southern riparian forest communities are characterized by wetland and mesic species dominated by willows, cottonwoods, and/or western sycamore. These species may be sole dominants or mixed dominants. The tree canopy is typically continuous with sparse shrub and herb layers forming the understory. These communities are periodically flooded or saturated with water and occur at elevations from sea level to 2,400 meters. Southern riparian forests occur along an unnamed tributary to Cajalco Canyon, east of Cajalco Tin Mine, and south of Eagle Valley near Lake Mathews. This community may also be found along lakes, rivers, and other drainages.

Mule fat scrub is characterized by tall, herbaceous riparian scrub strongly dominated by mule fat. This early successional community is often maintained by frequent flooding. Absent this, most stands would succeed to cottonwood- or sycamore-dominated riparian forests or woodlands. Mule fat scrub occurs in intermittent stream channels with fairly coarse substrate and moderate depth to the water table. It frequently occurs as a patchy understory in light gaps in riparian woodlands and forests, especially under heavy grazing.

Cismontane alkali marsh is dominated by perennial, emergent, herbaceous monocots up to 2 meters tall. Vegetation is similar to that found in salt marshes, freshwater marshes, and coastal brackish marshes. Vegetation cover is often complete and dense, and most growth and flowering occurs in summer. This community typically occurs where standing water or saturated soil is present during most or all of year. High evaporation and low input of fresh water render these marshes somewhat salty, especially during the summer. Cismontane alkali marsh is similar to coastal brackish marsh in its quantitative range of saltiness, but is more alkaline and usually contains salts other than sodium chloride. Marshes that become mostly dry during the summer are called vernal marshes; those with a more constant input of fresh water are called coastal and valley freshwater marshes. Chenopod scrubs occur in areas with moist, highly alkaline soil that usually lack water at the surface. All of the above natural communities

may intergrade with alkali marshes. Cismontane alkali marsh is known to occur east of Lake Mathews near Cajalco Road and between Cajalco Road and Rider Street.

Southern California arroyo chub/Santa Ana sucker streams exist along the Santa Ana River and its tributaries including Chino Creek, Aliso Creek, and Sunnyslope Creek in San Bernardino, Riverside, and Orange Counties. These streams range from Mount Rubidoux downstream to northeastern Anaheim. The best habitat is found below the Riverside Narrows, where groundwater is forced to the surface and flows become more perennial and stable.

Riversidian alluvial fan sage scrub grows on sandy, rocky alluvial soils deposited by streams that experience periodic flooding. The soils in these areas are well drained to excessively drained and have low water holding capacity and low fertility. Vegetation consists of drought-deciduous subshrubs and large evergreen woody shrubs adapted to these soil characteristics and survival of, or rapid recruitment after, intense, periodic flooding and erosion. Pioneer, intermediate, and mature stages of alluvial fan sage scrub plant community are often distinguished. The pioneer stage has sparse vegetation and low plant diversity. The intermediate stage is characterized by dense vegetation dominated by subshrubs. The mature stage has dense, full-grown subshrubs, along with evergreen woody shrubs. Scale-broom is a shrub species found most often on alluvial soils associated with drainages. Other common shrub species of this vegetation community are often characteristic species of either Riversidian sage scrub or chaparral communities. These common subshrub species include coastal sagebrush, California buckwheat, chamise, brittlebush (*Encelia farinosa*), hairy yerba santa (*Eriodictyon trichocalyx*), sugarbush, birch-leaved mountain mahogany, and deerweed (*Lotus scoparius*). Riversidian alluvial fan sage scrub is known to occur along the Santa Ana River between Mission Boulevard and Mission Street. It also occurs in other northern portions of the City. The Riverside General Plan also identifies areas of "Disturbed Alluvial." These areas show some type of human disturbance such as grading and/or a large influx of nonnative, disturbance-adapted plant species (weeds) where soils and other conditions would otherwise permit growth of Riversidian alluvial fan sage scrub. Large areas of Riversidian alluvial fan sage scrub are located along the eastern and western edges of the city.

Riversidian sage scrub typically is a fairly open vegetation community, with at least 20 percent cover by California sagebrush, California buckwheat, and Spanish brome (*Bromus madritensis*). It occurs at scattered locations in the southeastern half of Riverside. See description of coastal sage scrub under "Cover Types" for additional details about plant species composition.

Peninsular juniper woodland and scrub is dominated by California juniper (*Juniperus californica*). This community exists on dry alluvial fans and desert slopes. Litter layers are restricted to directly beneath the tree driplines, and fuel loads may be insufficient to carry a fire. This woodland species does not show adaptations to fire. Burning usually leads to grasslands or the formation of semi-desert chaparral communities. Within the project area, juniper woodland is

found primarily in the Lake Mathews area and intergrades with nonnative grassland and Riversidian sage scrub communities.

Dense Englemann oak woodland is a climax woodland dominated by Englemann oak (*Quercus englemannii*), with coast live oak as an additional significant constituent. The understory is composed of typical grassland species. Canopy cover is dense. This vegetation community appears on moderately moist sites, especially in steep canyons. Dense Englemann oak woodlands are known to occur southeast of Lake Mathews between Galivan Road and Lake Mathews Drive.

Coast live oak woodlands vary from closed-canopy stands of coast live oak to mixtures with conifers and broadleaf trees to open savannas. The shrub layer is poorly developed, but may include toyon, laurel sumac, or blue elderberry. The herb component is typically continuous and dominated by rip-gut brome (*Bromus diandrus*) and several other introduced species. This community typically occurs on north-facing slopes and shaded ravines. Several coast live oak communities are located southeast of Victoria Avenue between La Sierra Avenue and Washington Street.

Special Status Species

In this draft PEIR, plants and animals are identified as being "special status species" if they are listed or proposed for listing under federal or state law; are identified as "sensitive," "a species of concern," or "a species of special concern" on lists maintained by federal or state agencies; or are on the list of (biologically) endangered and rare plant species maintained by the CNPS. Table 3B-3 identifies the special status species that are known to occur or have a reasonable potential for occurrence in or adjacent to the project area, together with any proposed or designated critical habitat for federally listed species.

Table 3B-3. Special Status Species That Occur or Potentially Occur in or near the Project Area

Species Common/ Scientific Name	Status[1]	Habitat Affinities	Critical Habitat in or near Project Area[2]	MSHCP Planning Species[3]
Plants				
Chaparral sand-verbena *Abronia villosa* var. *aurita)**	Federal: None State: None CNPS: 1B	Exposed sites with sandy soils, especially washes and dunes, in chaparral, sage scrub, and alluvial scrub	NA	
Coulter's goldfields *Lasthenia glabrata* ssp. *Coulteri*	Federal: None State: None CNPS: 1B	Coastal salt marshes, playas, valley and foothill grassland, vernal pools. Alkaline soils in playas, sinks, and grasslands. 1–1,400 meters in elevation.	NA	

Species Common/ Scientific Name	Status[1]	Habitat Affinities	Critical Habitat in or near Project Area[2]	MSHCP Planning Species[3]
Intermediate mariposa lily *Calochortus weedii* var. *intermedius***	Federal: None State: None CNPS: 1B	Rocky hill-and-valley landscapes with chaparral, sage scrub, or grasslands	NA	
Little mousetail *Myosurus minimus* ssp. *Apus*	Federal: None State: None CNPS: 3	Vernal pools and poorly drained spots in moist grasslands, generally under alkaline conditions.	NA	
Long-spined spineflower *Chorizanthe polygonoides* var. *longispina*	Federal: None State: None CNPS: 1B	Chaparral, coastal scrub, meadows, valley and foothill grassland. Gabbroic clay. 30–1,450 meters in elevation.	NA	LM/W
Many-stemmed dudleya *Dudleya multicaulis*	Federal: None State: None CNPS: 1B	Chaparral, coastal scrub, valley and foothill grassland. In heavy, often clayey soils or grassy slopes. 0–790 meters in elevation.	NA	LM/W
Munz's onion *Allium munzii*	Federal: E State: T CNPS: 1B	Chaparral, coastal scrub, cismontane woodland, pinyon-juniper woodland, valley and foothill grassland. Only in Riverside County. Heavy clay soils; grows in grasslands and openings within shrublands or woodlands. 300–1,035 meters in elevation.	Designated, with WRC MSHCP plan area excluded (except federal lands)	
Palmer's grapplinghook *Harpagonella palmeri*	Federal: None State: None CNPS: 4	Chaparral, coastal sage scrub, grasslands; clay soils.	NA	LM/W
Parish's desert-thorn *Lycium parishii**	Federal: None State: None CNPS: 2	Coastal scrub, Sonoran desert scrub, 300–1,000 meters in elevation.	NA	
Parry's spineflower *Chorizanthe parryi* var. *parryi*	Federal: None State: None CNPS: 1B	Coastal scrub, chaparral. Dry slopes and flats; sometimes at interface of 2 vegetation such as chaparral and oak woodland; dry, sandy soils. 40–1,705 meters in elevation.	NA	
Rayless ragwort *Senecio aphanactis**	Federal: None State: None CNPS: 2	Cismontane woodland, coastal scrub, drying alkaline flats. 20–575 meters in elevation.	NA	
Robinson's pepper-grass *Lepidium virginicum var. robinsoni*i*	Federal: None State: None CNPS: 1B	Chaparral, coastal scrub. Dry soils, shrubland. 1–945 meters in elevation.	NA	
Round-leaved filaree *Erodium macrophyllum*	Federal: None State: None CNPS: 2	Cismontane woodland, valley and foothill grassland. Clay soils. 15–1,200 meters in elevation.	NA	

Species Common/ Scientific Name	Status[1]	Habitat Affinities	Critical Habitat in or near Project Area[2]	MSHCP Planning Species[3]
Salt spring checkerbloom *Sidalcea neomexicana**.	Federal: None State: None CNPS: 2	Alkaline seeps and springs in a wide variety of plant communities, including coniferous forest, chaparral and coastal scrubs, Mojavean desert scrub, and playas	NA	
San Diego ambrosia *Ambrosia pumila*	Federal: E State: None CNPS: 1B	Chaparral, coastal scrub, valley and foothill grassland, vernal pools. In the U.S., known only from San Diego and Riverside counties. Sandy loam or clay soil. In valleys, persists where disturbance has been superficial. 20–415 meters in elevation.	Not proposed	
Santa Ana River woollystar *Eriastrum densifolium* ssp. *Sanctorum*	Federal: E State: E CNPS: 1B	Riversidian alluvial fan sage scrub in sandy soils 360–630 meters in elevation.	Not proposed	
Slender-horned spineflower *Dodecahema leptoceras*	Federal: E State: E CNPS: 1B	Chaparral, coastal scrub (alluvial fan sage scrub), flood deposited terraces and washes.	Not proposed	
Small-flowered microseris *Microseris douglasii* var. *platycarpha***	Federal: None State: None CNPS: 4	Clay soils in associations with native grasslands or vernal pools.	NA	LM/W
Small-flowered morning-glory *Convolvulus similans*	Federal: None State: None CNPS: 4	Wet clay soils and serpentine seeps below 700 meter elevation in southern needlegrass grassland, mixed native and nonnative grassland, sage scrub, and openings in chaparral.	NA	LM/W
Smooth tarplant *Centromadia pungens* ssp. *Laevis*	Federal: None State: None CNPS: 1B	Valley and foothill grassland, chenopod scrub, meadows, playas, riparian woodland, alkali meadow, alkali scrub; also in disturbed places. 0–480 meters in elevation.	NA	
Invertebrates				
Riverside fairy shrimp *Streptocephalus woottoni*	Federal: E State: None	Areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	Proposed but not within the four area plans	

Species Common/ Scientific Name	Status[1]	Habitat Affinities	Critical Habitat in or near Project Area[2]	MSHCP Planning Species[3]
Delhi Sands flower-loving fly *Rhaphiomidas terminatus abdominalis*	Federal: E State: None	Delhi fine sands soil type or windblown soils, usually with low disturbance and dominated by low, open, native vegetation. Occurs in Jurupa Area Plan.	Not proposed	J
Quino checkerspot butterfly *Euphydryas editha quino*	Federal: E State: None	Open areas in grasslands, forb-lands, coastal sage scrub, and chaparral, usually with low disturbance and a well-developed biological soil crust. Primary larval host plant is *Plantago erecta.*	Designated	LM/W
Fishes				
Arroyo chub *Gila orcutti*	Federal: None State: SSC	Lowland habitats. Prefers freshwater streams and rivers with steady currents and emergent vegetation. Prefers slower-moving pools and ponded areas of streams with mud or sand substrates.	NA	R/N, J
Santa Ana speckled dace *Rhinichthys osculus* ssp. *3**	Federal: None State: SSC	Requires permanent flowing streams with summer water temperatures of 17–20°C (60–68°F). Typically, streams are maintained by outflows of cool springs. Inhabits shallow cobble and gravel riffles.	NA	
Santa Ana sucker *Catostomus santaanae*	Federal: T State: SSC	Small- to medium-sized permanent streams in water of varying depth. Flow is also variable. Usually found in clear water, they are able to tolerate seasonal turbidity. Prefer substrates that are generally coarse and consist of gravel, rubble, and boulder, but are occasionally found on sandy or muddy substrates.	Proposed and designated, with MSHCP plan area excluded	R/N, J

Species Common/ Scientific Name	Status[1]	Habitat Affinities	Critical Habitat in or near Project Area[2]	MSHCP Planning Species[3]
Amphibians				
Western spadefoot *Spea hammondii*	Federal: SOC State: SSC	Grassland, coastal sage scrub, and other habitats with open sandy gravel soils. Breeds in vernal pools and temporary ponds/pools associated with river bottoms and floodplains. Primarily a species of the lowlands, frequenting washes, floodplains of rivers, alluvial fans, and alkali flats.	NA	
Reptiles				
Coast (San Diego) horned lizard *Phrynosoma coronatum (blainvillei)*	Federal: None State: SSC	Open or sparse scrub and chaparral communities. This species prefers loose, friable soil for burrowing.	NA	
Orangethroat whiptail *Cnemidophorus hyperythrus*	Federal: None State: SSC	Chaparral, sage scrub and open edges of riparian areas; specialist to some degree on native termites.	NA	
Coastal western whiptail *Aspidoscelis tigris stejnegeri*	Federal: SOC State: None	Found in deserts and semiarid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	NA	
Northern red-diamond rattlesnake *Crotalus ruber ruber*	Federal: None State: SSC	Chaparral, woodland, grassland, and desert areas. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks, or surface cover objects.	NA	
Rosy boa *Charina trivirgata**	Federal: SOC State: None	Desert and chaparral. Prefers moderate to dense vegetation and rocky cover. Mix of brushy cover and rocky soil such as coastal canyons and hillsides, desert canyons, washes, and mountains.	NA	
Western pond turtle *Clemmys marmorata pallida*	Federal: None State: SSC	Ponds, small lakes, perennial pools in drainages, marshes, slow-moving sometimes-brackish water.	NA	R/N, J, LM/W

Species Common/ Scientific Name	Status[1]	Habitat Affinities	Critical Habitat in or near Project Area[2]	MSHCP Planning Species[3]
Birds				
Bald Eagle *Haliaeetus leucocephalus*	Federal: T State: E	Open areas, forest edges, and mountains near large lakes and rivers. Requires tall trees for nesting. Three known nest efforts in or near western Riverside County, but not within the project area, in the last ten years.	NA	
Bell's sage sparrow *Amphispiza belli belli*	Federal: SOC State: SSC	Extensive patches of chaparral less than about 2 meters in height and sage scrub shaded and relatively open at the ground layer.	NA	R/N, J, H, LM/W
Black-crowned night-heron *Nycticorax nycticorax*	Federal: None State: None	Many types of wetlands; inland relay are large wetland areas.	NA	R/N, J
Burrowing owl *Speotyto cunicularia*	Federal: SOC State: SSC	Requires fairly large expanses of relatively open, level or hummocky terrain, including grasslands, agricultural fields, dairies, flood channels, and occasionally may use undisturbed areas of golf courses or airports.	NA	R/N, LM/W
Cactus wren *Campylorhynchus brunneicapillus*	Federal: None State: SSC	Coastal sage scrub with thickets, patches, or tracts of large branching cacti, thorny shrubs, and small trees.	NA	H, LM/W
Coastal California gnatcatcher *Polioptila californica californica*	Federal: T State: SSC	Obligate resident of several distinct subassociations of the coastal sage scrub community.	Designated	J, H, LM/W
Cooper's hawk *Accipiter cooperii*	Federal: None State: SSC	Mature forest, open woodlands, parks, and residential areas.	NA	R/N, J; LM/W
Double-crested cormorant *Phalacrocorax auritus*	Federal: None State: None	Occupies diverse aquatic habitats in all seasons. Diet is primarily fishes. Tolerates only minimal disturbance at nesting colonies.	NA	R/N, J
Downy woodpecker *Picoides pubescens*	Federal: None State: None	Nests in extensive lowland riparian woodland and forest; will forage in many adjacent habitats.	NA	R/N

Species Common/ Scientific Name	Status[1]	Habitat Affinities	Critical Habitat in or near Project Area[2]	MSHCP Planning Species[3]
Least Bell's vireo *Vireo bellii pusillus*	Federal: E State: E	Riparian habitat with some tree layer and a dense understory, often of young willows, but sometimes mule fat, blue elderberry, California rose, desert wild grape, and a variety of other shrubby species.	Designated	R/N, J
Loggerhead shrike *Lanius ludovicianus*	Federal: SOC State: SSC	Open areas (e.g., grassland, rangeland, fallow agricultural fields), especially where there are scattered large shrubs, trees, or other suitable perches at moderate height.	NA	R/N, J, LM/W
Northern harrier *Circus cyaneus*	Federal: None State: SSC	Coastal lowlands, marshes, mesic grasslands, and agricultural fields. Probably extirpated locally as a breeder.	NA	LM/W
Osprey *Pandion haliaetus*	Federal: None State: SSC	Large water bodies supporting fish with surrounding or nearby suitable nest sites.	NA	R/N, J
Peregrine falcon *Falco peregrinus*	Federal: E/delisted State: E, P	Open areas, mud flats with waterfowl, shorebirds. Not currently believed to breed in Riverside County.	NA	R/N, J
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	Federal: None State: SSC	Rocky slopes, especially where a relatively open shrub cover dominated by California sagebrush is interspersed with grassy areas.	NA	R/N, J, LM/W
Southwestern willow flycatcher *Empidonax traillii extimus*	Federal: E State: E	Riparian woodlands along rivers and streams, with mature dense stands of willows, cottonwoods, and sometimes alders. Requires some inundation or soil saturation in riparian at least through May.	Proposed along Santa Ana River, with WRC MSHCP plan area excluded	R/N, J
Tree swallow *Tachycineta bicolor*	Federal: None State: None	During winter and migration, found in open areas, grasslands, meadows, brushlands, and near water sources.	NA	R/N, J
Tricolor blackbird *Agelaius tricolor*	Federal: SOC State: SSC	Freshwater marshes. Suitable breeding habitat includes cattails and bulrushes, as well as nonnative thistles and mustards.	NA	

Species Common/ Scientific Name	Status[1]	Habitat Affinities	Critical Habitat in or near Project Area[2]	MSHCP Planning Species[3]
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	Federal: C State: E	Restricted to extensive deciduous riparian thickets or forest with dense, mid- to upper-level foliage along slow-moving watercourses, backwaters, or seeps. Sometimes uses orchards adjacent to such areas, but willows are almost always a dominant component of nesting habitat.	NA	R/N, J
White-faced ibis *Plegadis chihi*	Federal: None State: SSC	Nests in large, shallow marshes with islands of emergent vegetation. Forages in a wide variety of marsh and mudflat habitats.	NA	R/N, J
White-tailed kite *Elanus leucurus*	Federal: None State: P	Nests in riparian woodland edges, pasture lands and savannah, oaks, and sycamores. Forages in open areas with short grass and/or forbs.	NA	R/N, J, LM/W
Yellow-breasted chat *Icteria virens*	Federal: None State: SSC	Nests and forages in dense, low riparian growth including edges of woods, fencerows, dense thickets, and brambles in low wet places near streams, pond edges, or swamps and in old overgrown clearings and fields.	NA	R/N, LM/W
Yellow warbler *Icteria virens*	Federal: None State: SSC	Nests in mature riparian forest and woodland, foraging largely in the upperstory; more common as a spring and fall migrant in varied habitats.	NA	R/N, LM/W
Mammals				
Bobcat *Lynx rufus*	Federal: None State: None	Variety of habitats, including conifer, oak, riparian, pinyon-juniper forest, chaparral; dependent on extensive open space and connectivity, with rabbits a central part of the diet.	NA	R/N, J, H, LM/W
Los Angeles pocket mouse *Perognathus longimembris brevinasus*	Federal: None State: SSC	Restricted to lower elevation grasslands and coastal sage scrub associations in the Los Angeles Basin. Most known locations have fine, sandy soils with moderate to low disturbance.	NA	J
Mountain lion *Puma concolor*	Federal: None State: None	Variety of habitats, requires very large tracts of land with low levels of human disturbance and development.	NA	H, LM/W

Species Common/ Scientific Name	Status[1]	Habitat Affinities	Critical Habitat in or near Project Area[2]	MSHCP Planning Species[3]
Northwestern San Diego pocket mouse *Chaetodipus fallax fallax*	Federal: None State: SSC	Coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon juniper, and annual grassland in sandy herbaceous areas, usually in association with rocks or coarse gravel.	NA	
San Bernardino kangaroo rat *Dipodomys merriami parvus*	Federal: E State: SSC	Habitats with well-drained sandy substrates. Most typical on intermediate-aged alluvial benches dominated by native herbs and/or open Riversidian alluvial fan sage scrub.	Designated in Riverside County but not in four area plans	J
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	Federal: None State: SSC	Arid regions supporting short-grass habitats such as annual grassland, often adjacent to or mixed with Riversidian sage, scrub, alluvial fan scrub, Great Basin sagebrush, chaparral, disturbed habitat, or agriculture.	NA	
Stephens' kangaroo rat *Dipodomys stephensi*	Federal: E State: T	Inhabits annual grassland with sparse perennial vegetation and open sage scrub in the San Jacinto Valley and adjacent areas of western Riverside County and northwestern San Diego County.	None proposed or designated	LM/W

[1] Indicates federal and state listing status as of January 2005 and CNPS list for plants.

[2] Designated or proposed critical habitat for federally listed species; indicates whether critical habitat is located in the City or any of the four area plans that include the project area (Riverside/Norco, Lake Mathews/Woodcrest, Jurupa, Highgrove).

[3] Indicates whether the species is identified in the MSHCP as a "Planning Species" for an area plan that includes the project area and, if so, which area plan. "Planning Species" are a subset of the species covered by the WRC MSHCP identified for purposes of guiding decisions about assembling reserves as part of implementation of the MSHCP.

* Not included in the WRC MSHCP.

**WRC MSHCP does not provide authorization for take of this species at this time (June 2005).

Codes and Abbreviations

C : Candidate
CNPS: California Native Plant Society
1B: Rare and endangered in California and throughout its range
2: Rare and endangered in California but more common elsewhere
4: Limited distribution
E: Endangered
H: Highgrove Area Plan
J: Jurupa Area Plan
NA: Not Applicable
LM/W: Lake Mathews/Woodcrest Area Plan

Species Common/ Scientific Name	Status[1]	Habitat Affinities	Critical Habitat in or near Project Area[2]	MSHCP Planning Species[3]

P: Fully Protected species identified in the California Fish and Game Code
SOC: Species of Concern
SSC: California Department of Fish and Game Species of Special Concern
R/N: Riverside/Norco Area Plan
T: Threatened
WRC MSHCP: Western Riverside County Multiple Species Habitat Conservation Plan

Jurupa Area Plan

For purposes of this draft PEIR, the biological resources in the Jurupa and Rubidoux Community Service Districts are described in terms of those in the Jurupa Area Plan. As within the existing city boundaries, much of the land within this area plan is developed or in active agricultural use. Other cover/community types present include: grassland, riparian, coastal sage scrub, alluvial fan sage scrub, meadows and marshes, water, and a scattering of chaparral. Two federally listed species occur or have the potential to occur that do not occur within the City's existing boundaries or sphere of influence: Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) and San Bernardino kangaroo rat (*Dipodomys merriami parvus*). The area also includes potential habitat for the Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), but occurrence of this species in the area plan has not been determined. See "Existing and Proposed Conservation Areas" for additional information about the resources in this area plan.

Santa Ana River

This section describes the biological resources of the Santa River system, with an emphasis on Reach 3. Reach 3 includes the outfall of the City's RWQCP, the northern boundary of the City and its sphere of influence, and the southern boundary of the Jurupa Area Plan.

Overview of Reach 3

Figure 2-2 and Figure 2-3 identify the location of Reach 3 of the Santa Ana River, as defined in the Santa Ana Regional Water Quality Control Board's Water Quality Control Plan (Santa Ana RWQCB 1995a). This reach is included within the area of the Riverside West, Corona North, and Prado Dam, California, 7.5-minute U.S. Geological Survey quadrangle maps. It includes the Prado Basin, RWQCP outfall and wetlands, and the upstream and downstream portions of the river within Reach 3.

For several miles above the RWQCP, the flood channel is relatively constrained and is sometimes referred to as the Riverside Narrows. From the RWQCP outfall

downstream through Prado Basin, surface flows are largely perennial as this is a gaining reach (surface flows gain input from groundwater). However, it is also in this reach of the river that urban runoff and treated wastewater effluent become the primary sources of flows. Surface flows are perennial throughout in most years, but these sources remain dependent on factors such as current water year precipitation, local groundwater capacity, and discharge and diversion amounts. In this reach, the river generally has a sandy to rocky natural bottom that is relatively flat and broad and lacks direct human controls for channel meander and flows (USFWS 1988, Santa Ana RWQCB 1995a).

The perennial flows support extensive riparian growth, including mature native trees and understory. Waters are relatively warm, in part because of the broad and shallow river morphology. In the past, these conditions have been accentuated by loss of native riparian vegetation and invasion by giant reed and other nonnatives, but efforts to reverse this trend in the last 15 years is expected to provide a benefit by returning water temperatures to that of more natural conditions.

Prado Basin primarily consists of constructed wetlands and actively managed riparian and parkland communities. The constructed wetlands cover about 465 acres with 50 ponds used for nitrogen removal. Half of the base flow at this point is diverted into the wetland system. Prado Basin holds the single largest stand of riparian forest and wetlands in southern California (USFWS 1988). Increased flows in this area (from additional wastewater treatment and point sources as well as Temescal Creek) support the extensive mesic and hydric communities.

The flood channel banks consist largely of natural materials in this area with some soil stabilization (e.g., riprap) in place. The active channel within the flood channel meanders broadly but typically forms a single channel toward one side or the other side of the flood channel. Flood channel banks are generally much higher and more often form cliffs along the east-to-south side.

Soils in this area are largely restricted to unconsolidated sand with some gravels and areas of finer materials, such as where the riverbed has gained depositional materials from recent storm flows. Within the flood channel in this area, firm benching and other consolidation are limited to a minority of the open, sandy patches present. There appear to be only minimal biological soil crust populations, such as mosses, lichens, cyanobacteria, and other soil surface "poikilohydric" (per Belnap) organisms (Belnap et al. 2001). The soil and crust conditions appear to reflect the combination of ongoing disturbances such as altered hydrology and fire regimes; the substantial presence of weedy, invasive plant species; a lack of undisturbed old-growth seral stages; and direct activity by man.

Substantial portions of this area have been actively manipulated in recent years primarily for removal of invasive exotic plants, especially giant reed, also known as giant cane. Large areas around the Van Buren Boulevard crossing, the Norco Bluffs, and at the River Road crossing have seen removal of exotics and successful replacement through restoration of native riparian vegetation. These

projects primarily within the last 12 years have been under permits and authority of a range of agencies. Today, most of the work—including exotics removal, restoration, and extensive monitoring—is implemented under the Santa Ana Watershed Protection Authority and OCWD. The Santa Ana Watershed Protection Authority is a 501(c)(3) nonprofit organization staffed and managed by a partnership of four local resource conservation districts. In the 18 months from mid-2002 through 2003, it implemented nearly 1,800 acres of exotics removal within the Santa Ana River watershed (SAWPA 2004b).

Vegetation

The most extensive vegetation community along Reach 3 is southern willow-cottonwood forest. Most of this community appears to be mid-seral stage. Tree canopy cover is nearly 100 percent, but most trees are well below the upper height limits for their species and understory remains fairly dense. Small numbers of scattered, older, sentinel trees are present. As is common in riparian vegetation communities in southern California, dominant species richness is low. Dominant trees are limited to three natives: Goodding's black willow, Fremont's cottonwood, and, to a lesser degree, red willow. The remaining tree species in this community compose no more than about 5 percent of the total cover, but consist of a broad array of natives and nonnatives. Most notable among these are moderate numbers of scattered California sycamore, white alder, older arroyo willows, Mexican fan palm (*Washingtonia robusta*), black cottonwood, yellow shining willow (*Salix lucida lasiandra*), and shamel (or Mexican) ash (*Fraxinus uhdei*).

Above the Hamner Avenue bridge, gum trees (*Eucalyptus* spp.) are few within the flood channel, but they become increasingly common downstream and form a substantial forest along the south edge of Prado Basin. Tamarisk species (*Tamarix* spp.) do not appear to be present as dominants over any substantial portion of in this area, although scattered individuals and a few small to moderately sized patches are present.

In addition to saplings of the dominant tree species, understory and mid-story vegetation in this community is composed primarily of giant reed, arroyo willow (most common at edges and below the tree level), phacelias (*Phacelia* spp.), giant creek nettle (*Urtica dioica*), and other species more common in the adjacent non-forested areas described below. Locally, within more mature areas, desert grape (*Vitis girdiana*) is a common vine species. Snags (standing dead trees) are generally quite uncommon; however, attached and fallen deadwood in the mid- and lower levels is sufficient to obstruct reasonable passage in many areas.

Areas dominated by or consisting only of giant reed comprise the second most extensive vegetation community and account for about 15 percent of the area above Prado Basin. Currently, this invasive nonnative is especially prevalent in two locations: (1) in pure, even-aged, sub-climax stands in the general area around the Hidden Valley Wildlife Area, and (2) in areas recovering from a large burn below Hidden Valley Wildlife Area downstream to the Hamner Avenue bridge.

In the recovering burn area, extensive, charred trunks of cottonwood and willow trees extend above rapidly growing stands of giant reed. It appears that many of these taller trees have active sprouting of new growth underway at their bases, but the giant reed appears to be in the process of outgrowing and shading that new growth. In previous years, this species has been extensively dominant in the upper portions of in this area. Active eradication efforts are ongoing, though this species appears unlikely to be eradicated from this area as long as it remains common in the upper watershed in planted areas.

Approximately 600 acres, or roughly one-eighth of the area, consist of managed ponds. The majority of these ponds are within Prado Basin, with Hidden Valley Wildlife Area near the upper end of in this area also having substantial ponded areas. All of these ponds function principally for water quality management but are also actively managed for wildlife use. Cover consists variably of a mix of shallow, open water and emergent vegetation, especially cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.). Freshly disturbed ponds on either side of the River Road crossing appear to be the result of ongoing earthwork but receive some wildlife use.

Similar in extent to ponded areas are herb-dominated to near-bare areas within the flood channel that consist of variably consolidated sandy beaches and benches. Most such areas show indications of relatively young age and are dominated by weedy natives and nonnatives. The particular mix of dominants at any given spot appear to depend primarily on available moisture and secondarily on physical disturbance history and soil characteristics. Wet edges of the active channel are often dominated by smartweeds (*Polygonum* spp.), slender cattail (*Typha domingensis*), giant reed, or giant creek nettle. Areas with intermediate moisture availability generally hold some of the following: common sunflower (*Helianthus annuus*), smooth cocklebur (*Xanthium strumarium*), white sweetclover (*Melilotus alba*), salt heliotrope (*Heliotropium curassavicum*), castor-bean (*Ricinus communis*), mule fat, Johnson grass (*Sorghum halepense*), and broad-leaved peppergrass (*Lepidium latifolium*). Substantial patches of the broad-leaved peppergrass across this area indicate that this exotic invasive has gained a strong foothold; however, control efforts are underway for this species and include recent control of large stands at Hidden Valley Wildlife Area.

Drier, upper areas within the flood channel hold a variety of weedy upland plants as well as some sub-shrub and herb-layer species common in alluvial scrub situations, such as annual bur-sage (*Ambrosia acanthicarpa*), California buckwheat, California sagebrush, jimsonweed (*Datura* spp.), slender buckwheat (*Eriogonum gracile*), common horseweed (*Conyza canadensis*), Russian thistle (*Salsola tragus*), and tree tobacco (*Nicotiana glauca*).

Notably, scale-broom (*Lepidospartum squamatum*) is rare within this area, as are other perennial shrubs associated with alluvial sage scrub as a defined community (see Vail Speck Associates, Inc. 1992, Barbour and Wirka 1997). For this reason, no areas of alluvial sage scrub community are considered to be present within the area.

A remaining vegetation type consists of agricultural fields planted and actively maintained for wildlife forage, especially for ducks and geese. Within this area, these fields are approximately 150 acres, mostly at Hidden Valley Wildlife Area. However, there are some additional agricultural areas—as well as golf courses—in nearby uplands.

Wildlife

Species richness and diversity of wildlife using the area are high. The richness and diversity are suggested by the naming of the Santa Ana River from SR-60 through Prado Basin as one of the 148 "Important Bird Areas of California" (Cooper 2004). It is also shown by local documentation of wildlife use. For example, Zembal and Kramer (1985) documented 225 species of fish and terrestrial vertebrates during their study of Prado Basin. Almost 80 percent of the terrestrial vertebrates were bird species. While many of these bird species breed locally, a substantial fraction of the total is present only in non-breeding roles (e.g., Neotropical migrants and wintering species). This fraction includes the majority of waterbird species, such as geese, ducks, gulls, terns, and shorebirds. This area provides both nesting and foraging habitats for a wide variety of birds of prey, with 7 to 10 species of hawks (order Falconiformes) and owls (order Strigiformes) expected to nest and a similar number of species expected to occur regularly but not breed. Prado Basin is home to the second largest population of the state and federally endangered least Bell's vireo (*Vireo bellii pusillus*), as well as small numbers of southwestern willow flycatchers (*Empidonax traillii extimus*) and western yellow-billed cuckoos (*Coccyzus americanus occidentalis*).

At least 24 species of mammals, other than bats, are expected to occur regularly in this area. There appears to be no published information on the occurrence of bats in this area. However, conditions and location appear suitable for 14 species, and probably half or more of the 14 actually occur regularly. None of the 14 species with potential are currently listed as endangered or threatened at either the state or federal levels, but several species are of concern. Including bat species, the total for regularly occurring mammals is probably between 30 and 40 species. Apart from the bats, only one mammal has special regulatory status, and that one probably occurs only marginally, black-tailed jackrabbit, with the local subspecies a state Species of Special Concern. Seven mammals—roughly 20 percent of the mammal species total—are nonnative.

While there has been no formal or quantitative evaluation of this area as a wildlife corridor, virtually the entire length appears passable to travel on foot by most medium-sized to large mammals. With the landscape context of this area along the river channel, with the supporting topography, and with the potential resources present—especially water and cover—it is highly likely that this area constitutes a functioning wildlife corridor for terrestrial vertebrates. It appears that many birds use the river flood channel as a movement corridor, for flocks of birds frequently follow far up or far down along the channel, and migrant birds frequently enter or leave the riparian areas and ponds at dawn and dusk. Similarly, it is likely that this area provides valuable linkage for gene flow among less mobile species, including plants and invertebrates. While this area also

provides such functions for disease organisms and invading, nonnative species, the fact that it is an existing, natural corridor suggests that it probably provides a net benefit for the resources present in this regard (Simberloff and Cox 1987, Simberloff et al. 1992).

A number of invasive, terrestrial animal species with adverse effects on native fauna are established within in this area. These invasive species include Argentine ant (*Linepithema humile*), crayfish (*Procambarus* species), bullfrog (*Rana catesbeiana*), slider (*Trachemys scripta*, also known as *Pseudemys scripta*), and feral pig (*Sus scrofa*) (Zembal and Kramer 1985).

Fishes

At least nine native fishes have been documented from non-estuarine portions of the Santa Ana River (Swift et al. 1993, Moyle 2002). This portion of the Santa Ana River currently supports either two or three native fishes, specifically Santa Ana sucker, arroyo chub, and possibly the not-yet-formally described Santa Ana subspecies of speckled dace.

The bulk of the Santa Ana sucker population in the Santa Ana River occurs from the Rialto Drain tributary in the Colton, downstream to approximately 2,000 feet below Mission Avenue in the City. Smaller numbers are present downstream, in and beyond in this area, to a short distance below Imperial Highway in Orange County. Historic upper Santa Ana River populations in Fish and Santiago Canyons and Cajon and City Creeks are extirpated (Swift et al. 1993, San Marino Environmental Associates. 2003, Moyle 2002).

While arroyo chub remains common in some other drainages (e.g., upper Santa Margarita River), it is now an uncommon fish or "scarce" (Swift et al. 1993) in the Santa Ana River. The chub occurs roughly from the City of Riverside into upper Orange County, below Prado Dam, thus including all of this area (Swift et al. 1993, Moyle et al. 1995).

Santa Ana speckled dace has been recorded once in recent times within this area or very close, but its current status is unknown (DFG 2004).

More than 30 nonnative fishes are documented to have been introduced into the Santa Ana River (Swift et al. 1993). Nonnatives known or potentially well established within in this area include threadfin shad, common carp, brown bullhead, western mosquitofish, bluegill, green sunfish, and largemouth bass. Introductions continue because of fishermen discarding bait and both accidental and intentional releases by aquaculturists and pet owners.

Existing and Proposed Conservation Areas

This section describes existing and proposed conservation areas in or near the project area, together with the relevant provisions of approved conservation programs for those areas. The information is organized into four subsections:

- existing reserves,
- WRC MSHCP,
- SKR HCP, and
- additional information about conservation areas along the Santa Ana River.

Existing Reserves

The following existing reserves are located in or near the project area. (Also see "Additional Information Regarding Conservation Areas along the Santa Ana River" below.)

Box Springs Mountain Reserve

Box Springs Mountain Reserve includes 1,155 acres located east of I-215 and SR-60, near the San Bernardino County line. This open space area abuts the University of California, Riverside campus, and the western segment of Riverside. The reserve is owned and managed by the Riverside County Parks and Open Space District. The reserve is characterized by sage-scrub-dominated hillsides intermixed with rock outcrops, with chaparral hillsides and grasslands on the eastern side. Permitted uses on the reserve include equestrian and hiking. The reserve is patrolled by Riverside County personnel.

Box Springs Reserve

The 160-acre Box Springs Reserve is located about 4 miles east of Riverside. The reserve, established in 1965, is under lease from the U.S. Bureau of Land Management and is part of the University of California Natural Reserve System owned by the University of California Regents and funded by the University of California, Riverside. Box Springs Reserve is located on steeply sloped, rugged granitic terrain in the northern part of the WRC MSHCP plan area. The site contains sage scrub and chamise chaparral natural community types. The Riversidian sage scrub is disturbed due to frequent human-caused fires and off-road vehicles. A spring on adjacent property gives rise to freshwater seeps and an intermittent stream. There are currently no monitoring programs and few land management activities occurring at Box Springs Reserve.

Sycamore Canyon Wilderness Park

The Sycamore Canyon Wilderness Park includes approximately 1,550 acres and is located east of Canyon Crest Drive, south of Central Avenue, west of I-215, and north of Alessandro Boulevard. Sycamore Canyon forms the main landmark within the park. It is one of the core reserves established under the SKR HCP. About 100 acres of the park are owned by the California State Wildlife Conservation Board. This parcel is referred to as the Sycamore Canyon Ecological Reserve. The reserve consists of a mixture of sage scrub and grassland communities. A portion of the park has riparian vegetation associated with Sycamore Canyon. Tequesquite Arroyo is a drainage west of the reserve. Water within Sycamore Canyon and Tequesquite Arroyo drain into the Santa Ana River. The City of Riverside Parks and Recreation Department owns and manages the park/Stephens' kangaroo rat core reserve.

March Air Reserve Base

March Air Reserve Base is located between Moreno Valley, Perris, and Riverside and straddles I-215. Approximately 1,178 acres of open space largely in the northwest portion of the base have been dedicated as reserve land and transferred to the March Joint Powers Authority. The reserve area is primarily grassland intermixed with riparian systems and, in conjunction with Sycamore Canyon, was identified as a core reserve under the SKR HCP. The Center for Natural Lands Management has managed this conservation area, focusing on Stephens' kangaroo rat monitoring and the elimination of nonnative invasive grasses. With the acquisition of Stephens' kangaroo rat habitat and other open space in Potrero Valley, the reserve lands for the March Air Reserve Base will be released from conservation. This transfer was anticipated in the SKR HCP and also is consistent with the WRC MSHCP.

Lake Mathews/Estelle Mountain Reserve

The Lake Mathews/Estelle Mountain Reserve includes more than 12,000 acres and is one of the core reserves established under the SKR HCP. It is located east of Interstate 15 (I-15) near Lake Mathews in northwestern Riverside County. The reserve consists of the State Ecological Reserve at Lake Mathews, a mitigation bank established under the Lake Mathews Multiple Species Habitat Conservation Plan/Natural Communities Conservation Plan, lands acquired by the RCHCA under the SKR HCP, the Estelle Mountain Ecological Reserve, and BLM lands. There are several private inholdings within and adjacent to the reserve that are being considered for addition to the management area. Agreements have been made with Riverside County Waste Management for future contribution of an additional 286 acres to the reserve as a result of impacts incurred at the El Sobrante Landfill.

In the vicinity of the southern shore of Lake Mathews, the reserve largely consists of grassland and sage scrub communities. Several areas drain into Lake Mathews from the surrounding hills and consist of riparian vegetation types. The

western portion of the reserve is characterized by steeply sloping hillsides dominated by sage scrub vegetation. The eastern slopes of the reserve consist of a mixture of sage scrub, chaparral, and grassland communities. The southern portions of the reserve are dominated by a mixture of grassland and sage scrub vegetation, with some agricultural land. The landscape is dotted with areas of woodland and forest as well as tributaries and drainages to Cajalco Creek and the Temescal Wash. Aside from Cajalco Road, La Sierra Avenue, and Mockingbird Canyon Road, the reserve is devoid of major arterial circulation routes. Therefore, this reserve is one of the largest blocks of contiguous open space within western Riverside County.

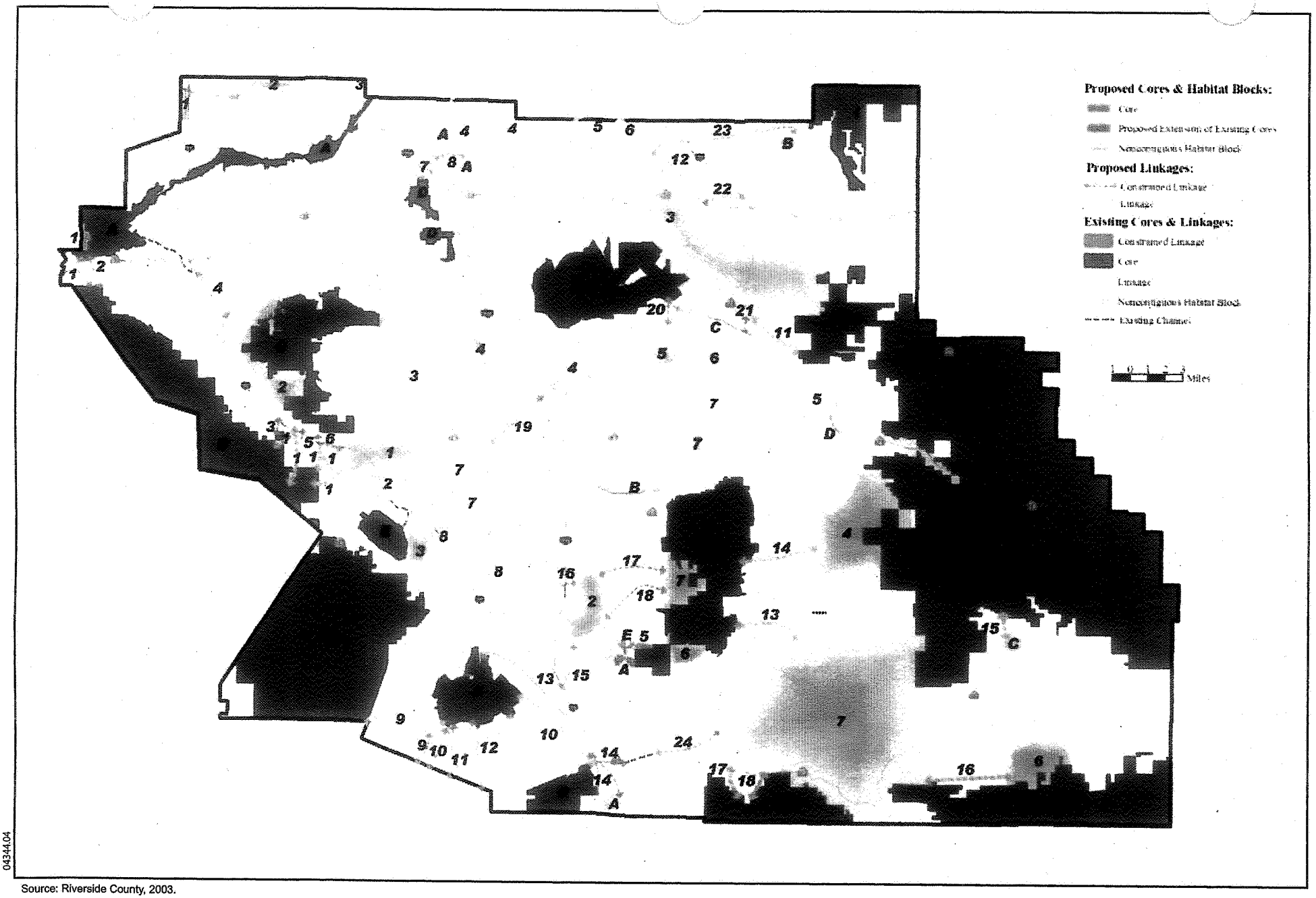
A reserve management committee has been formed to develop management directives for the reserve management team. The management team is responsible for day-to-day maintenance, patrolling, scientific research, and development of management proposals for review by the reserve management committee. In addition to Lake Mathews/Estelle Mountain Reserve management, the reserve manager is involved with corresponding policy development and management of other reserve areas throughout western Riverside County. Management activities take place on about 50 percent of the reserve. The reserve is not open to public for recreational uses but is subject to grazing, illegal dumping, and off-road vehicles. Management of the reserve focuses largely on Stephens' kangaroo rat and coastal California gnatcatcher.

Harford Springs Reserve

Harford Springs Reserve is located south of the eastern portion of Lake Mathews/Estelle Mountain Reserve. This 325-acre park is located within the Gavilan Hills and is owned and maintained by the County of Riverside Parks and Open Space District. Harford Springs Reserve consists of a mixture of chaparral, sage scrub, grassland, woodland, and forest communities. It is largely undeveloped and is managed for equestrian use as well as hiking and wildlife viewing. Day uses such as picnicking and hiking are permitted; overnight camping is not permitted.

WRC MSHCP

This subsection describes existing and proposed levels of conservation under the WRC MSHCP in or near the project area. Existing and proposed levels of conservation are based on conservation targets and biological considerations and issues identified in the WRC MSHCP for the four area plans that include the project area: Riverside/Norco, Lake Mathews/Woodcrest, Jurupa, and Highgrove. Figure 3B-3 shows existing and proposed conservation areas in the entire WRC MSHCP plan area. Table 3B-4 indicates existing levels of conservation and proposed target acres of additional conservation by area plan. Since approval of the plan in June 2004, 31,078 acres have been added to the reserve system: 13,941 acres purchased by the Regional Conservation Agency or its members, 10,355 acres added by state agencies, 5,385 acres added by federal



04344.04

Source: Riverside County, 2003.

Jones & Stokes

Figure 3B-3
MSHCP Schematic Cores and Linkages
(Existing and Proposed Conservation Area)

agencies, and 1,397 acres conserved by various other means (see Figure 3B-1B for distribution).

Table 3B-4. Existing Levels of Conservation and Proposed Targets for Additional Conservation in the WRC MSHCP Plan Area by Area Plan (in acres)*

Area Plan	Existing Levels of Conservation as of June 2004 (acres)*	Additional Conservation Target** (acres)
Riverside/Norco	3,375	90–240
Santa Ana River South		75–200
Sycamore Canyon West		15–40
Lake Mathews/Woodcrest	13,480	3,215–5,470
Lake Mathews East		1,140–1,680
Dawson Canyon		815–1,090
Gavilan Hills West		1,175–2,475
Good Hope West		85–225
Jurupa	3,340	890–1,870
Santa Ana River North		135–245
Jurupa Mountains		445–1,055
Delhi Sands Area		310–570
Highgrove	1,105	345–675
Sycamore Canyon/Box Springs Central		95–180
Springbrook Wash North		250–495
Eastvale	895	145–290
Elsinore	54,800	11,700–18,515
Harvest Valley/Winchester	5,890	430–605
Lakeview/Nuevo	740	6,650–10,235
March Air Reserve Base	1,178***	None***
Mead Valley	3,095	1,885–3,635
Reche Canyon/Badlands	20,295	10,520–15,610
Riverside Extended Mountain (REMAP)	150,915	41,400–58,470
San Jacinto	11,540	11,540–19,465
Sun City/Menifee Valley	425	1,120–1,585
Southwest	35,795	22,500–36,360
Temescal Canyon	26,070	3,485–5,800
The Pass	13,970	8,540–13,925

Area Plan	Existing Levels of Conservation as of June 2004 (acres)*	Additional Conservation Target** (acres)

Note

* Since June 2004, 31,078 acres have been added to the reserve system: 13,941 acres purchased by the Regional Conservation Agency or its members, 10,355 acres added by state agencies, 5,385 acres added by federal agencies, and 1,397 acres conserved by various other means (see Figure 3B-1B for distribution).

**The proposed targets for additional conservation are the conservation goals for the agencies implementing the WRC MSHCP and will be attained through a variety of measures.

***Under the SKR HCP, the conserved habitat at the March Air Reserve Base is being traded for conserved lands in Potrero Valley.

Source: Riverside County 2003b (Section 3.0 of Volume I); Regional Conservation Agency website, Habitat Conservation Summary as of Augusts 24, 2006.

Terminology

In the WRC MSHCP, a specific terminology is used regarding existing and proposed levels of conservation, species covered by the plan, and actions to implement the plan. Definitions of key terms used in the WRC MSHCP are provided below (also see Table 3B-2).

- **Additional Reserve Lands.** Conserved habitat totaling approximately 153,000 acres that is needed to meet the goals and objectives of the WRC MSHCP.
- **Area Plan Subunit.** A portion of an Area Plan for which biological issues and considerations and target acreages have been specified in Section 3.3 of the WRC MSHCP, Volume I.
- **Biological Issues and Considerations.** A list of biological factors to be used by the plan participants in assembly of the WRC MSHCP conservation area. Biological issues and considerations are identified for each area plan subunit in Section 3.3 of the WRC MSHCP, Volume I.
- **Conserved Habitat.** Land that is permanently protected and managed in its natural state for the benefit of the covered species under legal arrangements that prevent its conversion to other land uses and the institutional arrangements that provide for its ongoing management.
- **Core Area.** A block of habitat of appropriate size, configuration, and vegetation characteristics to generally support the life history requirements of one or more covered species.
- **Covered Species.** The current 146 species within the WRC MSHCP plan area that will be conserved by the WRC MSHCP when it is implemented.
- **Linkage.** A connection between core areas with adequate size, configuration, and vegetation to generally provide for "live-in" habitat and/or provide for genetic flow for identified planning species.

- **Narrow Endemic Plant Species.** Plant species which are highly restricted by their habitat affinities, edaphic requirements, or other ecological factors, and for which specific conservation measures have been identified in Section 6.1.3 of the WRC MSHCP, Volume I.
- **Non-Contiguous Habitat Block.** A block of habitat not connected to other habitat via a linkage or constrained linkage.
- **Planning Species.** Subsets of covered species that are identified to provide guidance for the assembly of reserves in cores and linkages and/or area plans.
- **Public/Quasi-Public Lands.** Subset of WRC MSHCP conservation area totaling about 347,000 acres of land known to be in public/private ownership and expected to be managed for open space value and/or in a manner that contributes to the conservation of covered species.

Riverside/Norco Area Plan

The Riverside/Norco Area Plan includes approximately 3,375 acres of conserved or otherwise protected habitat. As shown in Figure 3B-4, the existing conserved habitat is concentrated along the Santa Ana River and in Sycamore Canyon Wilderness Park. Under the WRC MSHCP, the goal is to conserve an additional 90 to 240 acres in the Riverside/Norco Area Plan, with approximately 75 to 200 acres added along the Santa Ana River and 15 to 40 acres added to Sycamore Canyon Park. Of the 90 to 240 additional acres, approximately 60 to 140 acres would be in Norco, and 55 to 125 acres would be in Riverside. Between June 2004 and August 24, 2006, no additional lands have been conserved under the MSHCP in this Area Plan.

Planning species and the biological issues and considerations identified in the WRC MSHCP for the Riverside/Norco Area Plan are listed in Table 3B-5. Additional detail is provided in Section 3.3.17 of the WRC MSHCP, Volume I.

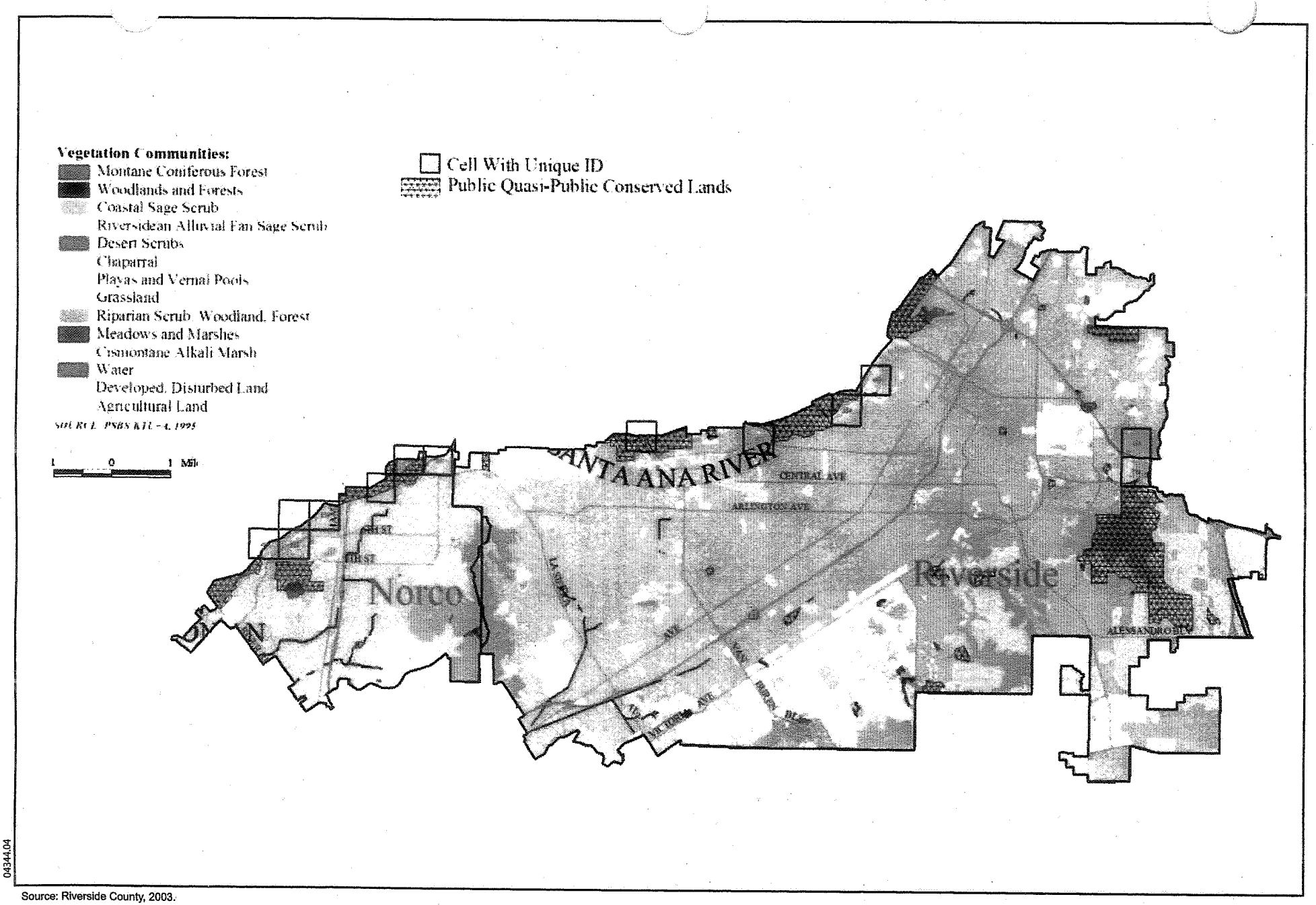
Table 3B-5. Biological Issues and Considerations and Planning Species for the Riverside/Norco Area Plan

Subunit	Planning Species	Biological Issues and Considerations
Santa Ana River South	▪ Santa Ana River woollystar ▪ Arroyo chub ▪ Santa Ana sucker ▪ Western pond turtle ▪ Black-crowned night-heron ▪ Burrowing owl ▪ Cooper's hawk ▪ Double-crested cormorant ▪ Downy woodpecker ▪ Least Bell's vireo ▪ Loggerhead shrike ▪ Osprey ▪ Peregrine falcon ▪ Southwestern willow flycatcher ▪ Tree swallow ▪ Western yellow-billed cuckoo ▪ White-faced ibis ▪ White-tailed kite ▪ Yellow-breasted chat ▪ Yellow warbler ▪ Bobcat	▪ Conserve existing wetlands ▪ Conserve alluvial fan sage scrub to support key populations of Santa Ana River woolly-star ▪ Conserve habitat for least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo ▪ Provide for and maintain a linkage along the Santa Ana River from the east boundary of Riverside to the Prado Basin ▪ Conserve foraging and breeding habitat in adjacent grasslands to support special status bird species such as burrowing owl and loggerhead shrike ▪ Maintain core and linkage habitat for bobcat ▪ Maintain core area for western pond turtle ▪ Maintain habitat for arroyo chub and Santa Ana sucker
Sycamore Canyon West	▪ Bell's sage sparrow ▪ Loggerhead shrike ▪ Southern California rufous-crowned sparrow ▪ Bobcat	▪ Augment conservation in Sycamore Canyon/Box Canyon unit of Highgrove Area Plan ▪ Conservation grasslands adjacent to sage scrub for foraging habitat for raptors ▪ Maintain linkage area for bobcat ▪ Conserve upland habitat supporting Bell's sage sparrow and Southern California rufous-crowned sparrow

Source: Riverside County 2003b (Section 3.3.17 of Volume I)

Lake Mathews/Woodcrest Area Plan

The Lake Mathews/Woodcrest Area Plan includes approximately 13,480 acres of conserved or otherwise protected habitat. As shown in Figure 3B-5, the existing conserved habitat is concentrated in the vicinity of Lake Mathews and Estelle Mountain, Dawson Canyon, Gavilan Hills, and Good Hope. Existing reserves include those at Lake Mathews, Estelle Mountain, Steele Peak, and North Peak. U.S. Bureau of Land Management parcels in the area also have protected habitat. Under the WRC MSHCP, the goal is to conserve an additional 3,215 to 5,470 acres in this area plan: 1,140 to 1,680 acres in the vicinity of Lake Mathews, 815

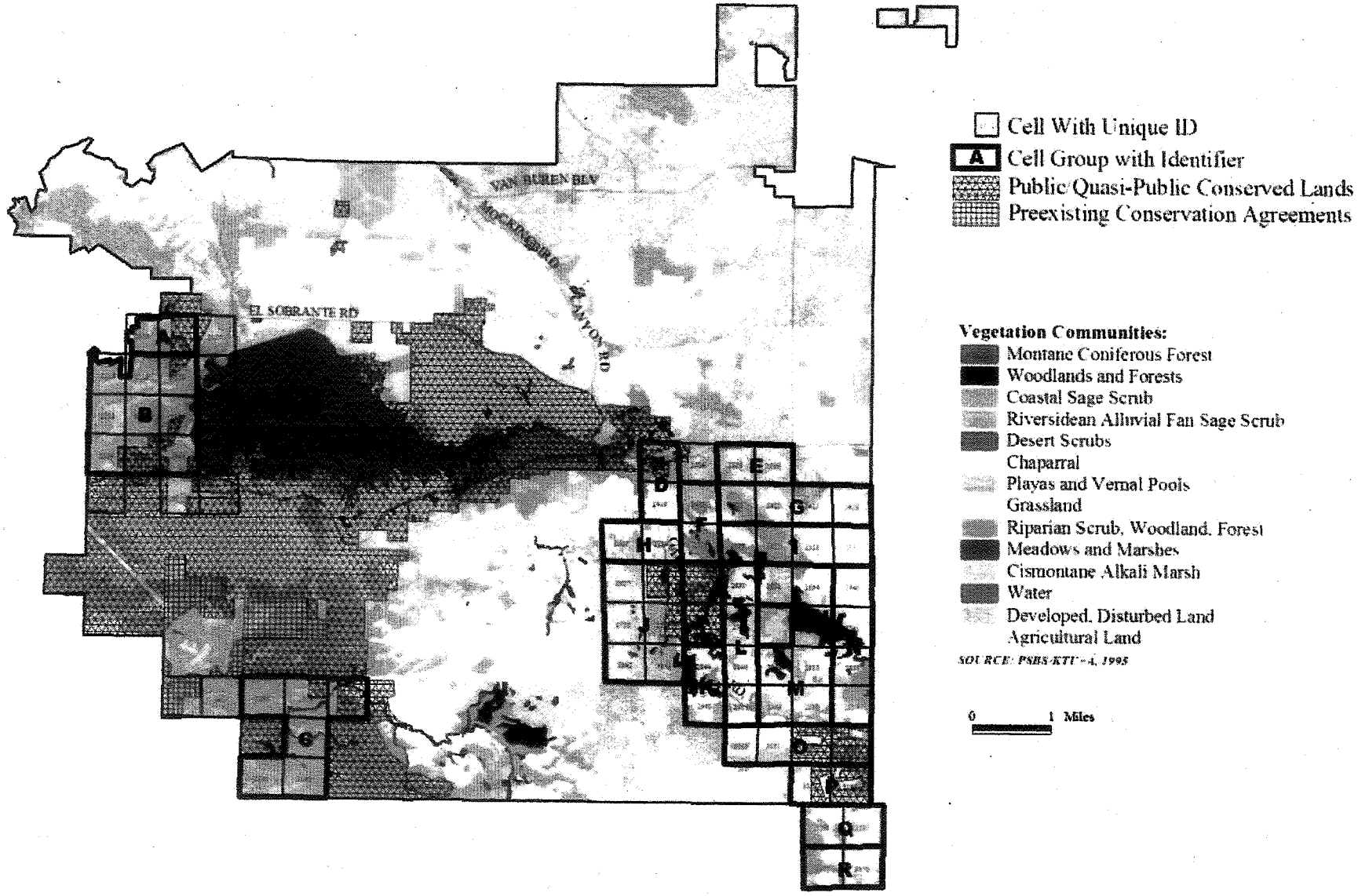


04344.04

Source: Riverside County, 2003.

Jones & Stokes

Figure 3B-4
Cities of Riverside and Norco with Vegetation, Cells, and Cell Groups Keyed to MSHCP Criteria



04344.04

Source: Riverside County, 2003.

Jones & Stokes

Figure 3B-5
Lake Mathews/Woodcrest Area Plan with Vegetation, Cells, and Cell Groups Keyed to MSHCP Criteria

to 1,090 near Dawson Canyon, 1,175 to 2,475 acres in Gavilan Hills, and 85 to 225 acres near Good Hope. Between June 2004 and August 24, 2006, no additional lands have been conserved under the MSHCP in this Area Plan.

Planning species and the biological issues and considerations identified in the WRC MSHCP for the Lake Mathews/Woodcrest Area Plan are listed in Table 3B-6. Additional detail is provided in Section 3.3.7 of the WRC MSHCP, Volume I.

Table 3B-6. Planning Species and Biological Issues and Considerations for the Lake Mathews/Woodcrest Area Plan

Subunit	Planning Species	Biological Issues and Considerations
Lake Mathews East	▪ Long-spined spine flower ▪ Palmer's grapplinghook ▪ Small-flowered microseris ▪ Small-flowered morning-glory ▪ Quino checkerspot butterfly ▪ Western pond turtle ▪ Bell's sage sparrow ▪ Burrowing owl ▪ Cactus wren ▪ Coastal California gnatcatcher ▪ Grasshopper sparrow ▪ Loggerhead shrike ▪ Northern harrier ▪ Southern California rufous-crowned sparrow ▪ White-tailed kite ▪ Bobcat ▪ Mountain lion ▪ Stephens' kangaroo rat	▪ Conserve clay soils supporting long-spined spineflower ▪ Conserve existing intact upland habitat in the La Sierra Hills augmenting Lake Mathews/Estelle Mountain Reserve ▪ Provide for and maintain a connection from eastern edge of Temescal Wash to existing Lake Mathews/Estelle Mountain Reserve ▪ Conserve clay soils supporting special status plant species known to occur in the area plan ▪ Conserve existing wetlands along Cajalco Wash ▪ Conserve existing populations of Bell's sage sparrow and coastal California gnatcatcher ▪ Maintain core areas for bobcat, mountain lion, and Stephens' kangaroo rat ▪ Maintain core and linkage habitat for western pond turtle ▪ Maintain opportunities for core and linkage habitat for Quino checkerspot butterfly.
Dawson Canyon	▪ Bell's sage sparrow ▪ Coastal California gnatcatcher ▪ Cooper's hawk ▪ White-tailed kite ▪ Yellow-breasted chat ▪ Yellow warbler ▪ Bobcat ▪ Mountain lion ▪ Stephens' kangaroo rat	▪ Conserve existing upland habitat in Dawson Canyon area augmenting the existing Estelle Mountain Reserve ▪ Conserve existing populations of coastal California gnatcatcher and Bell's sage sparrow ▪ Maintain core areas for bobcat and Stephen's kangaroo rat ▪ Maintain linkage area for mountain lion

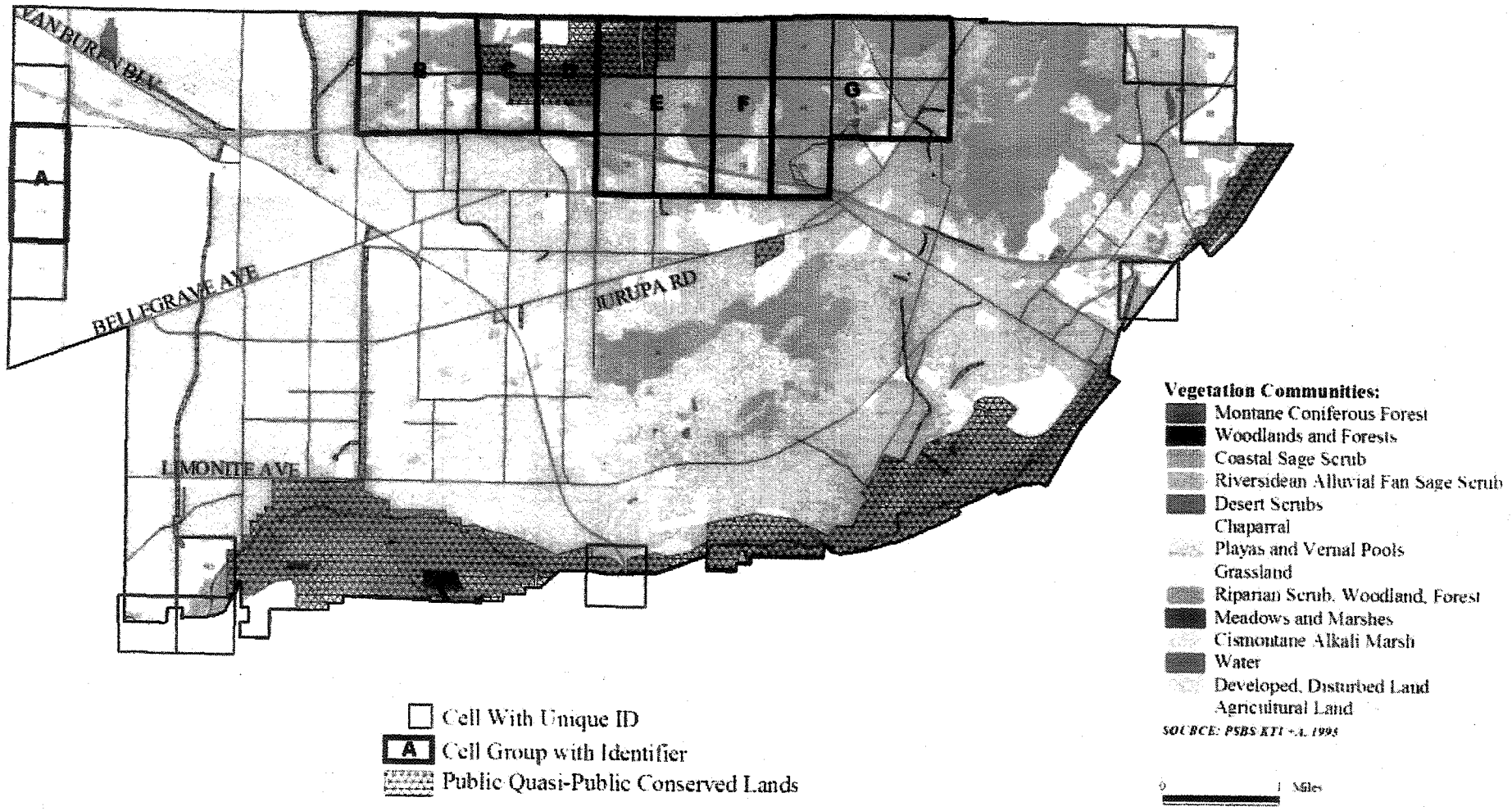
Subunit	Planning Species	Biological Issues and Considerations
Gavilan Hills West	▪ Long-spined spine flower ▪ Many-stemmed dudleya ▪ Munz's onion ▪ Palmer's grapplinghook ▪ Small-flowered microseris ▪ Small-flowered morning-glory ▪ Quino checkerspot butterfly ▪ Bell's sage sparrow ▪ Bobcat ▪ Stephens' kangaroo rat	▪ Conserve upland habitat to form connections between Hartford Springs Reserve, Steele Peak Reserve, and U.S. Bureau of Land Management parcels in area ▪ Conserve clay soils supporting special status plant species known to occur in the subunit ▪ Conserve existing populations of Bell's sage sparrow ▪ Provide opportunities for reintroduction of Quino checkerspot butterfly ▪ Maintain linkage areas for bobcat and Stephen's kangaroo rat
Good Hope West	▪ Quino checkerspot butterfly ▪ Bell's sage sparrow ▪ Bobcat ▪ Stephens' kangaroo rat	▪ Conserve upland habitat to form connections between North Peak Reserve, Steele Peak Reserve, and U.S. Bureau of Land Management parcels in the area ▪ Conserve existing populations of Bell's sage sparrow ▪ Conserve existing wetlands with a focus on conservation of existing riparian woodland, coastal sage scrub, alluvial fan scrub, and open water habitats ▪ Maintain core and linkage habitat for bobcat ▪ Maintain linkage area for Stephens' kangaroo rat ▪ Maintain opportunities for core and linkage habitat for Quino checkerspot butterfly

Source: Riverside County 2003b (Section 3.3.7 of Volume I).

Jurupa Area Plan

The Jurupa Area Plan includes approximately 3,340 acres of conserved or otherwise protected habitat. As shown in Figure 3B-6, the existing conserved habitat is concentrated along the Santa Ana River, in the Jurupa Mountains, and in areas with Delhi Sands. Under the WRC MSHCP, the goal is to conserve an additional 890 to 1,870 acres in the Jurupa Area Plan: 135 to 245 acres along the Santa Ana River, 445 to 1,055 acres in the Jurupa Mountains, and 220 acres of Delhi Sands. Between June 2004 and August 24, 2006, no additional lands have been conserved under the MSHCP in this Area Plan.

Planning species and the biological issues and considerations identified in the WRC MSHCP for the Jurupa Area Plan are listed in Table 3B-7. Additional detail is provided in Section 3.3.6 and Table 9-2 of the WRC MSHCP, Volume I.

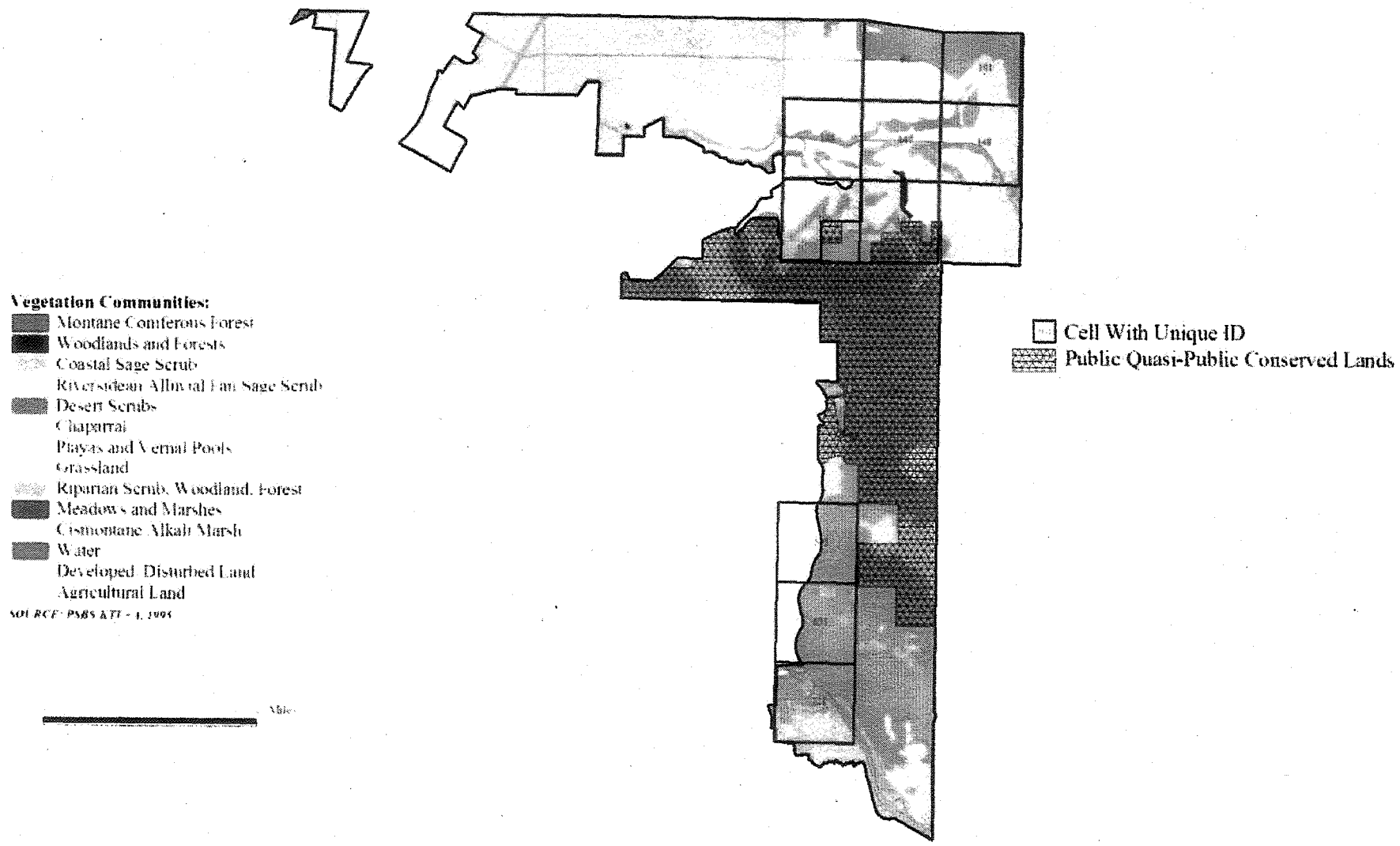


04344.04

Source: Riverside County, 2003.

Jones & Stokes

Figure 3B-6
Jurupa Area Plan with Vegetation, Cells, and Cell Groups Keyed to MSHCP Criteria



04344.04

Source: Riverside County, 2003.

Jones & Stokes

Figure 3B-7
Highgrove Area Plan with Vegetation, Cells, and Cell Groups Keyed to MSHCP Criteria

Table 3B-7. Planning Species and Biological Issues and Considerations for the Jurupa Area Plan

Subunit	Planning Species	Biological Issues and Considerations
Santa Ana River North	▪ Arroyo chub ▪ Santa Ana sucker ▪ Western pond turtle ▪ Black-crowned night-heron ▪ Cooper's hawk ▪ Double-crested cormorant ▪ Least Bell's vireo ▪ Loggerhead shrike ▪ Osprey ▪ Peregrine falcon ▪ Southwestern willow flycatcher ▪ Tree swallow ▪ Western yellow-billed cuckoo ▪ White-faced ibis ▪ White-tailed kite ▪ Bobcat	▪ Conserve existing wetlands along the Santa Ana River, with focus on conserving existing habitats in the river ▪ Conserve known populations of least Bell's vireo and southwestern willow flycatcher along the river ▪ Maintain continuous linkage along the river from northern to western boundary of the area plan ▪ Maintain core and linkage habitat for bobcat ▪ Maintain core area for western pond turtle
Jurupa Mountains	▪ Delhi Sands flower-loving fly ▪ Bell's sage sparrow ▪ Coastal California gnatcatcher ▪ Loggerhead shrike ▪ Southern California rufous-crowned sparrow ▪ Bobcat ▪ Los Angeles pocket mouse ▪ San Bernardino kangaroo rat	▪ Conserve large intact habitat blocks of coastal sage scrub, chaparral, and grasslands to support known locations of coastal California gnatcatcher ▪ Conserve grasslands adjacent to sage scrub as foraging habitat for raptors ▪ Determine presence of potential core area for bobcat ▪ Determine presence of potential small key population for San Bernardino kangaroo rat in Jurupa Hills ▪ Determine presence of potential localities for Los Angeles pocket mouse in sandy washed and dune areas ▪ Maintain core and linkage habitat for Delhi Sands flower-loving fly
Delhi Sands	▪ Delhi Sands flower-loving fly ▪ Los Angeles pocket mouse	▪ Conserve Delhi soils series occurring within agricultural lands along western and northeastern boundary of the area plan to support known locations of Delhi Sands flower-loving fly ▪ Determine presence of potential localities for Los Angeles pocket mouse in sandy washes and dune areas ▪ Maintain core and linkage habitat for Delhi Sands flower-loving fly

Source: Riverside County 2003b (Section 3.3.6 and Table 9-2 of Volume I).

Highgrove Area Plan

The Highgrove Area Plan includes approximately 1,105 acres of conserved or otherwise protected habitat. As shown in Figure 3B-7, the existing conserved habitat includes portions of Sycamore Canyon Wilderness Park and Box Springs Reserve. Under the WRC MSHCP, the goal is to conserve an additional 345 to

675 acres in this area plan: 95 to 180 acres connected to Sycamore Canyon Wilderness Park and the Box Springs Reserve and 250 to 495 acres in Springbrook Wash.

Planning species and the biological issues and considerations identified in the WRC MSHCP for the Highgrove Area Plan are listed in Table 3B-8. Additional detail is provided in Section 3.3.5 of the WRC MSHCP Volume I.

Table 3B-8. Planning Species and Biological Issues and Considerations for Highgrove Area Plan

Subunit	Planning Species	Biological Issues and Considerations
Sycamore Canyon/Box Springs Central	▪ Bell's sage sparrow ▪ Cactus wren ▪ Bobcat	▪ Provide a contiguous linkage incorporating upland and wetland habitats, connecting the Box Springs and Sycamore Canyon reserves ▪ Maintain linkage area for bobcat
Springbrook Wash North	▪ Coastal California gnatcatcher ▪ Bobcat ▪ Mountain lion	▪ Maintain contiguous linkage through Springbrook Wash from Box Springs reserve to Santa Ana River ▪ Maintain habitat connectivity with Springbrook Wash to facilitate conservation and distribution of wetland species ▪ Conserve large blocks of interconnected coastal sage scrub habitat in order to connect coastal California gnatcatcher populations within Riverside County with those at Blue Mountain in San Bernardino County ▪ Maintain large blocks of interconnected habitat including grassland and coastal sage scrub for raptor foraging habitat ▪ Maintain connection with Badlands to east for bobcat and mountain lion.

Source: Riverside County 2003b (Section 3.3.5 of Volume I).

SKR HCP

The plan area for the SKR HCP is located entirely within the WRC MSHCP plan area.

Approved in 1996, the SKR HCP addresses the loss of 15,000 acres and the conservation of 15,000 acres of Stephen's kangaroo rat habitat within a 533,954-acre plan area. The habitat conservation plan is being implemented by eight

jurisdictions in western Riverside County who comprise the Riverside County Habitat Conservation Agency. The 10(a) permit issued on approval of the habitat conservation plan covers incidental take of Stephen's kangaroo rat associated with residential, commercial, and industrial development; property improvements; ongoing agricultural operations; and public facilities, services, and utilities. The conservation goal (15,000 acres) has been accomplished through a series of acquisitions and land exchanges. As under the WRC MSHCP, the additional conservation was planned to build on existing blocks of protected habitat. Moreover, the reserves established under the SKR HCP account for most of the existing core areas in the WRC MSHCP plan area.

The SKR HCP established seven core reserves: Lake Mathews/Estelle Mountain, Diamond Valley Lake/Lake Skinner, Steel Peak, Lake Perris/San Jacinto Wildlife Area, Motte Rimrock Reserve, March Air Reserve Base/Sycamore Canyon, and Potrero Area of Critical Environmental Concern. The SKR HCP will continue to be implemented independently of the WRC MSHCP. However, the Stephen's kangaroo rat core reserves will be managed as part of the WRC MSHCP conservation area. This arrangement is consistent with the SKR HCP and other management agreements for the existing reserves. Further, conserved lands on March Air Base Reserve are being traded for conserved habitat in Potrero Valley on lands recently acquired by DFG. The Potrero Valley lands are outside the plan area for the SKR HCP but within the WRC MSHCP plan area and have multiple species values.

Additional Information About Conservation Areas Along the Santa Ana River

This section provides additional information about conserved or otherwise protected lands along the Santa Ana River in or near the project area.

Santa Ana Regional Park

Santa Ana Regional Park refers to the parks, wildlife areas, and other open-space areas along the portion of the Santa Ana River located in the northwestern section of Riverside County. Santa Ana Regional Park is under the jurisdiction of several landowners, including Riverside County Regional Parks and Open Space Districts, DFG, the City, and Riverside County Flood Control District. The park includes the Riverside County-owned 1,300-acre Hidden Valley Wildlife Area, the 40-acre Martha McLean-Anza Narrows Park, Santa Ana River Wildlife Area, and the 350-acre Rancho Jurupa Park. DFG owns a small portion of the river channel within Hidden Valley Wildlife Area. The areas that make up the park are situated alongside the Santa Ana River and support primarily riparian vegetation and disturbed grasslands.

Management of the parks within the Santa Ana Regional Park varies according to the presiding agency. County parks are managed for recreation and open space conservation purposes. All county parks permit biking, hiking, equestrian use,

and camping. Martha McLean-Anza Narrows Park and Rancho Jurupa Park have improved campsites, and the latter has accommodations for recreational vehicles. There are no camping facilities at Hidden Valley Wildlife Area. Management of Hidden Valley Wildlife Area emphasizes wildlife habitat conservation and enhancement. (The RWQCP wetland ponds were established in this area.) There are efforts underway to improve wildlife habitat value in the riparian areas by removing giant reed.

Prado Basin

Prado Basin is located northwest of Corona within the upper Santa Ana River watershed. It supports riparian vegetation and disturbed grasslands. Most of the basin is in federal ownership; however, portions are owned by Riverside County and private landowners. It is generally managed for recreation and flood control/water quality purposes. The Corps maintains and operates their facilities at the Prado Dam and within the 4,000-acre Prado Flood Control Basin. Riverside County owns the 1,837-acre Prado Basin Park and leases 110 acres to a private entity for various events. OCWD owns about 2,400 acres within Prado Basin that it manages as a flood control basin. These lands include about 465 acres of constructed wetland and 300 acres of wetland mitigation. The Santa Ana Watershed Protection Authority also operates in the basin and is examining ways to develop information and analytical tools to define water-related resource problems and opportunities within the Upper Santa Ana River watershed. This proposed study may affect future management practices in the Prado Basin.

Chino Hills State Park

Chino Hills State Park is located within Orange, San Bernardino, and Riverside Counties and is managed by the California Department of Parks and Recreation. The southeastern tip is in western Riverside County, north of SR-91 and west of State Route 71 (SR-71). Chino Hills State Park includes approximately 13,000 acres, of which 350 acres are within Riverside County. The park permits hiking, biking, horseback riding, picnicking, and camping on site. The park is characterized by valleys, canyons, hills, and steep slopes. The two principal drainage areas are Telegraph Canyon and Aliso Canyon. The dominant vegetation type in the park is nonnative annual grassland. However, walnut woodlands, sage scrub, coast live oak woodland, sycamore woodland, chaparral, and riparian scrub also occur. The park is working to restore natural communities affected by livestock grazing, fire suppression, and nonnative species. There are efforts to remove invasive plant species through prescribed burns or manual removal. There are also programs to remove exotic wildlife. Chino Hills depends on interconnections to other open space areas for the exchange of genetic material, dispersal of plants, movement of animals, and as sources for repopulating after a natural catastrophe. Open space linkages for Chino Hills are Coal Canyon, Sonome Canyon, and the Prado Basin area.

Orange County Water District Lands

OCWD owns approximately 2,400 acres behind the Prado Dam in western Riverside County. OCWD lands are part of the Prado Flood Control Basin and consist of nearly 465 acres of constructed wetland and a 300-acre wetland mitigation site along the Santa Ana River. The district leases another 130 acres for recreational purposes, and the rest is classified as upland undeveloped land. It has set aside 124 acres of least Bell's vireo habitat and provided funding for a conservation program for this species. The conservation program includes cowbird trapping and removal of giant reed along the Santa Ana River. OCWD funds and maintains its lands. It permits duck hunting within the constructed wetlands and pheasant hunting on adjacent areas. There are also facilities for dog training and a shooting range located adjacent to the wetland areas.

Impacts and Mitigation

This section analyzes the potential for the proposed project to adversely affect biological resources, evaluates whether the effects are significant, and identifies mitigation to reduce impacts to a less-than-significant level. The analysis is organized into five subsections:

- assumptions,
- methodology,
- significance criteria,
- impacts, and
- mitigation for significant impacts.

Cumulative effects of the proposed project are considered in Chapter 4 of this draft PEIR.

Assumptions

Because implementation of the recycled water program in the Master Plan would require site-specific planning and would occur over several years, the following assumptions were made regarding the final planning and phasing of the recycled water system and the duration of the proposed project's effects:

1. The detailed plans for each phase and component of the recycled water system would be prepared in accordance with all relevant provisions of the WRC MSHCP, as well as City and Riverside County requirements.
2. Based on the conceptual design in the Master Plan, the Phase I expansion would serve already developed areas of Riverside and the Jurupa Community Service District. Approximately 47,026 linear feet of core system pipeline, plus an unknown amount of lateral distribution pipeline, would be installed.

No new storage facilities or pumping stations would be needed to implement Phase I. Phase I also could be built as a stand-alone system (i.e., the rest of the core system would not be built).

3. Based on the conceptual design in the Master Plan, the core distribution system would serve already developed and new communities within Riverside, its sphere of influence, and Jurupa Area Plan. Except for Phase I, the phasing of the entire core system is not specified in the master plan. For purposes of this draft PEIR, it is assumed that the system would be built over a 20-year period. Approximately 272,000 linear feet of pipeline (plus an unknown amount of lateral distribution pipeline), three storage facilities, and seven booster pumping stations would be needed for a 21,400-afy-capacity system.

4. The agricultural use system would be designed to deliver up to 21,000 afy of recycled water for wide-scale agricultural use in the project area. The delivery system would likely include a combination of canals and pipelines. For purposes of this draft PEIR, it is assumed that the agricultural use system would connect with the core distribution system for its supply of recycled water.

5. The amount of treated effluent diverted to the recycled water system would increase incrementally over a 20-year period and would reach 41,400 afy (the full amount of the requested appropriation of water rights) by 2025. Under this assumption, the core distribution system and agricultural use system would be completed by 2025 and approximately 41,400 afy of recycled water would be used in the project area. Table 3B-9 presents the projected levels of recycled water diversion/use.

6. The amount of treated effluent discharged into the Santa Ana River would gradually decrease over the same 20-year period but would never drop below 25,000 afy (see Table 3B-9).

7. The permitted wastewater treatment capacity of the RWQCP would need to be increased, and the facility itself would likely require expansion to treat 67,400 afy of wastewater.

8. The final design and implementation of the project components would incorporate the impact avoidance and minimization measures (including best management practices) identified in the WRC MSHCP.

Table 3B-9. Estimated Amount of Recycled Water Diverted and Effluent Discharged from Regional Water Quality Control Plant from 2000 through 2050 (in acre feet per year)

	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Diverted to Recycled Water System	300	2,270	11,000	21,000	31,000	41,400	41,400	41,400	41,400	41,400	41,400
Discharged into Santa Ana River	36,000	39,730	37,000	33,000	29,000	25,000	26,000	26,000	26,000	26,000	26,000
Total RWQCP Effluent	36,300	42,000	48,000	54,000	60,000	66,400	67,400	67,400	67,400	67,400	67,400

Source: Riverside Public Utilities Department 2004.

Methodology

Potential impacts of concern were determined based on issues identified in the initial study, issues raised in responses to the notice of preparation, effects that would trigger mandatory findings of significance as specified in Appendix G of the CEQA Guidelines, and the biological issues and considerations in the WRC MSHCP and SKR HCP that apply to the project area. Four categories of biological impacts were identified:

BIO-IMP-1: **Species Impacts.** Harm to any species identified as a listed, candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by DFG or USFWS.

BIO-IMP-2: **Special Status Communities and Critical Habitat Impacts.** Destruction, degradation, functional impairment, or other adverse modification of terrestrial or aquatic special status communities, and critical habitat for federally listed species.

BIO-IMP-3: **Linkage/Corridor Impacts.** Destruction, fragmentation, or degradation of a wildlife movement corridor or habitat linkage area.

BIO-IMP-4: **Conservation Area/Program Impacts.** Destruction, fragmentation, or degradation of an existing conservation area or an area proposed for conservation under an approved plan or program.

For purposes of the impact analysis, the components of the proposed project were grouped into the following activities:

- **Phase I Expansion.** Construction, operation, and maintenance of the Phase I expansion, with Phase I treated as a stand-alone project.

- **Core Distribution System.** Construction, operation, and maintenance of the core distribution system, including distribution systems outside Riverside.
- **Agricultural Use System.** Construction, operation, and maintenance of the agricultural use system.
- **Use of Recycled Water.** Use of recycled water from the RWQCP within the project area.
- **Diversion/Discharge.** Diversion of treated effluent to the recycled water system and the resulting change in discharge from the RWQCP to the Santa Ana River.
- **Treatment Capacity Expansion.** Expansion of the wastewater treatment capacity of the RWQCP.

All of the above activities are associated with the adoption of the Master Plan by the City and the appropriation of 41,400 afy of Santa Ana River water rights by the State Water Resources Control Board. Each activity is evaluated for its potential to directly or indirectly result in one or more of the impacts of concern. In determining direct and indirect effects, the following considerations were applied. **Direct impacts** are those effects of a project that occur at the same time and place, such as removal of habitat and harm to species due to excavation or grading. **Indirect impacts** are those effects of a project that occur either later in time or at a distance from the project location but are reasonably foreseeable, such as loss of aquatic species from upstream effects on water quality. Direct and indirect impacts can also vary in duration and result in temporary, short-term, and long-term effects on biological resources. A temporary effect would occur only during the activity. A short-term effect would last from the time an activity ceases to some intermediate period of approximately 1 to 5 years (i.e., repopulation of habitat following restoration). A long-term or permanent effect would last longer than 5 years after an activity ceases. Long-term effects may be the result of ongoing maintenance and operation of a project, or may result in a permanent change in the condition of a resource, in which case it could be considered a permanent effect.

Significance Criteria

Significance criteria for the analysis were established based on a combination of two considerations:

- Effects on biological resources that would trigger mandatory findings of significance as specified in Appendix G of the State CEQA Guidelines, and
- Effects on biological resources that would be inconsistent with the terms and conditions of two approved conservation programs that cover the project area – the WRC MSHCP and SKR HCP.

The CEQA mandatory finding of significance applies if the project has the potential to:

- substantially reduce the habitat of a fish or wildlife species,
- cause a fish or wildlife population to drop below self-sustaining levels,
- threaten to eliminate a plant or animal community, and/or
- substantially reduce the number or restrict the range of an endangered.

Effects that would be inconsistent with the terms and conditions of the WRC MSHCP or SKR HCP also are considered potentially significant because such effects would interfere with or preclude the implementation of the conservation plans that cover potentially affected habitats and species in the project area. Implementation of the WRC MSHCP and SKR HCP is the means for avoiding, reducing, and mitigating potentially significant effects of the proposed project on biological resources. Therefore, potentially significant effects on implementation of the two plans as well as potentially significant effects on species and habitats are the focus of this PEIR.

Further, the WRC MSHCP and SKR HCP are the type of approved conservation plans anticipated in the revised language of Section 15065 of State CEQA Guidelines; i.e., the plans:

- are being implemented by the City and other agencies in the project area;
- have been approved by USFWS and DFG;
- have been analyzed in environmental impact reports, and
- preserve, restore, or enhance sufficient habitat to mitigate a reduction in habitat and number of the affected species to below a level of significance.

By analyzing potentially significant impacts to plan implementation as well as to species and habitat, this PEIR provides a basis for a) future determinations by the City regarding the type and focus of CEQA review as components of the Recycled Water Program are implemented, (b) findings regarding feasibility of alternatives and mitigation measures, and (c) adoption of a statement of overriding considerations.

For purposes of the PEIR, the above considerations are combined into the following significance criteria:

The impact is potentially significant if the project would:

1. have a substantial adverse effect on a listed species, a candidate for state listing, a state fully protected species, or a planning species identified in the WRC MSHCP for the four area plans that include project area;
2. have a substantial adverse effect on a riparian, wetland, other special status community, or proposed or designated critical habitat for a listed species;
3. interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, impede the use of native wildlife nursery sites, or obstruct genetic flow for identified planning species;

4. introduce a land use that would result in substantial adverse modification or degradation of an existing conservation area, substantial edge effects on an existing conservation area, or would preclude the assembly of a proposed conservation area;
5. conflict with the provisions of the WRC MSHCP, SKR HCP, or other approved conservation plan that applies to the project area or adjacent lands; or
6. conflict with any local policies or ordinances protecting biological resources, such as the City's tree preservation policy and ordinance.

Impact Analysis

The biological resources impact analysis is qualitative and programmatic. As components of the proposed project undergo final planning and design, project-level analyses will be conducted. Table 3B-10 summarizes the impacts associated with the proposed project and their level of significance; potentially significant impacts are highlighted in bold. Mitigation measures for significant impacts are identified by number at the end of each impact analysis and described in the "Mitigation" section.

Table 3B-10. Summary List of Impacts and Level of Significance

Impact ID	Type of Impact	Level of Impact
Species Impacts		
BIO-IMP-1A-1	Construction of Phase1	Less than significant
BIO-IMP-1A-2	Operation and maintenance of Phase 1	Less than significant
BIO-IMP-1B-1	**Construction of core distribution system**	**Potentially Significant (less than significant with mitigation incorporated)**
BIO-IMP-1B-2	Maintenance and operation of core distribution system	Less than significant
BIO-IMP-1C-1	**Construction of agricultural use system**	**Potentially Significant (less than significant with mitigation incorporated)**
BIO-IMP-1C-2	Maintenance and operation of agricultural use system	Less than significant
BIO-IMP-1D	Use of recycled water	Less than significant
BIO-IMP-1E	Change in discharge levels	Less than significant
BIO-IMP-1F-1	Addition of wetlands	Less than significant, benefits
BIO-IMP-1F-2	**Facility Expansion/Upgrading**	**Potentially Significant (less than significant with mitigation incorporated)**

Impact ID	Type of Impact	Level of Impact
Habitat Impacts		
BIO-IMP-2A-1	**Construction of Phase1**	**Potentially Significant (Less than significant with mitigation incorporated)**
BIO-IMP-2A-2	Operation and maintenance of Phase 1	Less than significant
BIO-IMP-2B-1	**Construction of core distribution system**	**Potentially Significant (Less than significant with mitigation incorporated)**
BIO-IMP-2B-2	Maintenance and operation of core distribution system	Less than significant
BIO-IMP-2C-1	**Construction of agricultural use system**	**Potentially Significant (Less than significant with mitigation incorporated)**
BIO-IMP-2C-2	Maintenance and operation of agricultural use system	Less than significant
BIO-IMP-2D	Use of recycled water	Less than significant
BIO-IMP-2E	Change in discharge levels	Less than significant
BIO-IMP-2F-1	Addition of wetlands	Less than significant, benefits
BIO-IMP-2F-2	**Facility Expansion/Upgrading**	**Potentially Significant (Less than significant with mitigation incorporated)**
Linkage/Corridor Impacts		
BIO-IMP-3A-1	Construction of Phase1	Less than significant
BIO-IMP-3A-2	Operation and maintenance of Phase 1	Less than significant
BIO-IMP-3B-1	Construction of core distribution system	Less than significant
BIO-IMP-3B-2	Maintenance and operation of core distribution system	Less than significant
BIO-IMP-3C-1	**Construction of agricultural use system**	**Potentially Significant (Less than significant with mitigation incorporated)**
BIO-IMP-3C-2	Maintenance and operation of agricultural use system	Less than significant
BIO-IMP-3D	Use of recycled water	Less than significant
BIO-IMP-3E	Change in discharge levels	Less than significant
BIO-IMP-3F-1	Addition of wetlands	Less than significant, benefits
BIO-IMP-3F-2	**Facility Expansion/Upgrading**	**Potentially Significant (Less than significant with mitigation incorporated)**

Impact ID	Type of Impact	Level of Impact
Conservation Area/Program Impacts		
BIO-IMP-4A-1	Construction of Phase1	Less than significant
BIO-IMP-4A-2	Operation and maintenance of Phase 1	Less than significant
BIO-IMP-4B-1	**Construction of core distribution system**	**Potentially Significant (Less than significant with mitigation incorporated)**
BIO-IMP-4B-2	Maintenance and operation of core distribution system	Less than significant
BIO-IMP-4C-1	**Construction of agricultural use system**	**Potentially Significant (Less than significant with mitigation incorporated)**
BIO-IMP-4C-2	Maintenance and operation of agricultural use system	Less than significant
BIO-IMP-4D	Use of recycled water	Less than significant
BIO-IMP-4E	Change in discharge levels	Less than significant
BIO-IMP-4F-1	Addition of wetlands	Less than significant, benefits
BIO-IMP-4F-2	**Facility Expansion/Upgrading**	**Potentially Significant (Less than significant with mitigation incorporated)**

BIO-IMP-1: Species Impacts

- **Impact Analyzed.** Would the activity directly or indirectly result in harm to any species identified as a listed, candidate, sensitive, or other special status species in local or regional plans, policies, or regulations, or by DFG or USFWS?
- **Significance Criteria.** Would the activity have a substantial adverse effect on a listed species, a candidate for state listing, a state fully protected species, or a planning species identified in the WRC MSHCP for the four area plans that include project area?

BIO-IMP-1A: Phase I Expansion

Construction, operation, and maintenance of the Phase I expansion would occur primarily in already developed areas of Riverside and the Jurupa Community Service District. Species of concern in the area include the listed and unlisted species identified as planning species for the Riverside/Norco and Jurupa Area Plans (see Tables 3B-3, 3B-4, and 3B-6). These include species associated with riparian and riverine areas, together with a limited number of sage scrub, chaparral, and alluvial fan sage scrub species.

BIO-IMP-1A-1: Construction

Because most of the Phase I pipelines would be installed in already developed areas, the risk of direct impacts to these species is limited. However, some direct impacts to species might occur where pipelines cross riparian or wetland areas (where most of the planning species occur) or various open areas (such as parks, golf courses, and agricultural lands) used by upland species and raptors. It is possible that brush clearing or trenching required for pipelines in such areas would displace or harm species that are present in an alignment. Such activities would be conducted in accordance with WRC MSHCP guidelines to minimize effects on the species present (for example, clearing would conducted outside the breeding season of any nesting birds present). Construction of Phase I facilities would not entail activities in the Santa Ana River or its tributaries; no direct harm to fish species would result.

These impacts would be less than significant. No mitigation is required under CEQA. This determination is contingent on the results of site-specific analysis in connection with final design plans for Phase I. If Phase I is developed as part of the core system rather as a stand-alone project, the species' impacts of Phase I would be combined with those from the core distribution (see BIO-IMP-1B).

BIO-IMP-1A-2: Operation and Maintenance

Operation of the facilities poses a minimal risk of harm to species. Maintenance of facilities has a limited potential to harm species where it entails pipeline repair or replacement in occupied habitat.

These impacts would be less than significant. No mitigation is required under CEQA.

BIO-IMP-1B: Core Distribution System

Construction, operation, and maintenance of the Core Distribution System would occur in already developed and new communities within Riverside, its sphere of influence, and Jurupa Area Plan. Species of concern in the area include the listed and unlisted species identified as planning species for the Riverside/Norco, Jurupa, Lake Mathews/Woodcrest, and Highgrove Area Plans (see Tables 3B-3 through 3B-7). These include species associated with riverine, riparian, and a wide range of upland communities.

BIO-IMP-1B-1: Construction

Because the core system is intended to serve developed areas, the core system pipelines and booster pumps would likely be placed primarily in already cleared areas. However, some of the core and lateral distribution pipelines would likely cross areas with natural communities. The storage facilities also might require clearing of existing natural communities. Such activities would be conducted in accordance with WRC MSHCP guidelines to minimize effects but would likely result in unavoidable harm to listed and other species. In addition, there would be multiple instances of unavoidable harm over time in a wide geographic area. It is not known at this time if construction of the core system would entail

activities in the Santa Ana River or its tributaries. If such activities cannot be avoided, harm to fish species of concern could result.

These potential impacts are significant. To reduce the potential impacts to a less-than-significant level, the following mitigation measures would be implemented.

- **Biological Mitigation Measures (BIO-MM)-1** is: *comply with the applicable requirements of the WRC MSHCP.*
- **BIO-MM-2** is: comply with the applicable requirements of the SKR HCP.

The WRC MSHCP and SKR HCP have been approved by USFWS and DFG as conservation plans that meet the applicable requirements of the ESA, California Fish and Game Code, CEQA, and NEPA for the species and activities covered by the plans. Each plan provides for the ongoing survival of the species potentially affected by this impact by conserving habitat for those species and by minimizing and mitigating the effects of covered activities to the maximum extent practicable. BIO-IMP-1B-1 would be reduced to a less-than-significant level by the overall implementation of the WRC MSHCP and SKR HCP and through the City's compliance with the applicable project-level measures specified in each plan. The applicable WRC MSHCP measures include but are not limited to seasonal restrictions on impacts, minimization of habitat loss and degradation, and conservation of habitat in a preserve system via payment of fees or by in lieu contributions. The SKR HCP requires payment of a fee or in lieu contribution for ongoing management of preserves that have already been established for SKR.

BIO-IMP-1B-2: Maintenance and Operation

Maintenance of facilities has a limited potential for harm to species where it entails: 1) pipeline repair or replacement in an area with relevant habitat, or 2) brush clearing around storage facilities. Operation of the facilities poses a minimal risk of harm to species.

These potential impacts are less than significant. No mitigation is required under CEQA.

BIO-IMP-1C: Agricultural Use System

Construction, operation, and maintenance of the agricultural use system would occur in Riverside, its sphere of influence, and the Jurupa Area Plan, with distribution canals and/or pipelines directed to existing agriculture. Species of concern in the area are the same as those potentially affected by the core distribution system (see Tables 3B-3 through 3B-7).

BIO-IMP-1C-1: Construction

Due to water quality issues (see Section 3A), it is not known at this time whether existing canals, storage facilities, and irrigation systems could be used to deliver recycled water. If an entirely separate delivery system is required (and is economically feasible), a substantial amount of clearing and trenching would

occur, primarily on agricultural lands. Some clearing and trenching also would be required even if existing facilities are included in the system. Construction activities have the potential to harm several species of concern that occur on agricultural lands (e.g., Stephens' kangaroo rat). It is unlikely, but not known at this time, that construction of the system would entail activities in the Santa Ana River or its tributaries. If such activities cannot be avoided, harm to fish species of concern could result. Given the extent of the system, significant adverse impacts to listed and other species of concern in the project area could result from construction of facilities.

To reduce the potential impacts to a less-than-significant level, the following measures would be implemented:

- **BIO-MM-1** is: *comply with the applicable requirements of the WRC MSHCP.*
- **BIO-MM-2** is: comply with the applicable requirements of the SKR HCP.

The WRC MSHCP and SKR HCP provide for the ongoing survival of the species potentially affected by this impact by conserving habitat for those species and by minimizing and mitigating the effects of covered activities to the maximum extent practicable. BIO-IMP-1C-1 would be reduced to a less-than-significant level by the overall implementation of the WRC MSHCP and SKR HCP and through the City's compliance with the applicable project-level measures specified in each plan. The applicable WRC MSHCP measures include but are not limited to seasonal restrictions on impacts, minimization of habitat loss and degradation, and conservation of habitat in a preserve system via payment of fees or by in lieu contributions. The SKR HCP requires payment of a fee or in lieu contribution for ongoing management of preserves that have already been established for SKR.

BIO-IMP-1C-2: Operation and Maintenance

Maintenance of facilities has a limited potential for harm to species where it entails canal or pipeline repair or pipeline replacement. Operation of the facilities poses a minimal risk of harm to species.

These potential impacts are less than significant. No mitigation is required under CEQA.

BIO-IMP-1D: Use of Recycled Water

There is a limited potential for the use of recycled water to harm special status plant species, drown nocturnal burrowing species such as Stephens' and San Bernardino kangaroo rats, or render certain areas unsuitable for use. The greatest potential for such effects would be where recycled water is used for agricultural purposes and to irrigate parks or golf courses that include areas of relevant habitat. Minor effects due to changes in salinity or other properties of the irrigation water compared with non-recycled water could include changes to soils or vegetation that adversely affect special status species (e.g., by encouraging

invasive species), but these would be less than substantial. Effects from agricultural uses would not be appreciably greater than those occurring from irrigation using other sources of water. Best management practices and monitoring provisions of the WRC MSHCP would minimize the potential for and magnitude of effects on species in open areas such as parks and golf courses. No direct effects on the fish species of concern would likely result (the recycled water is the same as the treated effluent discharged into the river). There is some concern that extensive use of recycled water for agricultural and other purposes would increase the salinity and potentially add contaminants to surface runoff that enters the river system and thereby potentially harm the fish species of concern by degrading their habitat. As described in Section 3A, "Water Resources," required monitoring minimizes the potential for such indirect effects to occur.

Assuming compliance with the WRC MSHCP and water quality monitoring requirements, use of recycled water would have less-than-significant effects on listed and other species of concern in the project area. No mitigation is required under CEQA.

BIO-IMP-1E: Diversion/Discharge

The treated effluent at the RWQCP would be diverted prior to discharge into the Santa Ana River. The diversion would not entail any activity or machinery that would directly harm fish species in the river or other species of concern along the river. There is some concern that the resulting change in amount of effluent discharged into the Santa Ana River would alter stream flow in a way that would harm the fish species of concern. The risk that such effects would result is minimized by the gradual reduction of discharge from the current level of 36,000 afy to no lower than 25,000 afy. Further, the lowest projected level of discharge exceeds the 15,250 afy required under an existing agreement to protect the water quality and biological resources of the Santa Ana River.

Effects of the diversion and discharge levels at the RWQCP under the proposed project would have less-than-significant effects on the species of concern. However, the change in discharge levels would occur concurrent with other proposed diversions of water from the river (see Chapter 4).

BIO-IMP-1F: Treatment Capacity Expansion

Expansion of the treatment capacity at the RWQCP has the potential to affect species of concern in two ways: 1) additional wetlands may be needed to treat additional afy of wastewater, and 2) the facility may require expansion or substantial upgrading of equipment.

BIO-IMP-1F-1: Addition of Wetlands

Addition of wetlands would likely entail some unavoidable harm to species but would have a net beneficial effect by adding habitat for relevant special status

species along the river system. Such effects would be minimized in accordance with WRC MSHCP guidelines and federal and state laws protecting wetlands.

These impacts would be less-than-significant with a net beneficial effect. No mitigation is required under CEQA.

BIO-IMP-1F-2: Facility Expansion/Upgrading

Enlarging and/or upgrading the facility would likely entail some unavoidable harm to some species. Such effects would be minimized in accordance with WRC MSHCP guidelines and federal and state laws protecting riparian habitat and wetlands but, even if minimized, could have substantial short-term adverse effects on certain species.

To reduce the potential impacts to a less-than-significant level, the following measures would be implemented:

- **BIO-MM-1** is: *comply with the applicable requirements of the WRC MSHCP.*
- **BIO-MM-2** is: comply with the applicable requirements of the SKR HCP.

The WRC MSHCP and SKR HCP provide for the ongoing survival of the species potentially affected by this impact by conserving habitat for those species and by minimizing and mitigating the effects of covered activities to the maximum extent practicable. BIO-IMP-1F-2 would be reduced to a less-than-significant level by the overall implementation of the WRC MSHCP and SKR HCP and through the City's compliance with the applicable project-level measures specified in each plan. The applicable WRC MSHCP measures include but are not limited to seasonal restrictions on impacts, minimization of habitat loss and degradation, and conservation of habitat in a preserve system via payment of fees or by in lieu contributions. The SKR HCP requires payment of a fee or in lieu contribution for ongoing management of preserves that have already been established for SKR.

BIO-IMP-2: Habitat Impacts

- **Impact Analyzed.** Would the activity result in the destruction, degradation, or adverse modification of terrestrial or aquatic habitats?
- **Significance Criteria.** Would the activity have a substantial adverse effect on any wetlands, other special status community, or proposed or designated critical habitat for a listed species?

BIO-IMP-2A: Phase I Expansion

Wetlands, other special status communities, and critical habitat occur in the Phase I area.

BIO-IMP-2A-1: Construction

Final critical habitat for least Bell's vireo occurs within the conceptual plan area for Phase I along the Santa Ana River but there is no reasonable potential for effects from construction activities. Depending on the alignment of pipelines in the Jurupa Community Service District, currently proposed critical habitat for the coastal California gnatcatcher could be affected. If impacts to the special status communities and/or critical habitats are unavoidable, the WRC MSHCP requires selection of an alternative that is biologically equivalent or superior to impact avoidance. This applies to (1) riparian/riverine areas and vernal pools anywhere in the Plan area and (2) other special status communities such as riversidian sage scrub if impacts are anticipated within proposed conservation lands under the Plan and the latter provides long-term conservation value. Even if impacts to such resources are minimized, the effects of constructing Phase I could be substantial on a temporary or short-term basis.

To reduce the potential impacts to a less-than-significant level, the following mitigation measures would be implemented.

- **BIO-MM-1** is: *comply with the applicable requirements of the WRC MSHCP.*
- **BIO-MM-2** is: comply with the applicable requirements of the SKR HCP.

The WRC MSHCP and SKR HCP minimize and mitigate effects on the natural communities potentially affected by this impact by conserving and managing that habitat a preserve system and requiring impact minimization and mitigation on a project-level. BIO-IMP-2A-1 would be reduced to a less-than-significant level by the overall implementation of the WRC MSHCP and SKR HCP and through the City's compliance with the applicable project-level measures specified in each plan.

BIO-IMP-2A-2: Operation and Maintenance

Maintenance activities have the potential for temporary impacts; those effects would be minimized in accordance with the best management practices and other guidelines specified in the WRC MSHCP. Operations pose a minimal risk of such degradation.

These impacts would be less-than-significant. No mitigation is required under CEQA.

BIO-IMP-2B: Core Distribution System

Wetlands and other special status communities occur in the project area, together with proposed critical habitat for coastal California gnatcatcher, and final critical habitat for Quino Checkerspot butterfly and least Bell's vireo.

BIO-IMP-2B-1: Construction

If impacts to the special status communities and/or critical habitats are unavoidable, the WRC MSHCP requires selection of an alternative that is

biologically equivalent or superior to impact avoidance. As with potential impacts under the Phase 1 Expansion, this applies to (1) riparian/riverine areas and vernal pools anywhere in the Plan area and (2) other special status communities such as riversidian sage scrub if impacts are anticipated within proposed conservation lands under the Plan and the latter provides long-term conservation value. Even if impacts to such resources are minimized, the effects of constructing the core distribution system could be substantial on a temporary or short-term basis.

To reduce the potential impacts to a less-than-significant level, the following mitigation measures would be implemented.

- **BIO-MM-1** is: *comply with the applicable requirements of the WRC MSHCP.*
- **BIO-MM-2** is: comply with the applicable requirements of the SKR HCP.

The WRC MSHCP and SKR HCP minimize and mitigate effects on the natural communities, including areas of designated or proposed critical habitat, by conserving and managing that habitat in a preserve system and requiring impact minimization and mitigation on a project-level. BIO-IMP-2B-1 would be reduced to a less-than-significant level by the overall implementation of the WRC MSHCP and SKR HCP and through the City's compliance with the applicable project-level measures specified in each plan.

BIO-IMP-2B-2: Operation and Maintenance

Maintenance activities have the potential for temporary habitat impacts; those effects would be minimized in accordance with the best management practices and other guidelines specified in the WRC MSHCP. Operations pose a minimal risk of habitat degradation.

These impacts would be less-than-significant. No mitigation is required under CEQA.

BIO-IMP-2C: Agricultural Use System

The construction, operation, and maintenance of the agricultural use system have the potential to adversely affect the same types of special status communities and critical habitats affected by the core distribution system.

BIO-IMP-2C-1: Construction

The extent of habitat impacts from construction would depend on whether existing or new facilities are required. As with the core system, unavoidable construction, operation, and maintenance impacts would be minimized in accordance with the WRC MSHCP. Construction could result in substantive loss and degradation of habitat.

These potential impacts are significant. Implementation of mitigation measures BIO-MM-1 and BIO-MM-2 would reduce the impacts to a less-than-significant

level. BIO-MM-1 is: *implement the applicable measures of the WRC MSHCP.* BIO-MM-2 is: *comply with the applicable requirements of the SKR HCP.*

BIO-IMP-2C-2: Operation and Maintenance

Maintenance activities have the potential for temporary habitat impacts; those effects would be minimized in accordance with the best management practices and other guidelines specified in the WRC MSHCP. Operations pose a minimal risk of habitat degradation.

These impacts would be less-than-significant. No mitigation is required under CEQA.

BIO-IMP-2D: Use of Recycled Water

There is a limited potential for the use of recycled water to degrade special status communities or critical habitats in the project area by increasing salinity or adding contaminants. The greatest potential for such effects would be where recycled water is used for agricultural or landscape irrigation near these habitats. Best management practices and monitoring provisions of the WRC MSHCP would minimize the potential for and magnitude of effects on habitats in open areas such as parks and golf courses. As noted in BIO-IMP-1D, there also is some concern that extensive use of recycled water for agricultural and other purposes could adversely affect the quality of fish habitat in the river system. As described in Section 3A, "Water Resources," required monitoring minimizes the potential for such indirect effects to occur.

Assuming compliance with the WRC MSHCP and water quality monitoring requirements, use of recycled water would have less-than-significant effects on special status communities and critical habitats in the project area.

BIO-IMP-2E: Diversion/Discharge

As discussed in BIO-IMP-1E, there is some concern that the resulting change in amount of effluent discharged into the Santa Ana River would alter stream flow in a way that would destroy or degrade fish habitat. The risk that such effects would result is minimized by the gradual reduction of discharge from the current level of 36,000 afy to no lower than 25,000 afy. Further, the lowest projected level of discharge exceeds the 15,250 afy required under an existing agreement to protect the water quality and biological resources of the Santa Ana River.

Effects of the diversion and discharge levels at the RWQCP under the proposed project would have less-than-significant effects on special status communities or critical habitats. No mitigation is required under CEQA. However, the change in discharge levels would occur concurrent with other proposed diversions (see Chapter 4).

BIO-IMP-2F: Treatment Capacity Expansion

The treatment facility occurs in an area with special status communities and near critical habitat for least Bell's vireo.

BIO-IMP-2F-1: Addition of Wetlands

As discussed in BIO-IMP-1F, creation of additional wetlands for treatment has associated habitat impacts. Creation of wetlands would have temporary adverse effects on adjacent habitat but would add special status communities and improve habitat conditions for wetland and riparian species.

These impacts would be less-than-significant with a net beneficial effect. No mitigation is required under CEQA.

BIO-IMP-2F-2: Facility Expansion/Upgrading

Enlarging and/or upgrading the facility would likely entail some impacts to special status communities and/or critical habitats. Unavoidable habitat impacts from facility expansion/upgrading would be minimized in accordance with WRC MSHCP guidelines and federal and state laws, but, even if minimized, could have substantial adverse local effects.

To reduce the potential impacts to a less-than-significant level, the following mitigation measures would be implemented.

- **BIO-MM-1** is: *comply with the applicable requirements of the WRC MSHCP.*
- **BIO-MM-2** is: comply with the applicable requirements of the SKR HCP.

The WRC MSHCP and SKR HCP minimize and mitigate effects on the natural communities, including areas of designated or proposed critical habitat, by conserving and managing that habitat in a preserve system and requiring impact minimization and mitigation on a project-level. BIO-IMP-2F-2 would be reduced to a less-than-significant level by the overall implementation of the WRC MSHCP and SKR HCP and through the City's compliance with the applicable project-level measures specified in each plan.

BIO-IMP-3: Linkage/Corridor Impacts

- **Impact Analyzed.** Would the activity result in the destruction, fragmentation, or degradation of a wildlife movement corridor or habitat linkage area?
- **Significance Criteria.** Would the activity interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, impede the use of native wildlife nursery sites, or obstruct genetic flow for identified planning species?

BIO-IMP-3A: Phase I Expansion

The Phase I area includes linkage areas identified in the WRC MSHCP as important for planning species.

BIO-IMP-3A-1: Construction

Construction of Phase I could have temporary adverse impacts on these linkages but the effects would be minimized by WRC MSHCP impact avoidance and minimization requirements. The linear, subterranean nature of the system minimizes the risk of substantial adverse effects on linkages.

These impacts are less than significant. No mitigation is required under CEQA.

BIO-IMP-3A-2: Operation and Maintenance

Maintenance has the potential for temporary adverse impacts on linkages but the effects would be minimized by WRC MSHCP impact avoidance and minimization requirements. Operations would not affect the linkages.

These impacts are less than significant. No mitigation is required under CEQA.

BIO-IMP-3B: Core Distribution System

The project area includes multiple linkage areas identified in the WRC MSHCP as important for planning species.

BIO-IMP-3B-1: Construction

As with Phase I, construction of the system could have temporary adverse impacts on these linkages, but the effects would be minimized by WRC MSHCP impact avoidance and minimization requirements. The linear, subterranean nature of the system minimizes the risk of substantial adverse effects on linkages. Storage facilities, if located in linkages, would be sited to ensure that the linkage functions are unobstructed.

These impacts are less than significant. No mitigation is required under CEQA.

BIO-IMP-3B-2: Operation and Maintenance

Maintenance has the potential for temporary adverse impacts on linkages but the effects would be minimized by WRC MSHCP impact avoidance and minimization requirements. Operations would not affect the linkages.

These impacts are less than significant. No mitigation is required under CEQA.

BIO-IMP-3C: Agricultural Use System

BIO-IMP-3C-1: Construction

Construction of the agricultural use system has the potential to affect the same linkages and corridors as the core distribution system. However, it has a higher

potential for adverse effects than the core system because new canals may be required. Although canals can be designed to provide linkages and movement corridors and thereby provide a benefit to some species, they also can be a permanent impediment to the movement of other species. Consequently, substantial adverse effects could result in some instances.

To reduce the potential impacts to a less-than-significant level, the following mitigation measures would be implemented.

- **BIO-MM-1** is: *comply with the applicable requirements of the WRC MSHCP.*
- **BIO-MM-2** is: comply with the applicable requirements of the SKR HCP.

The WRC MSHCP and SKR HCP minimize and mitigate effects on the habitat linkages and wildlife movement corridors by conserving and managing such areas as part of the preserve system and requiring impact minimization and mitigation on a project-level. BIO-IMP-3C-1 would be reduced to a less-than-significant level by the overall implementation of the WRC MSHCP and SKR HCP and through the City's compliance with the applicable project-level measures specified in each plan.

BIO-IMP-3C-2: Operation and Maintenance

Maintenance has the potential for temporary adverse impacts on linkages but the effects would be minimized by WRC MSHCP impact avoidance and minimization requirements. Operations would not affect the linkages.

These impacts are less than significant. No mitigation is required under CEQA.

BIO-IMP-3D: Use of Recycled Water

Use of recycled water has a limited potential to degrade habitat within linkage areas and thereby degrade the function of the linkage. For the reasons stated in BIO-IMP-2D, less-than-significant effects would result. No mitigation is required under CEQA.

BIO-IMP-3E: Diversion/Discharge

As discussed in BIO-IMP-1E and BIO-IMP-2E, there is some concern that changes in amount of effluent discharged from the RWQCP would alter stream flow in a way that would destroy or degrade fish habitat. Such effects also would destroy or degrade the linkage function for fish upstream and downstream of Reach 3. However, for the same reasons stated in BIO-IMP-1E and BIO-IMP-2E, the risk of such effects is minimized by the gradual reduction of the discharge from the RWQCP and water quality monitoring requirements.

Effects of the diversion and discharge levels at the RWQCP under the proposed project would have less-than-significant effects on habitat linkages and

movement corridors. No mitigation is required under CEQA. However, the change in discharge levels would occur concurrent with other proposed diversions that may affect the function of Reach 3 as a linkage area for fish species (see Chapter 4).

BIO-IMP-3F: Treatment Capacity Expansion

BIO-IMP-3F-1: Addition of Wetlands

Addition of wetlands at the facility has the potential to enhance the riparian habitat linkage along the Santa Ana River but also would entail temporary impacts to the existing linkage. Such effects would be minimized in accordance with WRC MSHCP guidelines and federal and state laws protecting wetlands.

These impacts would be less-than-significant with a net beneficial effect. No mitigation is required under CEQA.

BIO-IMP-3F-2. Facility Expansion/Upgrading

Expansion or upgrading of the facility has the potential to adversely affect fish habitat and wetland/riparian areas along the river, thereby also affecting the linkage function of those areas. As discussed in BIO-IMP-2F, unavoidable impacts would be minimized in accordance with the WRC MSHCP and federal and state law. However, even though minimized, substantial adverse effects could result.

To reduce the potential impacts to a less-than-significant level, the following mitigation measures would be implemented.

- **BIO-MM-1** is: *comply with the applicable requirements of the WRC MSHCP.*
- **BIO-MM-2** is: comply with the applicable requirements of the SKR HCP.

The WRC MSHCP and SKR HCP minimize and mitigate effects on the habitat linkages and wildlife movement corridors by conserving and managing such areas as part of the preserve system and requiring impact minimization and mitigation on a project-level. BIO-IMP-3F-2 would be reduced to a less-than-significant level by the overall implementation of the WRC MSHCP and SKR HCP and through the City's compliance with the applicable project-level measures specified in each plan.

BIO-IMP-4: Conservation Area/Program Impacts

- **Impact Analyzed.** Would the activity result in the destruction, fragmentation, or degradation of an existing conservation area or an area proposed for conservation under an approved plan or program?

- **Significance Criteria.**
  - Would the activity introduce a land use that would result in substantial adverse modification or degradation of an existing conservation area, substantial edge effects on an existing conservation area, or would preclude the assembly of a proposed conservation area?
  - Would the activity conflict with the provisions of the WRC MSHCP, SKR HCP, or other approved conservation plan that applies to the project area or adjacent lands?
  - Would the activity conflict with any local policies or ordinances protecting biological resources, such as the City's tree preservation policy and ordinance?

BIO-IMP-4A: Phase I Expansion

BIO-IMP-4A-1: Construction

As discussed in BIO-IMP-2A and BIO-IMP-3A, Phase I has the potential to remove or degrade habitat. Based on the conceptual design in the Master Plan, the system would cross or come near existing and proposed conservation areas. Unavoidable effects would be minimized in accordance with the WRC MSHCP and local policies and ordinances. Assuming conformance with the impact avoidance and minimization requirements that apply to the criteria area and conservation area under the WRC MSHCP (see Table 3B-2), there is limited potential for any substantial adverse effects on existing and proposed conservation areas in the project area. In addition, implementing Phase I would not preclude or otherwise interfere with implementation of the WRC MSHCP and other approved plans and program.

These impacts would be less-than-significant. No mitigation is required under CEQA.

BIO-IMP-4A-2: Operation and Maintenance

Operation would not adversely affect existing and proposed conservation areas in the project area, the assembly of reserves under the WRC MSHCP, or implementation of approved conservation plans and programs in the project areas.

Maintenance has limited potential for habitat impacts, and such effects would be minimized and mitigation in accordance with the WRC MSHCP and other applicable conservation plans.

These impacts would be less-than-significant. No mitigation is required under CEQA.

BIO-IMP-4B: Core Distribution System

BIO-IMP-4B-1: Construction

As discussed in BIO-IMP-1B and BIO-IMP-2B, construction of the core system has the potential for significant adverse impacts to species and habitats. Unavoidable effects would be minimized in accordance with the WRC MSHCP and local policies and ordinances, including conformance with the impact avoidance and minimization requirements that apply to the criteria area and conservation area (see Table 3B-2). However, even where effects are minimized, construction could have substantial adverse effects on portions of existing or proposed conservation areas. There also is the risk of adverse effects on resources in several conservation areas. However, implementing the core reserve system would not preclude or otherwise interfere with implementation of the WRC MSHCP and other approved plans and program.

Impacts on reserve assembly under the WRC MSHCP and implementation of other plans and programs would be less than significant. No mitigation is required under CEQA. The potential impacts on existing and proposed conservation areas in the project area are significant. To reduce the potentially significant impacts to a less-than-significant level, the following mitigation measures would be implemented.

- **BIO-MM-1** is: *comply with the applicable requirements of the WRC MSHCP.*
- **BIO-MM-2** is: comply with the applicable requirements of the SKR HCP.

The WRC MSHCP and SKR HCP minimize and mitigate effects on conserved habitat by providing for the ongoing management and monitoring of the preserve system, limiting the number and type of allowed activities in conserved habitat, and requiring project-level impact minimization and mitigation measures for allowed activities. BIO-IMP-4B-1 is an activity that is conditionally compatible with conservation and management of preserves under the WRC MSHCP and SKR HCP. Impacts would be reduced to a less-than-significant level by the overall implementation of the WRC MSHCP and SKR HCP and through the City's compliance with the applicable project-level measures specified in each plan.

BIO-IMP-4B-2: Operation and Maintenance

Operation would not adversely affect existing and proposed conservation areas in the project area, the assembly of reserves under the WRC MSHCP, or implementation of approved conservation plans and programs in the project areas.

Maintenance has limited potential for habitat impacts, and such effects would be minimized and mitigation in accordance with the WRC MSHCP and other applicable conservation plans.

These impacts would be less-than-significant. No mitigation is required under CEQA.

BIO-IMP-4C: Agricultural Use System

For the same reasons that apply to the core distribution system, construction of the system has the potential to result in significant adverse effects on resources in existing and proposed conservation areas; maintenance and operations would have less-than-significant effects. Implementing the agricultural use system would have less-than-significant impacts on the assembly of reserves under the WRC MSHCP or implementation of other approved plans and programs.

BIO-IMP-4C-1: Construction

Construction of the system has the potential for significant adverse impacts to species and habitats in existing and proposed conservation areas. Unavoidable effects would be minimized in accordance with the WRC MSHCP and local policies and ordinances, including conformance with the impact avoidance and minimization requirements that apply to the criteria area and conservation area (see Table 3B-2). However, even where effects are minimized, construction could have substantial adverse effects on portions of existing or proposed conservation areas. There also is the risk of adverse effects on resources in several conservation areas. However, implementing the system would not preclude or otherwise interfere with implementation of the WRC MSHCP and other approved plans and program.

Impacts on reserve assembly under the WRC MSHCP and implementation of other plans and programs would be less than significant. No mitigation is required under CEQA. The potential impacts on existing and proposed conservation areas in the project area are significant. To reduce the potentially significant impacts to a less-than-significant level, the following mitigation measures would be implemented.

- **BIO-MM-1** is: *comply with the applicable requirements of the WRC MSHCP.*
- **BIO-MM-2** is: comply with the applicable requirements of the SKR HCP.

The WRC MSHCP and SKR HCP minimize and mitigate effects on conserved habitat by providing for the ongoing management and monitoring of the preserve system, limiting the number and type of allowed activities in conserved habitat, and requiring project-level impact minimization and mitigation measures for allowed activities. BIO-IMP-4C-1 is an activity that is conditionally compatible with conservation and management of preserves under the WRC MSHCP and SKR HCP. Impacts would be reduced to a less-than-significant level by the overall implementation of the WRC MSHCP and SKR HCP and through the City's compliance with the applicable project-level measures specified in each plan.

BIO-IMP-4C-2: Operation and Maintenance

Operation would not adversely affect existing and proposed conservation areas in the project area, the assembly of reserves under the WRC MSHCP, or implementation of approved conservation plans and programs in the project areas.

Maintenance has limited potential for habitat impacts, and such effects would be minimized and mitigation in accordance with the WRC MSHCP and other applicable conservation plans.

These impacts would be less-than-significant. No mitigation is required under CEQA.

BIO-IMP-4D: Use of Recycled Water

There is limited potential for use of recycled water to degrade habitat in existing and proposed conservation areas. However, no substantial adverse effects are expected. In addition, use of recycled water in the project area would not adversely affect the assembly of reserves under the WRC MSHCP or implementation of other approved plans and programs.

Less-than-significant effects to existing and proposed conservation areas and to implementation of the WRC MSHCP and other plans and programs would result from use of recycled water. No mitigation is required under CEQA.

BIO-IMP-4E: Diversion/Discharge

The change in discharge levels at the RWQCP has the potential to affect existing and proposed conservation areas along the Santa Ana River. However, for the same reasons that apply to effects on habitats and linkages, the change in discharge would not have substantial adverse effects.

Less-than-significant effects to existing and proposed conservation areas and to implementation of the WRC MSHCP and other plans and program would result from the change in discharge levels. No mitigation is required under CEQA. However, the change would be concurrent with other proposed diversions that may affect the resources in existing and proposed conservation areas (see Chapter 4).

BIO-IMP-4F: Treatment Capacity Expansion

BIO-IMP-4F-1: Addition of Wetlands

Adding wetlands to the treatment facility would increase the amount of wetland habitat available for WRC MSHCP species and contribute to conservation goals. Some impacts to habitats and species in existing and proposed conservation areas would result. Unavoidable effects would be minimized in accordance with the WRC MSHCP and local policies and ordinances, including conformance with the impact avoidance and minimization requirements that apply to the criteria area and conservation area (see Table 3B-2).

Less-than-significant effects to existing and proposed conservation areas and no adverse impacts to implementation of the WRC MSHCP and other plans and programs would result. No mitigation is required under CEQA.

BIO-IMP-4F-2: Facility Expansion/Upgrading

Expansion or upgrading of the facility has the potential for significant adverse impacts to species and habitats in existing and proposed conservation areas. Unavoidable effects would be minimized in accordance with the WRC MSHCP and local policies and ordinances, including conformance with the impact avoidance and minimization requirements that apply to the criteria area and conservation area (see Table 3B-2). However, even where effects are minimized, construction could have substantial adverse effects on portions of existing or proposed conservation areas. However, implementing the system would not preclude or otherwise interfere with implementation of the WRC MSHCP and other approved plans and program.

Impacts on reserve assembly under the WRC MSHCP and implementation of other plans and programs would be less than significant. No mitigation is required under CEQA. The potential impacts on existing and proposed conservation areas in the project area are significant. To reduce the potentially significant impacts to a less-than-significant level, the following mitigation measures would be implemented.

- **BIO-MM-1** is: *comply with the applicable requirements of the WRC MSHCP.*
- **BIO-MM-2** is: comply with the applicable requirements of the SKR HCP.

The WRC MSHCP and SKR HCP minimize and mitigate effects on conserved habitat by providing for the ongoing management and monitoring of the preserve system, limiting the number and type of allowed activities in conserved habitat, and requiring project-level impact minimization and mitigation measures for allowed activities. BIO-IMP-4F-2 is an activity that is conditionally compatible with conservation and management of preserves under the WRC MSHCP and SKR HCP. Impacts would be reduced to a less-than-significant level by the overall implementation of the WRC MSHCP and SKR HCP and through the City's compliance with the applicable project-level measures specified in each plan.

Mitigation for Significant Impacts

The proposed project has the potential to result in twelve types of potentially significant impacts on biological resources (see Table 3B-10). All of the potentially significant impacts would result from construction or expansions of facilities.

Mitigation for the potentially significant impacts would occur through overall implementation of the WRC MSHCP and SKR HCP and compliance with the applicable project-level requirement of each plan. With these mitigation

measures, each of the potentially significant impacts would be reduced to less-than-significant levels. This determination is subject to project-level analysis in subsequent CEQA evaluations for components of the proposed project.

BIO-MM-1: Implement WRC MSHCP Measures

Significant impacts to species and their habitats, natural communities, habitat linkages and movement corridors, and existing and proposed conservation areas will be avoided, minimized, and mitigated in accordance with Sections 6 and 9 of the WRC MSHCP, Volume I, and the applicable provisions of the MSHCP implementing agreement.

Impacts Outside the Criteria Area

- Impact avoidance and minimization will be as specified in the WRC MSHCP for riparian/riverine areas and areas where riparian/riverine species, vernal pool species, narrow endemic plants, and other species identified in the WRC MSHCP are found.
- Mitigation for unavoidable impacts will be:
  - payment of the local development mitigation fee and
  - protection of habitat avoided (but not permanently conserved) as required for species associated with riparian/riverine areas and vernal pools, narrow endemic plants, and other species identified in the WRC MSHCP. (Protection of avoided habitats will be lifted when the conservation goals for the affected habitats and species have been met.)

Impacts Inside the Criteria Area

- Impact avoidance and minimization will be as specified in the WRC MSHCP for riparian/riverine areas and vernal pools and areas where riparian/riverine species, vernal pool species, narrow endemic plants, and other species identified in the WRC MSHCP are found.
- Mitigation for unavoidable impacts will be:
  - contributions to reserve assembly in the affected area plan, either through on-site conservation, acquisition of replacement habitat at a 1:1 ratio that is biologically equivalent or superior to the property being disturbed, or payment of the local development mitigation fee (the fee will be used for habitat acquisition, management, and monitoring) and
  - protection of habitats avoided (but not permanently conserved) as required for species associated with riparian/riverine areas and vernal pools, narrow endemic plants, and other species identified in the WRC MSHCP. (Protection of avoided habitats will be lifted when the conservation goals for the affected habitats and species have been met.)

These measures, together with overall implementation of the WRC MSHCP by the City, Riverside County, and other participating agencies, will be used to minimize and mitigate significant on all covered species, excluding SKR impacts within the area covered by the SKR HCP.

BIO-MM-2: Comply with SKR HCP Requirements

Impacts to Stephens' kangaroo rat within those portions of the project area that are within the plan area for the SKR HCP will be mitigated by payment of the applicable SKR mitigation fee.

Section 3C

Cultural Resources

Section 3C

Cultural Resources

Introduction

The California Environmental Quality Act (CEQA) requires that projects financed or approved by public agencies must include an evaluation of a project's impact on cultural/historical resources. Cultural resources include (but are not limited to): buildings, structures, objects, and prehistoric and historical archaeological sites. Resources are considered significant if they are listed in or eligible for the National Register of Historic Places or the California Register of Historical Resources, or that are currently designated as local historic landmarks. In addition, if an archaeological site does not fall within the definition of an historical resource, but does meet the CEQA definition of a "unique archaeological resource (Pub. Res. Code 21083.2), then the site must be treated in accordance with the special provisions for such resources.

As the lead agency under CEQA, the City of Riverside prepared an Initial Study/Mitigated Negative Declaration (IS/MND) for the Recycled Water Phase I Feasibility Study and Citywide Master Plan. According to the IS/MND, no impacts to cultural resources are anticipated. However, CEQA requires that projects financed or approved by public agencies must include an evaluation of the impact of a project on cultural resources. In order to determine impacts to cultural resources, it is necessary to determine if potentially significant cultural resources are located within the project area.

The Master Plan provides details for the Phase I Expansion, as well as a programmatic description of the proposed recycled water core distribution system and agricultural use system. Because only a conceptual plan for the City's core distribution system is available, and the location and extent of future phases after the initial expansion are too speculative to identify or analyze at this time, a focused, program-level inventory of cultural resources was conducted. The program-level inventory consisted of a record search, archival research, and consultation with the Native American Heritage Commission (NAHC) focused on the Phase I Expansion portion of the project area.

This section provides an overview of the natural and cultural setting of the project area. Following the overview is a description of the study methods and the impact analysis that includes the state and local criteria used to determine cultural resource significance and impact significance, impact statements, and

mitigation measures. Although the Citywide Recycled Water Master Plan does not provide specific plans for water projects, implementation of general policies for water related improvements and enhancements may have an impact on historic and archaeological resources in the plan area. Accordingly, this section will address the anticipated program-level impacts of the Master Plan and will identify basic mitigation measures for reducing potential impacts. Further guidance is also provided for identifying and mitigating impacts at the project level.

Regulatory Setting

Federal, state, regional, and local policies regulate the assessment of impacts on archaeological and historic resources. Federal and state policies establish criteria for evaluation of these resources and require consideration of cultural resources in federal and state project planning. County policies regulate activities in unincorporated areas, and city policies regulate activities within municipal areas.

Federal

Additional federal requirements would apply to subsequent project-specific components of the Citywide Recycled Water Master Plan that receive federal funding or otherwise affect federal lands and federal decision making; these additional requirements do not apply to this program EIR, but would need to be addressed if federal funding or other federal action (e.g., if federal lands were crossed or a federal permit were required) were triggered at the time of consideration and approval of a specific project.

State

CEQA requires that public or private projects financed or approved by public agencies must assess the impacts of projects on historical resources. Historical resources include buildings, archaeological sites, structures, objects, or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance.

CEQA requires that—if a project may cause substantial adverse change in the significance of a historical resource—alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed. Therefore, before impacts are assessed or mitigation measures developed, the significance of cultural resources must be determined. The steps normally taken in a cultural resources investigation for CEQA compliance are:

- Identify potential historical resources;
- Evaluate the eligibility of historical resources; and
- Evaluate the impacts of a project on all eligible historical resources.

According to CEQA, a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant impact on the environment (CEQA rev. 1998, Section 15064.5(b)). CEQA further states that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. Actions that would materially impair the significance of a historical resource are any actions that would demolish or adversely alter the physical characteristics of a historical resource that convey its historical significance and qualify it for inclusion in the California Register of Historical Resources (CRHR) or in a local register or survey that meet the requirements of Section 5020.1(k) and 5024.1(g) of the Public Resources Code.

Local

Riverside County

Riverside County's Historic Preservation Districts Ordinance (15.72.010) states that the recognition, protection, preservation, enhancement, perpetuation and use of sites and structures within the county having historic significance is necessary and required in the interest of the health, safety, prosperity and general welfare of the public. Section 15.72.030 states that any person may file a request that the historical commission study and make recommendations regarding the designation of certain areas of the county having special historical significance as historic preservation districts.

City of Riverside

The Cultural Resources Ordinance (Title 20 of the Riverside Municipal Code) states that its purpose is to promote the pubic health, safety and general welfare by providing for the identification, protection, enhancement, perpetuation and use of improvements, buildings, structures, signs, objects, features, sites, places, areas, districts, neighborhoods, streets, works of art, natural features and significant permanent landscaping having special historical, archaeological, cultural, architectural, community, aesthetic or artistic value in the City (Section 20.05.010).

Section 20.10.010 (f) defines cultural resources as improvements, buildings, structures, signs, features, sites, scenic areas, views and vistas, places, areas, landscapes, trees, or other objects, which are of scientific, aesthetic, educational, cultural, architectural, social, political, military, historical or archaeological significance to the citizens of the City, the State of California, the Southern California region, or the Nation, which may be determined eligible for designation or designated and determined to be appropriate for preservation by the Cultural Heritage Board, or by the City Council on appeal, or which may be eligible for listing or designation on any current or future State or Federal Register.

Environmental Setting

Prehistoric Setting

As described by Moratto (1984), the project area is within the Desert archaeological region (Colorado River subregion). The following discussion is summarized from Moratto unless otherwise noted.

Warren (1984; cf. Warren and Crabtree 1986) proposed a synthesis of the California deserts' cultural chronology composed of six temporal periods: the Pleistocene Period (pre-8000 B.C.); Period I: Lake Mojave (8000–5000 B.C.); Period II: Pinto (5000–2000 B.C.); Period III: Gypsum (2000 B.C.– A.D. 500); Period IV: Saratoga Springs (A.D. 500–1200); and Period V: Protohistoric (A.D. 1200–Historic).

Archaeologists have found little conclusive archaeological evidence of human occupation in the Colorado Desert region of Imperial County prior to the Gypsum Period (Warren 1984). This evidence is limited to a radiocarbon date of 3030±100 B.C., associated with a quartz point from fill in the San Felipe Creek Valley (Ferguson and Libby 1962 in Jones & Stokes 2000) date of 3840±250 B.C. from a cairn burial at Truckhaven (Barker et al. 1973).

The Gypsum Period (2000 B.C.–A.D. 500) is characterized by Elko Eared, Elko Corner-Notched, Humboldt Concave Base, and Gypsum Cave points. The Gypsum assemblage also includes rectangular-based knives; leaf-shaped points; T-shaped drills; flake scrapers; hammerstones; choppers; infrequent large scraper-planes; manos and millingstones; mortar and pestle (some of which are wood) later in the period; *Haliotis* rings, beads, and ornaments consistent with central California Middle Horizon types; bone awls; arrowshaft smoothers; and *Olivella* shell beads (Warren 1984). One Gypsum site, Newberry Cave, contains pictographs that depict animal figures (Davis 1981). The Gypsum materials imply that the people of this period occupied seasonal multi-purpose camps (Wallace 1977 in Jones & Stokes 2000). Gypsum populations processed hard seeds, as implied by millingstone technology, and, after the introduction of wood mortars and pestles later in the period, probably processed mesquite as well. The introduction of the bow and arrow during this period points to significant hunting (Warren 1984).

The Saratoga Springs Period (A.D. 500–1200) is typified by Eastgate and Rose Spring projectile points, mortars and pestles, millingstones and manos, slate pendants, and incised stones. By A.D. 900, Hakataya influences from southwest Arizona are apparent in the Colorado Desert, as indicated by Cottonwood Triangular points, Desert Side-Notched points, and Brown and Buff pottery wares (May 1976). The subsistence strategy of Saratoga Springs peoples follows the same general pattern as Gypsum populations, but reflects a broader scope designed to cope with increasingly arid conditions in the Colorado Desert (Warren 1984).

The Protohistoric Period (A.D. 1200–Historic) is marked by Desert Side-Notched points and represents a modified continuation of the cultural pattern established in the Saratoga Springs Period (Warren 1984). The increased presence of Hakataya cultural materials throughout the Colorado Desert may indicate a migration of Hakataya people from the shores of Lake Cahuilla to the Peninsular Ranges, a movement that Wilke (1978 in Jones & Stokes 2000) associates with a period of shoreline recession at Lake Cahuilla. The subsistence strategy during the protohistoric period changed little from that of the Saratoga Springs Period, remaining an adaptation to increasing aridity (Warren 1984).

Ethnography

The project area is within the traditional boundary of the Cahuilla (Bean and Smith 1978, Kroeber 1925). The Cahuilla language belongs to the Cupan subgroup of the Takic family of Uto-Aztecan stock (Bean and Smith 1978). This language family includes the Shoshonean groups of the Great Basin.

The Cahuilla occupied most of the area from the summit of the San Bernardino Mountains in the north to Borrego Springs and the Chocolate Mountains in the south, a portion of the Colorado Desert to the east, and the San Jacinto Plain near Riverside and the eastern slopes of Palomar Mountain to the west (Bean 1978). Cahuilla territory was topographically complex, and consisted of mountain ranges interspersed by passes, canyons, valleys, and desert (Bean 1978). Seasonal extremes caused dramatic differences in the abundance of flora and fauna available.

Primary food sources included acorns, beans, pinon nuts, and various cacti. Berries and acorns were ground using stone mortars and pestles, while wooden mortars were used to pulverize soft, fibrous foods (Bean 1978). Acorn meal was leached in baskets or sand basins. The Cahuilla produced four types of coiled baskets, including flat baskets for plates; shallow baskets as food receptacles; large, deep, inverted conical baskets for carrying goods; and flat-bottomed baskets to store small utilitarian items. The Cahuilla also practiced proto-agricultural techniques and most commonly raised corn, beans, squash, and melons (Bean 1978). Additional food sources, including large and small game, were acquired by use of the bow and arrow and clubbing. Small game could also be captured in snares, nets, and traps. Cahuilla bows were constructed of willow or mesquite and straightened with a specially shaped piece of soapstone (Bean 1978).

Cahuilla villages were usually situated in canyons or on alluvial fans near adequate sources of water. The area immediately surrounding the village was owned and shared by the common lineage. Other lands were divided into tracts amongst clans, families, and individuals. Buildings varied in size from brush shelters to dome-shaped or rectangular houses (Bean 1978).

Historic Setting

Spanish Period

Beginning in the 16th century, Spanish explorers sailed the coast of California. The first European to sail along the coast of California was Juan Cabrillo in 1542. In 1602, Sebastian Vizcaino explored the coast of California and developed a detailed map of the coastline. However, it was not until the 18th century that the Spanish colonized present-day California, establishing a tripartite system consisting of missions, presidios, and pueblos that lasted from 1769 to 1822. At the heart of this system was the mission, a semi-feudal economic institution offering what it termed "salvation" to the native population in exchange for its life-long commitment of labor to the church. By turning the indigenous population into colonists, New Spain's minimal manpower was not taxed for the settlement of a remote and questionably profitable frontier.

In 1769, a land expedition led by Gaspar de Portola was organized to establish settlements at San Diego and Monterey. The expedition included two parties, made up of Spanish soldiers, Franciscan priests, a number of Christianized Indians from Baja California, and herds of livestock. After meeting with supply ships at San Diego, Portola and his party set out for Monterey. They traveled northward, paralleling the coast, along the route that would later be called El Camino Real. Each of the California missions was later established along the same route (Bean and Rawls 1993, Beck and Haase 1974, Gudde 1998, Hoover et al. 1990).

In 1772, de Portola's second in command, and the commander of California, was Pedro Fages. In that year, Fages became the first known Spanish visitor to Riverside County while in pursuit of soldiers that had deserted the settlement at San Diego (Robinson 1957). In 1774, Juan Bautista de Anza, accompanied by Father Francisco Garces and Father Juan Diaz, took the same route utilized by Fages during his pursuit of the deserters and determined it suitable for colonists. In 1775, de Anza, Garces, and Father Pedro Font left Sonora, Mexico, with 240 colonists and 1,000 head of livestock. They stayed at Mission San Gabriel before continuing north, arriving in Monterey in 1776 (Beck and Haase 1974, Hoover et al. 1990). Both of Anza's expeditions to the Mission San Gabriel crossed into Riverside County by way of the San Jacinto Valley (Robinson 1957).

During the first half of the 19th century, the Temescal Valley was one of the highways for travelers between Mission San Luis Rey in San Diego, Mission San Juan Capistrano, and the Pueblo of Los Angeles (Robinson 1957). Between 1816 and 1821, the Franciscan friars at Mission San Luis Rey utilized the highway to establish the Rancho San Jacinto as their furthermost cattle ranch (Robinson and Risher 1993).

Mexican Period

Mexico won its independence, along with control of the Spanish American colonies, from Spain in 1821. The new Mexican government adopted a critical stance toward the missions in California and actively worked to undermine their wealth and power. The government's anti-mission sentiment culminated in the passage of the Secularization Act of 1833, which downgraded missions to the status of parish churches and gave the Mexican governor of California the power to redistribute the vast mission land holdings in the form of grants. On August 17, 1833, the Congress of Mexico decreed the secularization of California missions, freeing both the mission lands and the native neophytes from church jurisdiction. Thousands of native neophytes were separated from their missions and forced to seek wage labor on ranchos or in the pueblo itself. Between 1835 and 1846, land used by the missions was for the most part divided into private ranches. Despite legal provisions awarding half of all mission property to the neophytes of the mission, few rancho parcels were ever granted to the missionized natives.

Although popularly referred to as "Spanish" ranchos, land grants were made only during the Mexican period. The land grant movement did not become active until after mission secularization, which triggered a land rush and a shifting of the population outward from the pueblos (Robinson 1948). From that time until the end of Mexican rule, liberal incentives were offered to persons wishing to raise livestock. More than 500 ranchos existed in California in 1846. All but approximately 30 of those were the result of land grants from the Mexican government of California (Robinson 1948). From 1848 to the 1870s, the dominant agricultural pattern was a mix of stock raising and commercial agriculture (Jelinek 1982).

Rancho Jurupa (Stearns)

The Mexican government granted the Rancho Jurupa to Juan Bandini in 1838. Prior to Bandini's ownership, the rancho had been the property of the Mission San Gabriel (Gudde 1998). The land grant to Bandini consisted of over 32,000 acres, which extended for twenty miles along both sides of the Santa Ana River (Hoover 1990; Beck and Haase 1974). Bandini was one of the first white settlers in Riverside County. His first home was constructed in 1839 on the rancho, along a high bluff along the northwest side of the Santa Ana River, a few miles north of the City of Corona. In 1843, he sold one and a half leagues of the rancho to Benjamin D. Wilson, a trader in New Mexico. In 1850, Wilson sold his acreage to Louis Robidoux (Hoover 1990). In 1859, after Bandini's death, most of the remaining Rancho Jurupa was sold to his son-in-law, Abel Stearns.

Rancho La Sierra (Sepulveda)

The 17, 774 acre Rancho La Sierra (Sepulveda) was granted by Governor Pio Pico (Beck and Haase 1974). The rancho was purchased by California land speculator Abel Stearns in 1857.

United States Conquest and Settlement

In the 1840s, tensions between Mexico and the United States culminated in the Mexican-American War (Bean and Rawls 1993). By 1848, the war had resulted in the transfer of leadership in California from Mexico to the United States. The shift in leadership dramatically affected the inhabitants and economy of California. However, it was the coming of the railroads and the resulting influx of new residents in the late 1800s that irreversibly changed the character of Riverside. The Butterfield stage route from St. Louis to Los Angeles passed through Riverside County on a route marked by the towns of Lake Elsinore and Temecula. Railroads brought additional new residents and, as the population grew and Euro-Americans became the majority, residential communities sprouted up to house the new inhabitants. Euro-Americans brought industrial capitalism in the forms of large-scale ranching, agriculture, mining, and logging.

The shift from open-range ranching to mixed agriculture and fenced ranches was encouraged by several factors. The first is population growth; open-range ranching dominated southern California during the Mexican period due to relatively low population densities outside of pueblos and missions, and it required little human labor (Jelinek 1982). However, the cattle industry began to decline in the 1850s, and hit particularly bad times in the 1860s. Ranchers overstocked their herds in 1853, resulting in dwindling prices and profits in the industry. Additionally, a series of droughts between 1856 and 1864 decimated cattle herds, causing severe economic setbacks (Jelinek 1999). Some ranchers adjusted to these troubles by shifting to sheep raising. Wool prices were good during the 1860s, and fencing laws before the 1870s further displaced cattle raising as paramount in southern California ranching (Heilbron et al. 1936, Jelinek 1982).

In addition, as American emigrants poured into California during the Gold Rush, a surplus labor pool developed, as not all aspiring miners were successful at the endeavor. Large subsistence demands emerged from the gold towns, as involvement in mining activities precluded substantial agriculture ventures. The demand for beef from the northern mining communities affected changes in southern California ranching; the hide and tallow trade was scaled back in favor of beef stock raising. In order to raise healthy beef stock, ranchers tended closely to their herds. Good beef stock required a special diet and could not be allowed to wander too far afield, where the health of the herd could not be easily monitored. In response, ranchers fenced in their lands to keep track of their cattle and hired numerous ranch hands from California's recently expanded labor pool (Jelinek 1999).

City of Riverside

In 1869, a transcontinental railroad had been completed to Sacramento and San Francisco, and it was anticipated that a second line that would pass near San Bernardino would be finished within the next few years (Patterson 1996). In anticipation of this new rail line, land speculation became active. Colonies in nearby areas had already sprouted up, including the Mormons in San Bernardino and the San Franciscans of German descent in Anaheim (Patterson 1996). Another among those who saw the potential for settlement and financial success in Southern California was John W. North, a native of Tennessee.

In 1870, North announced his intentions to form a colony in Southern California in the form of a leaflet mailed to friends and family (Patterson 1996). With the assistance of a committee comprised of Dr. James Greeves, Judge E. G. Brown, and Dr. K. D. Shugart, the Riverside area was inspected and determined suitable for habitation. The land was deeded to the Southern California Colony Association by the California Silk Center Association and the town of Riverside was established. Additional tracts were added in 1874 from Abel Stearns, as owner of the Jurupa, as well as a portion of Rubidoux's ranching lands (Robinson 1957).

The Southern California Colony Association built the first irrigation canal in Riverside County in July 1871, diverting water from the Santa Ana River for small-scale irrigation and domestic water supply (Holmes et al. 1912). The Riverside Land and Irrigating Company incorporated in 1874, and in the same year bought the land and water rights of the Southern California Colony Association. The Riverside Land and Irrigating Company used existing ditches to form the basis of a more efficient water system that (according to historian E. W. Holmes) was "responsible for the prosperity of Riverside" (Holmes et al. 1912). The city water supply was further improved in 1885, with the completion of the Matthew Gage Water System. The Gage Water System doubled the irrigable acreage of the valley, and included a canal that ran from a point on the Santa Ana River north of Colton to 8th Street in Riverside (Holmes et al.1912).

The Washington navel orange tree was introduced into Riverside sometime between 1873 and 1875. Although accounts differ as to how the orange made its way into the area, the combination of the Brazilian strain and the Riverside soil and climate created an enormous demand for the fruit throughout California (Robinson 1957). However, as population and agricultural interests competed for access to water, conflict arose between subdividers, users of water, and water companies. Incorporation of Riverside in 1883 helped to create a peaceful settlement by providing an equitable distribution of lands for sale for which water was available (Hoover et al. 1990, Robinson 1957). In 1893, Riverside County was established, with the City of Riverside as the county seat.

In 1941, the Colorado River aqueduct, which passes under the San Jacinto mountains and ends at Lake Mathews in Riverside County, was completed. From Lake Mathews, feeder lines carried water to areas within the Metropolitan Water District. The joining of the Eastern and Western water district regions in 1954 provided enough water to support both residential and agricultural interests.

Methods

Record Search

A record search was conducted for the preliminary Phase I Expansion portion of the project at the Eastern Information Center of the California Historical Resources Information System located at the University of California, Riverside on November 2, 2005. The record search did not include the core distribution system or the agricultural use system because these systems were conceptual at the time of this study. Therefore, no data was collected for this programmatic analysis.

The record search consulted the state's database of previous cultural resources studies, previously recorded cultural resources sites, and state and federal historic registers. According to the record search, thirty-eight cultural resources studies have been conducted within a one-mile radius of the preliminary Phase I Expansion portion project area. Five of these studies involved portions of the project area (CA-RIV-2307, -3395, -3959, -4199, -4404). Approximately 5% to 10% of the total alignment has been previously surveyed. A total of ninety-two cultural resources have been previously recorded within one-mile of the project area and forty-nine of those are located within ¼ of a mile of the project area. Three of the previously recorded cultural resources have been identified adjacent to the boundaries of the project area. According to the record search, the adjacent properties are defined as those situated next to the existing roadway/edge of pavement where the proposed Phase I Expansion pipeline would be located. These include: "Kendall's" Commercial Building located at 6091 Jurupa Avenue (33-132254), a private residence at 7297 Jurupa Avenue (33-13253), and the Administration Building of the Sherman Institute/the Sherman Indian Museum (33-8407), a property that is currently listed in the National Register of Historic Places.

Archival Research

Limited archival research was conducted at the University of California, Irvine and the archives at Jones & Stokes. The research was undertaken in an effort to identify historically significant themes and architectural trends that may have been associated with the project area. Resources reviewed included county and city histories, historic topographic maps, and historic inventories.

Consultation

Jones & Stokes sent a letter to the Native American Heritage Commission (NAHC) on October 21, 2005 requesting a review of the sacred lands file as well as a list of Native American representatives to be contacted for information regarding sacred sites within the project area. According to the NAHC response dated November 4, 2005, there are no known sacred sites within the Phase I

Expansion area. However, the NAHC also indicated that the absence of specific site information in the sacred lands file does not indicate the absence of cultural resources. The NAHC recommended that other sources of cultural resources should also be contacted for information regarding known and recorded sites. Specifically, local Native Americans individuals and organizations that may have knowledge of cultural resources in the project area should also be contacted during future project-level studies.

Impacts and Mitigation

Methodology

Although the Citywide Recycled Water Master Plan does not provide specific plans for water projects, implementation of general policies for water related improvements and enhancements may have an impact on historic an archaeological resources in the plan area. This section will address the anticipated program-level impacts of the Master Plan and will identify basic mitigation measures for reducing potential impacts. Further guidance is also provided for identifying and mitigating impacts at the project level.

Some areas covered by the plan are densely populated with older commercial and residential buildings, whereas others contain agricultural properties or rural landscapes. Before initiating activities in areas that support structures over 50 years of age, reconnaissance surveys of project areas should be conducted and evaluations prepared to determine which resources would be considered historically significant.

Identification and evaluation of archaeological resources or the possibility for them to exist within project areas is also necessary. These studies should comply with all applicable federal, state, and local laws and regulations. It is important that such studies be completed as early in the planning process as possible to allow for consideration of a full range of mitigation alternatives, if mitigation is necessary. Before conducting any cultural resources investigations for future project-level activities, project planners should consult with the lead agency to establish appropriate methods, define the study area, and agree upon procedures for consultation with interested parties.

Minimally, archeological identification and sensitivity assessment studies required that a qualified archaeologist conduct:

- A record search at the official state archive for Riverside County, which is the Eastern Information Center of the California Resources Inventory System;
- Research using other appropriate reference materials;
- A pedestrian survey or examination of exposed ground surface; and

- Written documentation of the results of the study, an assessment of the sensitivity of the project area for archaeological resources, and recommendations for further work.

The archaeological sensitivity assessment may be based on the presence of artifacts or features on the ground surface, similarities of topography or geography to other archaeologically sensitive areas, reports of previous discoveries in the area, or evidence revealed during archival or other documentary research. Consultation with various state and federal agencies, Native American groups, local historical societies, and other interested or knowledgeable parties may also be appropriate or required.

If archaeological resources are discovered, or if the potential for them to exist in the area is considered significant, additional work to discover their nature, extent, and significance may be necessary. Such work is conducted to establish whether the archaeological resources appear to meet the criteria for inclusion in the NRHP or the CRHR. This work should be conducted according to the applicable federal or state guidelines and regulations, in consultation with the lead agency and other appropriate agencies and individuals, and by a qualified archaeologist. Evaluations of the significance of archaeological sites usually include (but are not limited to):

- Additional archival research;
- Writing of a research design and treatment plan for any discovered resources;
- Excavation or other types of fieldwork;
- Analysis of the artifacts and other data;
- Special studies, such as geomorphological studies;
- Preparation of a technical report; and
- Appropriate archival curation of the artifacts and accompanying data.

The technical report should document the findings of the archival and field research, evaluate the ability of the site to meet the criteria for inclusion in the NRHP or CRHR, and make recommendations, if necessary, for mitigation of project impacts on any significant sites.

Archaeological sites are most often determined to be eligible or ineligible for inclusion in the NRHP or the CRHR based on data recovered during excavation, not on the basis of surface finds or archival research alone.

Significance Criteria

CEQA Significance Criteria

Regulatory compliance with regard to cultural resources is governed by CEQA. CEQA Guidelines define a significant cultural resource as "a resource listed in or

eligible for listing in the California Register of Historical Resources" (CRHR) (Pub. Res. Code Section 5024.1). A resource may be eligible for inclusion in the CRHR if it meets any one of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. It is associated with the lives of important historical figures;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic value; or
4. It has yielded, or may be likely to yield, important prehistoric or historic information.

In addition, if an archaeological site does not fall within the definition of an historical resource, but does meet the definition of a "unique archaeological resource (Pub. Res. Code 21083.2), then the site must be treated in accordance with the special provisions for such resources. An archaeological resource will be "unique" if:

- It is associated with an event or person of recognized significance in California or American history or recognized scientific importance in prehistory;
- Can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions;
- Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;
- Is at least 100 years old and possess substantial stratigraphic integrity; or
- Involves important research questions that historical research has shown can be answered only with archaeological methods.

The question of integrity is an additional factor that must be addressed. Integrity is determined through application of seven factors: location, design, setting, workmanship, materials, feeling, and association. These seven can be roughly grouped into three types of integrity considerations. Location and setting relate to the relationship between the property and its environment. Design, materials, and workmanship, as they apply to historic buildings, relate to construction methods and architectural details. Feeling and association are the least objective of the seven criteria, and pertain to the overall ability of the property to convey a sense of the historical time and place in which it was constructed. Loss of integrity, if substantial, will render a property ineligible, irrespective of significance. Likewise, a resource can have complete integrity, but if it lacks significance it must also be considered ineligible.

Even without a formal determination of significance and nomination for listing in the CRHR, the lead agency can determine that a resource is potentially eligible for such listing to assist in determining whether a significant impact would occur. The fact that a resource is not listed in the CRHR, or has not been determined

eligible for such listing, and is not included in a local register of historic resources does not preclude an agency from determining that a resource may be a historical resource for the purposes of CEQA.

State CEQA Guidelines

State CEQA Guidelines Section 15064.5(b)(1) and (2) identifies the threshold for a significant impact on a historical resource as the potential to cause a substantial adverse change in the significance of a historical resource. That means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. The significance of a historical resource is materially impaired when a project results in the following:

- Demolition or material alteration in an adverse manner of those physical characteristics of a historical resource that convey its historical significance and justify its inclusion in, or eligibility for inclusion in, CRHR.
- Demolition or material alteration in an adverse manner of those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant.
- Demolition or material alteration in an adverse manner of those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in CRHR as determined by a lead agency for purposes of CEQA.

Riverside County Historic District Significance Criteria

A district shall be established only if the board makes one or more of the following findings regarding the area being considered:

1. The area exemplifies or reflects significant aspects of the cultural, political, economic or social history of the nation, state or county;
2. The area is identified with historic personages or with important events in national, state or local history; or
3. The area embodies the distinguishing characteristics of a significant architectural period which is inherently valuable for the study of architecture unique to the history of the county, state or nation.

Riverside County Guidelines

According to section 15.72.050, within the boundaries of an adopted historic preservation district, no building or structure shall be constructed or altered and no building permit, except for permits for demolition of a building, shall be issued by the director of building and safety unless a certificate of historic appropriateness is first issued by the planning director or granted on appeal by the planning commission or the East Area planning council. Within the boundaries of an adopted historic preservation district, no person shall alter, or cause to be altered, construct, or cause to be constructed, any building or structure, except in strict compliance with the plans approved in conjunction with the issuance of a certificate of historic appropriateness.

City of Riverside Significance Criteria

The City maintains an active program to designate historic resources as described in the Historic Preservation Element of the City of Riverside General Plan (2003) and Title 20 of the Municipal Code. The Cultural Resources Ordinance recognizes four types of local designation:

- Cultural Heritage Landmark: A cultural resource of the highest order of importance.
- Structure of Merit: A cultural resource that is important, but a lesser level of significance than a Cultural Heritage Landmark.
- Historic District: A geographically defined area within the City that has a significant concentration of cultural resources that represent themes important in local history.
- Neighborhood Conservation Area: Similar to a historic district, but with resources of somewhat lesser significance and/or with a lesser concentration of resources.

Section 20.20.010 states that a cultural resource may be designated by the City Council upon the recommendation of the Cultural Heritage Board as a landmark pursuant to this title if it:

1. Exemplifies or reflects special elements of the City's cultural, social, economic, political, aesthetic, engineering, architectural or natural history; or
2. Is identified with persons or events significant in local, state or national history; or
3. Embodies distinctive characteristics of a style, type, period or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship; or
4. Represents the work of a notable builder, designer or architect; or
5. Contributes to the significance of an historic area, being a geographically definable area possessing a concentration of historic or scenic properties or

thematically related grouping of properties which contribute to each other and are unified aesthetically by plan or physical development; or

6. Has a unique location or singular physical characteristics or is a view or vista representing an established and familiar visual feature of a neighborhood community or of the City; or
7. Embodies elements of architectural design, detail, materials, or craftsmanship that represent a significant structural or architectural achievement or innovation; or
8. Is similar to other distinctive properties, sites, areas, or objects based on an historic, cultural or architectural motif; or
9. Reflects significant geographical patterns, including those associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of park or community planning; or
10. Is one of the few remaining examples in the City, region, State, or nation possessing distinguishing characteristics of an architectural or historical type or specimen. (Ord. 6263 § 1 (part), 1996)

Section 20.21.010 states that a cultural resource may be designated by the City Council upon the recommendation of the Cultural Heritage Board as a structure of merit, as defined in Section 20.10.010, and pursuant to this title if it:

A. Represents in its location an established and familiar visual feature of the neighborhood, community or City; or
B. Materially benefits the historic, architectural or aesthetic character of the neighborhood; or
C. Is an example of a type of building which was once common but is now rare in its neighborhood, community or area; or
D. Is connected with a business or use which was once common but is now rare; or
E. Contributes to an understanding of contextual significance of a neighborhood, community or area. (Ord. 6263 § 1 (part), 1996).

Section 20.25.010 states that a historic district is a geographically definable area possessing a concentration, linkage or continuity, constituting more than fifty percent of the total, of historic or scenic properties or thematically related grouping of properties which contribute to each other and are unified aesthetically by plan or physical development which has been designated an historic district by the City Council upon the recommendation of the Cultural Heritage Board pursuant to the provisions of this title. A geographic area may be designated as an historic district by the City Council upon the recommendation of the Board if it:

A. Exemplifies or reflects special elements of the City's cultural, social, economic, political, aesthetic, engineering, architectural, or natural history; or

B. Is identified with persons or events significant in local, State, or national history; or

C. Embodies distinctive characteristics of a style, type, period, or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship; or

D. Represents the work of notable builders, designers, or architects; or

E. Has a unique location or is a view or vista representing an established and familiar visual feature of a neighborhood community or of the City; or

F. Embodies a collection of elements of architectural design, detail, materials or craftsmanship that represent a significant structural or architectural achievement or innovation; or

G. Reflects significant geographical patterns, including those associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of park or community planning; or

H. Conveys a sense of historic and architectural cohesiveness through its design, setting, materials, workmanship or association. (Ord. 6263 § 1 (part), 1996)

Section 20.26.010 states that a neighborhood conservation area, as defined in Section 20.10.010, may be designated by the City Council upon the recommendation of the Cultural Heritage Board pursuant to the provisions of this title. A geographic area may be designated as a neighborhood conservation area by the City Council upon the recommendation of the Board if it (Section 20.26.010):

A. Provides a contextual understanding of the broader patterns of Riverside's cultural, social, economic, political, aesthetic, engineering, architectural, or natural history; or

B. Represents established and familiar visual features of a neighborhood, community, or of the City; or

C. Reflects significant development or geographical patterns, including those associated with different eras of settlement and growth; or

D. Conveys a sense of historic or architectural cohesiveness through its design, setting, materials, workmanship or association. (Ord. 6263 § 1 (part), 1996)

City of Riverside Guidelines

According to Section 20.30.010 of Title 20 and the Historic Preservation Element of the City of Riverside General Plan (2003), no person, owner or other entity shall restore, rehabilitate, alter, develop, construct, demolish, remove or change the appearance of any cultural resource without first having applied for and been granted a Certificate of Appropriateness by the Cultural Heritage Board, or Administrative Certificate of Appropriateness by the Cultural Resources Administrator, or by the City Council on appeal. The requirements of this Chapter are in addition to any and all other city permit requirements.

Impact Analysis

Table 3C-1 lists the potential impacts and their level of significance (potentially significant impacts are highlighted in bold). Mitigation measures for significant impacts are identified in the analysis of individual effects and described in detail in "Mitigation for Significant Impacts."

Table 3C-1. Summary List of Impacts and Level of Significance

Impact ID	Type of Impact	Level of Impact
Cultural Resources		
CR-IMP-1	**Demolition of historic resources from construction of project components**	**Potentially significant and unavoidable**
CR-IMP-2	**Alteration or restoration of historic resources from construction of project components**	**Potentially significant (less than significant with mitigation incorporated)**
CR-IMP-3	**Relocation of historic resources from project right-of-way acquisition**	**Potentially significant and unavoidable**
CR-IMP-4	**Disturbance of archaeological resources or human remains from construction of project components**	**Potentially significant (less than significant with mitigation incorporated)**

Because the Citywide Recycled Water Master Plan is comprised of future projects that are expected but have not yet been defined, program-level impacts and general mitigation measures have been defined that will be implemented as specific projects are planned.

CR-IMP-1: Demolition of Historic Resources

Projects proposed under the Citywide Recycled Water Master Plan may require demolition or removal of buildings, structures, or cultural landscapes, which may affect historic resources in or around project areas. Demolition of resources considered historically significant under CEQA would result in a significant impact on the environment. Implementation of Mitigation Measure CR-MM-1A (avoidance) would reduce this impact to a less-than-significant level.

Alteration or relocation, themselves considered impacts, can reduce impacts on some properties to a less-than-significant level, if appropriate mitigation measures are taken (see discussion and mitigation measures for Impacts CR-IMP-2 and -3). However, these remedies are not appropriate for all resources.

Where avoidance proves infeasible, and alteration or relocation is not appropriate, this impact is considered significant and unavoidable. Mitigation Measures CR-MM-1B, -1C, and -2A are recommended to soften the impact, although these measures would not reduce it to a less-than-significant level.

Because for this program-level analysis the City cannot be certain that no cultural resources will be affected by Master Plan projects, or that avoidance will be found feasible for all potentially affected resources, this impact is considered significant and unavoidable at the programmatic level.

CR-IMP-2: Alteration or Restoration of Historic Resources

Projects proposed under the Citywide Recycled Water Master Plan may require the alteration, renovation, or restoration of existing historic buildings, structures, or cultural landscapes considered significant under CEQA. Changing such features may affect their ability to meet the criteria of the CRHR, and are therefore considered a significant impact.

Implementation of Mitigation Measures CR-MM-1A (avoidance), or Mitigation Measures CR-MM-2A (standard alterations) and -2B (design review) would reduce this impact to a less-than-significant level. Relocation, itself an impact, may also be appropriate mitigation for some historic resources, but only if other appropriate mitigation measures are taken (see Impact CR-IMP-3).

CR-IMP-3: Relocation of Historic Resources

Projects proposed under the Citywide Recycled Water Master Plan may involve the acquiring of right-of-way or purchasing parcels, which may lead to the relocation of structures or other resources. Relocation of historically significant buildings and structures could result in a substantial adverse change to historical resources if efforts are not made to maintain their historic integrity. The new setting of a relocated historical resource must be comparable to the original to avoid an adverse impact. Where the setting is not integral to the significance of the resource, implementation of Mitigation Measure CR-MM-1A or Mitigation Measures CR-MM-2A and –2B would reduce the impact of relocation to a less-than-significant level.

However, if the specific location of the resource is integral to its significance, and avoidance is not feasible, then relocation is considered a significant and unavoidable impact. Such relocation can make a resource ineligible for the NRHP and CRHR. Mitigation Measures CR-MM-1B and -1C are recommended to soften the impacts, although they would not reduce the impact to a less-than-significant level. Relocation of archaeological sites is not appropriate.

Because for this program-level analysis the City cannot be certain that no resources will be affected by Master Plan projects, or that avoidance or appropriate relocation will be found feasible for all potentially affected resources, this impact is considered significant and unavoidable at the programmatic level.

For a discussion of the relocation of individual human remains or a cemetery, please see Impact CR-IMP-4 and Mitigation Measure CR-MM-2B.

CR-IMP-4: Disturbance of Archaeological Resources or Human Remains

Ground disturbance during implementation of water pipeline projects may have a significant impact on archaeological resources that may be located in the project area. Much archaeological data is dependent upon the association of artifacts and features with each other; damaging the physical context of archaeological data reduces the information that can be retrieved. However, previous ground disturbance does not indicate that the site lacks integrity and therefore historic significance. Sites can retain considerable significance and data potential despite disturbances.

Buried archaeological sites or deposits that were not identified during previous research and field studies could be inadvertently unearthed during ground-disturbing activities, possibly resulting in damage to significant archaeological resources. Buried human remains that were not identified during previous research and field studies could also be inadvertently unearthed during ground-disturbing activities, possibly resulting in damage to the human remains. Possible disturbance of archaeological resources or human remains is considered a significant impact. Implementation of Mitigation Measures CR-MM-1A, -2B, and –4A through –4F as appropriate would reduce this impact to a less-than-significant level.

Mitigation for Significant Impacts

CR-MM-1A: Avoid Cultural Resources and Human Remains

The City shall ensure that the project proponent identifies significant cultural resources, including the locations of human remains, and design future projects so that the resources (and their settings, if possible) are avoided and unaffected.

Avoidance is the preferred mitigation measure for all cultural resources; however, avoidance is often not a feasible alternative. When a future project has sufficient flexibility, avoidances shall be considered during preparation of a future project-level CEQA document. If avoidance is not feasible and demolition is necessary, this impact would be potentially significant and unavoidable.

CR-MM-1B: Conduct Further Study of the Resource to Document and Convey Its Significance

The City shall ensure that the project proponent retains a qualified cultural resource specialist to gather additional information about the historic resource before project implementation. Study of the resource is particularly helpful if the resource is a property type that is not well understood or has not bee intensively researched previously. Implementation of this measure may require that cultural

resource professionals conduct additional archival research and fieldwork focusing on the resource in question and others of the same property type. This mitigation measure shall be implemented in conjunction with Mitigation Measure CR-MM-1C.

CR-MM-1C: Obtain Standard Photographic and Written Documentation

The City shall ensure that the project proponent retains a qualified cultural resource specialist to document the affected resource to Historic American Buildings Survey (HABS) and Historic American Engineering Record (HAER) standards. HABS and HAER are programs to document historic resources formally through the use of large-format photography, measured drawings, written architectural descriptions, and historical narratives. Such documentation packages are entered into the Library of Congress and a second copy is generally archived in the regional information centers of the California Historic Resources Information System. This mitigation measure is not appropriate for archaeological sites.

CR-MM-2A: Ensure that Alterations Conform to the Secretary of the Interior's Standards

The City shall ensure that any alterations to historic buildings or structures, including relocation, conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. This mitigation measure is not appropriate for archaeological sites.

CR-MM-2B: Conduct Design Review

The City shall ensure that the project proponent submits project designs for design review by the appropriate parties. Reviewers may include agency officials or a local landmarks commission, depending on the project and the resource affected. Local cultural groups shall be consulted when sacred or traditional cultural properties, or sites containing human remains, would be affected. If impacts would result from project design, the project shall be redesigned or modified to soften impacts, particularly when the impacts are related to aesthetics or noise.

CR-MM-4A: Comply with State Laws Pertaining to the Discovery of Human Remains

If human remains are discovered or anticipated, the project proponent and construction contractors shall comply with state laws (CEQA rev. 1998, Section

15064.5; CEQA Public Resources Code Section 5097) relating to the discovery and identification of human remains.

Compliance may require archaeological fieldwork before construction to determine whether remains are present, cessation of construction in the area of discovery, notification of the County Coroner, consultation with descendents or Native American groups, and relocation of remains by qualified personnel in a cultural and scientifically appropriate manner.

CR-MM-4B: Conduct Archaeological Data Recovery

If, following identification and evaluation efforts by a qualified archaeologist, an archaeological site is determined to meet the criteria for inclusion in the NRHP or the CRHR and avoidance or redesign of the project is not feasible, research and fieldwork to recover and analyze the data contained in that site shall be conducted. This work may involve additional archival and historical research; excavation; analysis of the artifacts, features, and other data discovered; presentation of the results in a technical report; and curation of the recovered artifacts and accompanying data. Consultation with the Advisory Council on Historic Preservation (ACHP), the State Historic Preservation Officer (SHPO), and other interested or knowledgeable parties may also be required or appropriate.

CR-MM-4C: Conduct Archaeological Monitoring

If construction or earthmoving activities are proposed for an area that has been determined to be sensitive for archaeological resources or human remains, a qualified archaeologist shall monitor earthmoving activities. Monitoring is not a substitute for the identification, evaluation, or archaeological data-recovery processes. Monitoring shall be conducted where the inadvertent discovery of archaeological resources or human remains is considered possible. Monitoring by an archaeologist and a Native American representative shall be considered for areas where Native American human remains could be discovered.

If the archaeological monitor identifies archaeological resources or human remains, additional recommendations for their further evaluation or treatment shall be made by a qualified archaeologist. Recommendations may include cessation of earthmoving activities in the vicinity of the discovery; additional fieldwork, including controlled archaeological excavation; and/or consultation with interested or knowledgeable parties, including the SHPO.

CR-MM-4D: Halt Work if Cultural Resources are Suspected to Exist in the Project Area

If archaeological or human remains are discovered or suspected, the construction contractor shall cease earthmoving activity in that area and within 100 feet of the

discovery. The contractor shall notify the project proponent. The project proponent shall notify the City and retain a qualified archaeologist to assess the nature, extent, and significance of the find. If necessary, appropriate treatment measures shall be developed by a qualified archaeologist in consultation with the SHPO, the City, and other interested or knowledgeable parties. The City shall ensure that the project proponent implements these treatment measures.

CR-MM-4E: Cover or "Cap" Archaeological Resources

Properly done, covering or "capping" an archaeological resource can preserve it from further damage and retain its integrity for the future. Capping involves placing appropriate materials on the surface of the site so that the surface retains its integrity. Materials and methods shall be determined through consultation with parties knowledgeable in archaeological conservation techniques. Capping shall be preceded by substantial recording of the location and extent of the site by a qualified archaeologist and assurances by appropriate jurisdictions that future work in the vicinity will not damage the site or its capping layers. The project proponent and the City shall ensure that, despite capping of the site, the underlying resources will be available to future qualified researchers. Because availability to future researchers is a condition of capping, this mitigation measure may not be appropriate for vital features of the City's infrastructure that should not be disturbed after construction.

CR-MM-4F: Restriction of Access to Native American Traditional or Religious Sites

Water infrastructure improvements could restrict access to previously accessible locations that are important to Native Americans. This is considered a significant impact. Implementation of Mitigation Measure CR-MM-1A (avoidance) or Mitigation Measure CR-MM-2B (design review) would reduce this impact to a less-than-significant level.

Chapter 4

Cumulative Impact Analysis

Chapter 4

Cumulative Impact Analysis

Introduction

The *State CEQA Guidelines* (Section 15130) require that cumulative impacts be analyzed in an EIR when the resulting impacts are cumulatively considerable and, therefore, potentially significant. Cumulative impacts refer to the combined effect of project impacts with the impacts of other past, present, and reasonably foreseeable future projects. The discussion of cumulative impacts must reflect the severity of the impacts, as well as the likelihood of their occurrence. However, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. Furthermore, the discussion should remain practical and reasonable in considering other projects and related cumulatively considerable impacts. According to Section 15355 of the *Guidelines*:

> "Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Furthermore, according to *State CEQA Guidelines* Section 15130 (a)(1):

> As defined in Section 15355, a "cumulative impact" consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR.

In addition, as stated in the *State CEQA Guidelines*, Section 15064(i)(5), it should be noted that:

> The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.

Therefore, the cumulative impacts discussion in an EIR focuses on whether the impacts of the proposed project are cumulatively considerable within the context of combined impacts caused by other past, present, or future projects. The cumulative impact scenario considers other projects proposed within the area that have the potential to contribute to cumulatively considerable impacts.

Methodology and Significance Criteria

In this draft PEIR, the potential for the proposed project to have incremental effects that are "cumulatively considerable" is evaluated in terms of the project's impacts combined with the following types of related projects and activities:

- diversion of water from the Santa Ana River under appropriations or in connection with other recycled water projects;
- construction, operation, and maintenance of facilities to divert and/or distribute the water;
- use of the diverted water by other water agencies with pending SWRCB applications; and
- land uses associated with the end use of the diverted water.

See "Existing and Future Projects" below for a summary of the proposed diversions and brief description of individual projects.

The criteria used to determine significance are as follows:

1. the impact of the proposed project would contribute to an existing significant cumulative impact, or
2. the incremental effects of the proposed project, when combined with similar effects from other projects, would exceed an established threshold of significance.

Existing and Future Projects

For purposes of this draft PEIR, existing and future projects considered in this analysis of cumulative effects are limited to those that would affect the water flow in Reach 3 of the Santa Ana River (i.e., upstream of Prado Dam) or would affect resources in the project area.

Santa Ana River Diversions

As indicated in Table 4-1, water rights applications and diversions for other recycled water programs potentially would re-direct 666,864 afy from the Santa Ana River system. Of this total, approximately 411,864 afy would be diverted upstream from Prado Dam. Water rights applicants and major facilities are shown in Figure 4-1.

Table 4-1. Cumulative Projects List – Santa Ana River Reach 3

Agency	Proposed Diversion (afy)	Details
Water Rights Applications		
San Bernardino Valley Municipal Water District/Western Municipal Water District	200,000	Diversion to surface and underground storage, and direct diversion. Construction of new facilities.
San Bernardino Valley Water Conservation District	55,464	41,772 afy from the Santa Ana River, added to an existing 10,400 license; up to 19,800 from Mill Creek. Diversion to existing surface and groundwater storage facilities.
Chino Basin Water Master	97,000	Diversion to existing groundwater storage. Also planning new recharge facilities in Chino basin
City of Riverside	41,400	Diversion to recycled water system (see Chapter 2, "Project Description," for details)
Orange County Water District	255,000	Diversion for storage and recharge; in addition to existing rights to 250,000 afy.
Applications Subtotal	648,864	
Other Recycled Water Programs		
City of San Bernardino/Western Water Company Rapid Infiltration and Extraction	18,000	Divert for recycled water purposes; currently discharges 44,895 afy; 16,000 mgd required under Prado agreement.
TOTAL	666,864	

Water Rights Applications

San Bernardino Valley Municipal Water District and Western Municipal Water District

The applications of San Bernardino Valley Municipal Water District and Western Municipal Water District propose to divert up to 200,000 afy from the Santa Ana River. Existing facilities would be used to the extent feasible to divert, convey, and store water from the Santa Ana River. However, it would be necessary to

construct and/or modify a number of facilities. These facilities would be located in four areas.

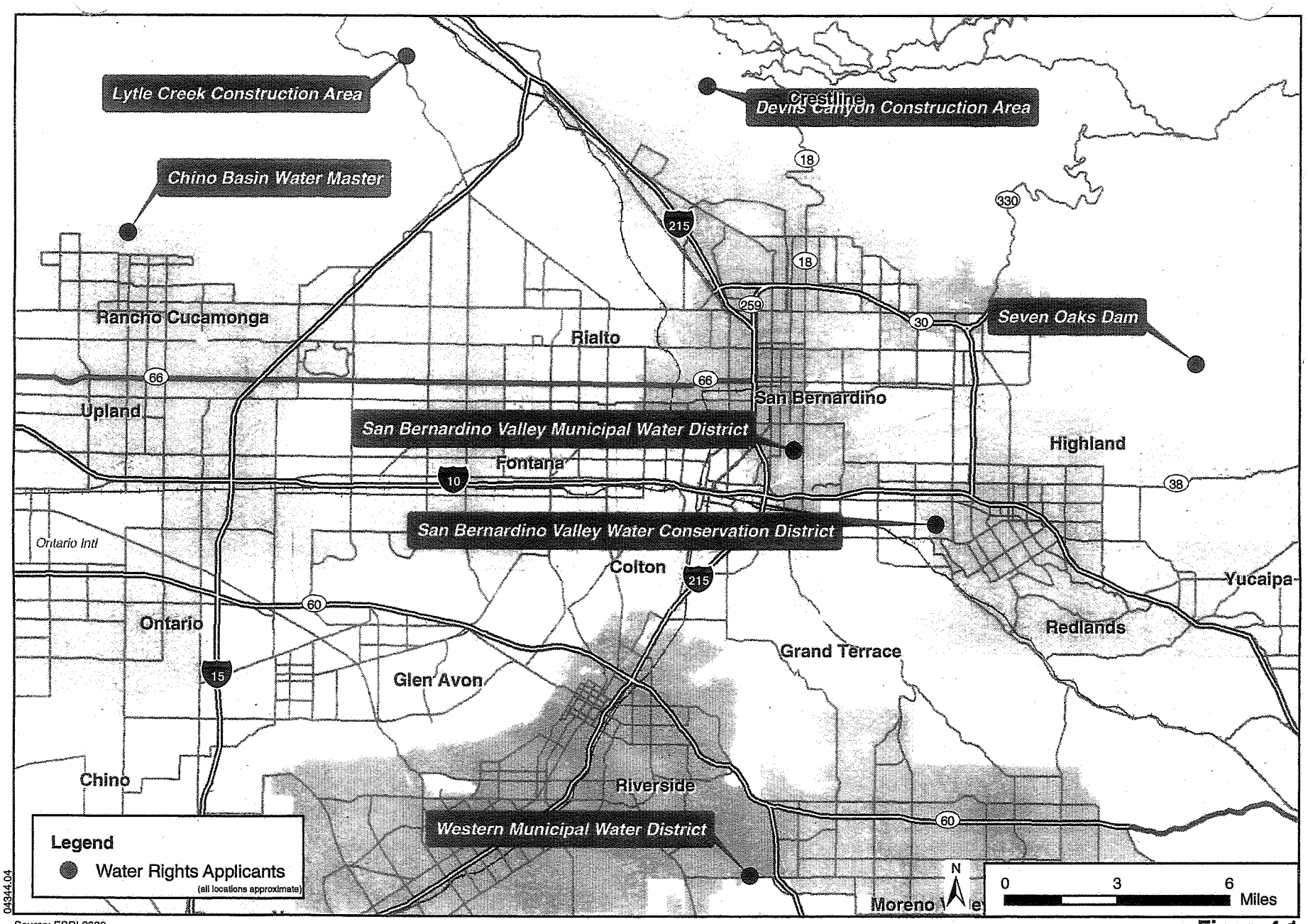
- The **Seven Oaks Dam and Reservoir Area** includes the intake structure of Seven Oaks Dam, the access road to the intake structure, and a section of road providing access to the area upstream of the dam. To achieve the desired level of conservation storage, these infrastructure elements would require modification.
- The **Santa Ana River Construction Area** would include the following proposed new facilities: Plunge Pool Pipeline; Low Flow Connector Pipeline; and Morton Canyon Connector II Pipeline;
- The **Devil Canyon Construction Area** adjacent to the Devil Canyon Power Plant and afterbays of the State Water Project would be used to accommodate the new Devil Canyon By-Pass Pipeline.
- The **Lytle Creek Construction Area** would include the new Lower Lytle Creek Pipeline and the Cactus Basins Pipeline.

Water appropriated from the Santa Ana River would be put to beneficial use in the service areas of the two agencies through direct use, groundwater recharge, and/or exchange. Both agencies developed analytic techniques and models that allow them to demonstrate the manner in which groundwater and surface water resources in their region can be conjunctively used. These techniques and models also demonstrate how it is possible to allocate water for maximum beneficial use through direct delivery, spreading to underground storage, or exchange. The agencies do not propose exporting water for use outside their service areas. Any water conveyed outside their service areas would be returned via exchange as soon as practical.

The Draft EIR for the agencies' water applications indicates that the proposed diversion would decrease flows in the Santa Ana River on non-storm days between Seven Oaks Dam and Riverside Narrows. Various potential mitigation measures involving changes in the timing, pattern, and volume of diversions were assessed. However, no feasible mitigation measures were identified.

Due to the spatial and temporal variability of effects, concentration levels of TDS and nitrate would intermittently and locally exceed water quality objectives in the San Bernardino Basin Area (SBBA). Less-than-significant and beneficial impacts would also occur intermittently and locally. Implementation of mitigation measures identified in the Draft EIR would reduce TDS and nitrate concentration levels, but there could be short periods of time when significant impacts would remain. Therefore, impacts to TDS and nitrate concentration levels in the SBBA would be significant and unavoidable.

Biological impacts associated with the agencies' applications would result primarily from 1) ground disturbance during construction and 2) reduction in flows in the main channel of the Santa Ana River. Construction activities would result in the disturbance and removal of riparian, wetland, stream, and upland habitat—including riversidian alluvial fan sage scrub—and would harm wildlife species. These impacts would be reduced by implementation of a suite of



Source: ESRI 2006

Jones & Stokes

Figure 4-1
Cumulative Project Water Rights Applicants and Major Facilities

mitigation measures. Prior to construction activities, surveys would be conducted, the results of which would aid in avoiding disturbance to habitats and wildlife species. A program would be implemented that includes: restricting disturbance, employee training, onsite monitoring, adoption of best management practices, and protection measures specifically designed for listed species. Additional mitigation would be achieved through the development and implementation of a Habitat Revegetation, Restoration, and Monitoring Program. If these measures prove not to be effective mitigation, a compensation program would be implemented to provide for the acquisition of at last 1 acre of habitat of similar or greater habitat value for every acre removed.

The proposed diversion also would result in a reduced frequency and extent of overbank flooding in the segment of the Santa Ana River between Cuttle Weir and the confluence with Mill Creek. These changes could have significant impacts on the San Bernardino kangaroo rat and Santa Ana River woolly-star. This impact could be minimized by 1) monitoring and removing invasive non-native plant species that diminish value of habitat for the two listed species and 2) together with federal and state agencies, implementing a program to restore/renew habitat. Changes in stream flow associated with implementation of mitigation measures also could affect aquatic, riparian, and wetland habitats and species downstream of the points of diversion, but these impacts would be less than significant.

Other impacts associated with the applications include high groundwater levels at various locations within the SBBA groundwater basin. Development of a groundwater level monitoring program and focused groundwater spreading would alleviate the condition, but not to a less-than-significant level. The impact would remain significant and unavoidable.

Potential impacts related to seismic groundshaking, seismically induced liquefaction, and slope failure could occur at all construction sites and throughout the region. Implementation of recommendations contained in site-specific geotechnical reports would reduce impacts to less-than-significant levels.

Construction activities associated with modifications to Seven Oaks Dam, relocation of access roads, placement of new pipelines, and pipeline excavation and dewatering activities could result in significant impacts associated with sedimentation and erosion, sediment scour and erosion, and onsite landslides and slope collapse. Implementation of mitigation measures would reduce impacts to a less-than-significant level.

San Bernardino Valley Water Conservation District

On November 4, 2002, the San Bernardino Valley Water Conservation District filed an application with the SWRCB for a water rights permit to divert water from the Santa Ana River and Mill Creek. The conservation district sought to divert water to underground storage (based on its historical usage prior to 1914, riparian rights, and additional water that may be made available from the operation of Seven Oaks Dam). The stated reasons for the application were a) to

protect the integrity of historical practices associated with the diversion of surface waters in the Santa Ana River and Mill Creek, and b) to assist the USFWS and other resource agencies in efforts to provide habitat preservation and enhancement of endangered species. These actions would occur on property that the conservation district owns, as may be required in connection with mitigation measures imposed on the operation of Seven Oaks Dam. The total amount of water originally requested in the application was 174,545 af in any year, divided into two portions: 104,545 af reflecting the conservation district's estimate of water spread in 1922 (the year of highest groundwater spreading by the San Bernardino Valley Water Conservation District) and 70,000 af for environmental restoration. In January 2003, the conservation district modified its application by reducing the Santa Ana River portion of the application by 70,000 afy. This reduction in water diversions would effectively eliminate the second stated reason for the original application associated with habitat conservation.

The Draft EIR for the Santa Ana River and Mill Creek Water Rights Application and Groundwater Management Plan Project (June 2004) restated the requested permit amount at 55,464 afy. The application called for the diversion of water from the Santa Ana River at two locations below Seven Oaks Dam: Cuttle Weir and the division box or afterbay of the Southern California Edison Santa Ana River Powerhouse 2/3. Water diverted at these locations would be conveyed to the Santa Ana River spreading grounds located in, and immediately west of, the Seven Oaks Dam borrow pit, via the San Bernardino Valley Water Conservation District Canal, River Crossing Pipeline, and North Fork Canal. Additional water from the Santa Ana River would be conveyed via both the Bear Valley Highline Canal and Greenspot Pipeline and would be spread (via turnouts) in the Mill Creek Spreading Basins. Waters diverted directly from Mill Creek would be conveyed to the Mill Creek Spreading Basins.

The proposed diversion would have biological and hydrological impacts related to variations in stream flow in the Santa Ana River, and it would have geological impacts related to placement of water within an area prone to liquefaction and within an active fault zone area. It would also have the potential to affect groundwater and groundwater contamination plumes in the SBBA.

In nearly all respects, conservation district operations would be the same as existing operations. No significant adverse impacts to biological resources are identified in the Draft EIR. Potential beneficial effects are identified for some species and habitats.

Chino Basin Watermaster

The Chino Basin Watermaster filed an application with the SWRCB on November 4, 2002, for the right to appropriate water from Deer Creek, Day Creek, Etiwanda Creek, San Sevaine Creek, Chino Creek, San Antonio Creek, and Cucamonga Creek. These creeks are tributaries to Prado reservoir and the Santa Ana River near Prado reservoir. The Chino Basin Watermaster seeks to divert up to 97,000 afy using existing channels, diversion structures, and

percolation basins. The Chino Basin Watermaster also proposes to construct new recharge facilities in the upper half of the Chino Basin.

Orange County Water District

OCWD submitted an application to the SWRCB in November 1992 for the purpose of confirming existing rights to Santa Ana River water (42,000 afy baseflow plus any additional storm flows reaching Prado Dam) and establishing rights to the increased volumes of water reaching Prado Dam subject to the terms of the 1969 Stipulated Judgment (Orange County Judgment). OCWD has constructed, over a number of years, facilities for capturing river water to recharge the groundwater basin. These facilities capture virtually all river flows reaching Prado Dam, except during occasional peak storm flows. They have the capacity to recharge 250,000 afy, and this capacity has been almost fully used in many of the last several years. OCWD also has identified several projects to increase recharge and storage capacity to accommodate projected increased river flows. It is anticipated that these new facilities will provide an additional 255,000 afy of diversion capacity. Near-term projects that OCWD plans to implement include percolation basin cleaning devices and additional recharge facilities that would directly add up to 99,000 afy of diversion capacity to groundwater recharge. Long-term projects under consideration by OCWD include raising Prado Dam an additional 6 feet, constructing more recharge facilities, and providing for off-river storage reservoirs.

Anticipated impacts of the OCWD application relate to construction of spreading basins and new reservoirs as well as changes to flow in the Santa Ana River. Construction activities could affect biological resources, hydrology, and water quality; could cause changes in flood flow in the lower Santa Ana River; and could cause wastewater treatment plant effluent to increase as a percentage of Santa Ana River flow.

Rapid Infiltration and Extraction Facility Recycled Water Use Project

The City of San Bernardino in cooperation with Western Water Company has undertaken a project to sell excess tertiary effluent from the Rapid Infiltration and Extraction (RIX) wastewater treatment facility. It is estimated that approximately 18,000 afy of tertiary effluent (relative to the approximately 44,895 afy discharge) could be sold to water users in the southern California region. This sale would decrease the discharge from the RIX facility to the Santa Ana River. The City of San Bernardino has concluded that a discharge of up to 16 mgd is needed to fulfill downstream obligations created by Santa Ana River adjudication, but that the remaining portion of RIX discharge is not currently obligated to downstream uses or users and is "excess," available for sale (San Bernardino Valley Municipal Water District 2003).

A Draft EIR for the RIX Water Recycling Project was released in March 2003. The EIR identified potential impacts related to aesthetics, air quality, biology (vegetation, wildlife, riparian habitat, and wetland habitat), cultural resources, geology, hazards, hydrology and water quality, land use, noise, transportation, utilities, and growth inducement.

Other Projects

Seven Oaks Dam

Through the Section 7 consultation process for effects of Seven Oaks Dam construction and operation, the Corps and USFWS have agreed to adaptive management techniques whereby flow releases will be modified to generate periodic flooding of the overbank floodplain to mimic the pre-dam hydrologic conditions upon which several endangered species depend. While not specific in nature, dam operations for environmental purposes are reasonably foreseeable in that they are part of a formal Biological Opinion, and the Corps' Water Control Manual has been recently modified to include such operations.

Southern California Integrated Watershed Program

Proposition 13 of 2000 provided for $235 million for local assistance grants through the Southern California Integrated Watershed Program, with funding administered by the SWRCB and allocated to the SAWPA for individual projects to rehabilitate and improve the Santa Ana River watershed. The following types of projects were specifically identified for funding:

- basin water banking,
- contaminant and salt removal through reclamation and desalting,
- removal of non-native plants and creation of new open space and wetlands,
- programs for water conservation and efficiency and storm water capture and management, and
- planning and implementation of a flood control program for agricultural operations.

SAWPA and the SWRCB have approved approximately 25 projects, mostly for water supply and water quality improvements, with approximately $30 million set aside for environmental and habitat enhancement projects.

Inland Feeder Project

MWD designed the Inland Feeder Project to increase southern California's water supply reliability while minimizing the impact on the San Francisco

Bay/Sacramento-San Joaquin Delta environment. It would accomplish this by delivering available water from northern California to surface storage facilities and groundwater basins in southern California. Because some entities in the Santa Ana River watershed obtain water supplies from MWD, this project is expected to meet some of the increasing local demand for water. The project, expected to be completed in 2007, would have the capacity to deliver about 646 million gallons per day.

East Branch Extension Project

DWR is currently planning Phase 2 of its East Branch Extension Project. Phase 2 will expand delivery capability to meet contracted demand for State Water Project water by Riverside County and San Bernardino County contractors and may also include MWD.

Riverside-Corona Feeder

This project would consist of the installation of groundwater production wells and a major feeder pipeline capable of delivering 40,000 afy of groundwater from the Bunker Hill Basin to water purveyors served by the Western Municipal Water District. The purpose of the project is to reduce dependence on direct delivery of imported water and thereby contribute to the self-sufficiency of the upper Santa Ana River watershed during dry-year conditions. Approximately 20 wells would be installed in the pressure zone and 28 miles of pipeline would be constructed. Funding for this project has been approved under the Southern California Integrated Watershed Program (see above).

Impact Analysis

The impact analysis is organized into three subsections:

- "Water Resources Impacts,"
- "Biological Resources Impacts," and
- "Potential for Other Cumulative Impacts."

Table 4-2 identifies the potential impacts and their level of significance.

Water Resources Impacts

The potential for cumulative impacts to water resources was considered in terms of combined effects on water quality (CUM-WR-1) and surface flow (CUM-WR-2).

CUM-WR-1: Water Quality

As described in Section 3A, "Water Resources," the construction of project components has the potential to result in significant adverse effects on surface water quality. These effects would be mitigated to a less-than-significant level by the mitigation measures identified for the proposed project.

Table 4-2. Summary List of Impacts and Level of Significance

Impact ID	Type of Impact	Level of Impact
Water Resources		
CUM-WR-1	Cumulatively considerable impacts on surface and groundwater quality from repeated or combined effects	Less-than-significant cumulative impacts from repeated impacts. Less-than-significant cumulative impacts. No contribution to potentially significant cumulative impacts.
CUM-WR-2	Cumulatively considerable impacts on surface flow of Santa Ana River above Prado Dam from repeated or combined effects	Less-than-significant cumulative impacts from incremental decreases in discharges (incremental increases in diversions). Contribution to potentially significant cumulative impacts on river flow in dry years. Contribution to potentially significant cumulative impacts.
Biological Resources		
CUM-BIO-1	Cumulatively considerable impacts to special status species and natural communities from repeated or combined effects	Less-than-significant cumulative impacts from repeated impacts. No or less-than-significant contribution to potentially significant cumulative impacts.
CUM-BIO-2	Cumulatively considerable impacts to existing or proposed conservation areas from repeated or combined effects	Less-than-significant cumulative impacts from repeated impacts. No or less-than-significant contribution to potentially significant cumulative impacts.
Other		
---	Cumulatively considerable impacts to air quality, cultural resources, energy and mineral resources, geology and soils, hazards and hazardous materials, land use and planning, noise, population and housing, public services, recreation, transportation, utilities and service systems, and visual resources and aesthetics.	No or less-than-significant contribution to any potentially significant cumulative impacts.

Other projects entailing construction in the project area have a comparable potential for significant impacts and would be subject to similar impact

avoidance, minimization, mitigation, and monitoring requirements. The residual effects of the proposed project would not create a significant water quality impact in combination with related effects from other projects. The impacts associated with the San Bernardino Valley Municipal Water District and Western Municipal Water District water rights application include short periods of time when significant impacts to TDS and nitrate concentration levels in the SBBA would remain even with implementation of mitigation measures. However, this impact would occur outside of the project area.

CUM-WR-2: Surface Flow

As described in Section 3A, "Water Resources," the proposed project would have less-than-significant impacts on surface flow of the Santa Ana River above Prado Dam. However, the project's effects would likely occur in combination with one or more of the other proposed diversions. For purposes of evaluating combined impacts, it was assumed that all of the proposed diversions would occur in the same timeframe as that for the proposed project. The total diversion was evaluated in terms of a percentage change to the Santa Ana River flow in recent years (Table 4-3). The proposed project's diversion in combination with individual applications/projects also was considered (Table 4-3). It is important to note that minimum flow requirements of 42,000 afy downstream of Prado Dam have already been established by the 1969 Stipulated Judgment. Accordingly, this analysis considers only those proposed appropriations located upstream of Prado Dam. The appropriation proposed by OCWD is located downstream of the dam and therefore is not considered in this analysis of cumulative impacts to water resources.

As shown in Table 4-3, if the requested appropriations were considered based upon data from 1998–2002, the worst-case year would be 2002, when approximately 24% of the river flow would have been diverted. However, it is important to note that 2002 was a very dry year in comparison to other years. During 1998—a very wet year—the total appropriations would have been equal to only 1.03% of river flows.

Table 4-3 also indicates the diversion totals for the proposed project in combination with other projects. Using the same data for river flows presented in Table 4-3, the worst-case combination would be that of Riverside plus the San Bernardino Valley Municipal Water District and Western Municipal Water District application. In addition to posing the largest combined diversion, this scenario is worst-case because significant direct, indirect, and cumulative impacts have been identified in the draft EIR for the other project, including surface flow impacts for which no feasible mitigation has been identified. The best-case combination would be Riverside plus the RIX Recycled Water Project.

Based on this analysis of the proposed project in combination with additional upstream appropriations, a worst-case total diversion of 24% flow would be a significant and unavoidable cumulative impact to the Santa Ana River watershed in terms of surface water flow and downstream groundwater recharge. However, it is important to note that future urbanization along the Santa Ana River will

result in new amounts of impervious surfaces, and therefore the flow of the River will increase. The amounts of new impervious surfaces are dependent upon an unknown quantity and location of future development, and therefore the increase in flow cannot be accurately calculated.

Table 4-3. Total Santa Ana River Flow in Recent Years and Proposed Diversions as a Percentage of Those Flows

	Year of Recorded Flow				
	1998	1999	2000	2001	2002
Total River Flow (afy)	40,136,559	3,679,866	4,163,820	2,720,434	1,715,654
Proposed Diversion as % of River Flow					
All proposed diversions (411,864 afy)	1.03	11.19	9.89	15.14	24.01
Riverside (41,400 afy)	0.10	1.13	0.99	1.52	2.41
Riverside plus San Bernardino Valley Municipal Water District and Western Municipal Water District (241,400 afy)	0.60	6.56	5.80	8.87	14.07
Riverside plus San Bernardino Valley Water Conservation District (96,864 afy)	0.24	2.63	2.33	3.56	5.65
Riverside plus RIX (59,400 afy)	0.15	1.61	1.43	2.18	3.46
Riverside plus Chino Basin (138,400 afy)	0.34	3.76	3.32	5.09	8.07

Biological Resources Impacts

CUM-BIO-1: Impacts to Special Status Species and Natural Communities

As described in Section 3B, "Biological Resources," the construction of project components (including expansion/upgrading of existing facilities) has the potential to result in significant adverse impacts to special status species and natural communities. With the proposed mitigation measures, the residual effects would be less than significant. Because the effects would be repeated over time, often in the same location, there is a potential for the residual effects to become cumulatively significant. With implementation of the WRC MSHCP and SKR HCP measures, cumulatively significant impacts would be reduced to a less-than-significant level. Further, the WRC MSHCP is designed to minimize and mitigate cumulative as well as direct and indirect impacts on special status species and natural communities. This function of the MSHCP was addressed in

the Final EIR/EIS for the plan and was confirmed with USFWS's and DFG's approval of the plan.

The species and habitat effects of the other projects would be minimized and mitigated by a variety of measures. However, the projects outside of Riverside County would be mitigated on a project-by-project basis rather than within the framework of a comprehensive, regional plan. Further, the project-level mitigation would likely focus on listed, proposed, and candidate species (versus a broader range of listed and unlisted species in the same natural communities). In this regard, the projects would have a higher potential for cumulatively significant impacts than the proposed project. The residual effects of the proposed project would not contribute to the significance of these impacts

CUM-BIO-2: Impacts to Conservation Areas

As described in Section 3B, "Biological Resources," the proposed project has the potential to result in significant adverse impacts to existing and proposed conservation areas. For the same reasons described for CUM-BIO-1, the individual effects as mitigated under the WRC MSHCP would be less than significant and would not become cumulatively significant with repetition over time.

The other projects also have the potential for repeated and/or combined impacts to existing and proposed conservation areas that would be cumulatively significant. Such effects would be minimized and mitigated in accordance with applicable plans, programs, and regulations that apply to the lands. In the absence of a comprehensive framework or regional plan, there is a higher potential for the residual effects of the other projects (versus the proposed project) to become cumulatively significant.

Potential for Other Cumulative Impacts

Air Quality

The combination of the proposed project with other proposed appropriations from the Santa Ana River would result in cumulative air quality impacts associated with short-term construction activities. However, based upon the dispersed locations, phased implementation schedule for these projects, and existing air quality regulations that apply to construction machinery and sites, the cumulative effects would be less than significant. Therefore, the proposed project would not be considered to result in cumulatively considerable air quality impacts. Estimated air pollutant emissions associated with the project and other cumulative development pursuant to the City of Riverside 2025 General Plan are provided in a technical appendix to this EIR.

Cultural Resources

Impacts associated with cultural resources are generally evaluated on a site-by-site basis because of site-specific characteristics. Recycled water system infrastructure would involve construction of facilities in City streets and may traverse some areas containing cultural resources. Additionally, site-specific analysis would be conducted once specific facilities, locations, and alignments are identified. In accordance with State PRC Section 21083.2(i), appropriate mitigation would be implemented for archaeological sites accidentally discovered during construction. These provisions may include an immediate evaluation of the find, avoidance, and recovery as appropriate.

Energy and Mineral Resources

Cumulative projects would be required to comply with applicable energy plans and policies of the city or county in which they are located. Implementation of these projects would not result in the loss of availability of a known mineral resource of future value to the region or state. Overall, the proposed project would not result in cumulatively considerable energy and mineral resources impacts.

Geology and Soils

Impacts associated with geology and soils are generally evaluated on a site-by-site basis because of site-specific geologic characteristics. However, the proposed appropriations from the Santa Ana River are in the general vicinity of the proposed project and, as such, are expected to be subject to similar geologic conditions. Risks associated with earthquake-induced groundshaking, fault rupture, landslides, and liquefaction would be expected to be comparable to those for the project site due to similar landform features such as topography and subsurface soils. Potential impacts regarding these issues would be evaluated prior to approval of each respective project. Development of the proposed project or other cumulative projects could not increase the risk of impacts from geologic hazards to any other site or area within the vicinity. Therefore, cumulative impacts would not occur.

Hazards and Hazardous Materials

Impacts associated with hazards and hazardous materials are generally evaluated on a site-by-site basis because of site-specific characteristics. Overall, these impacts are considered to be less than significant. Future surface water storage and groundwater storage would be located at sites that are undeveloped and that have not been used in a capacity that would require the storage, use, or manufacture of any hazardous materials. Recycled water system infrastructure would involve construction of facilities in City streets and may traverse some areas of contaminated soils. However, impacts from hazardous materials are

generally localized to a given site and effects are usually limited to the immediate surrounding area.

The project would not require the use, storage, or handling of any acutely hazardous materials that would pose a direct threat to human health and safety. Compliance with standard construction practices for worker health and safety would minimize project-specific and cumulative effects. Therefore, the proposed project would not contribute to cumulatively considerable hazardous materials impacts.

Land Use and Planning

Cumulative projects would be required to comply with applicable land use plans and policies of the city or county in which they are located. Amendments or variances to local plans, ordinances, and policies would be proposed and adopted as needed for approval of future reclaimed water facilities and other water storage or diversion infrastructure. Overall, the proposed project would not result in cumulatively considerable land use and planning impacts.

Noise

The combination of the proposed project with other proposed appropriations from the Santa Ana River would result in cumulative noise impacts associated with short-term construction activities. Temporary localized impacts may be associated with excavation, earthmoving, and hauling. However, based on the dispersed locations and phased implementation schedule for these projects, construction noise impacts would be less than significant. Similarly, operational noise impacts associated with stationary area sources or vehicular traffic would also be less than significant. Overall, the proposed project would not be considered to result in cumulatively considerable noise impacts.

Population and Housing

Cumulative projects would be required to comply with applicable population and housing plans and policies of the city or county in which they are located. The cumulative projects are intended to enhance water supplies in their respective areas and would not eliminate any existing housing. Overall, the proposed project would not result in cumulatively considerable population and housing impacts.

Public Services

Implementation of cumulative projects is unlikely to increase the demand for public services such as fire protection, police protection, schools, or roads. There would be costs associated with maintenance of new infrastructure; however,

these costs would be estimated prior to project implementation and would be consistent with local government budget priorities. The proposed project would not result in cumulatively considerable public services impacts.

Recreation

Cumulative projects would be required to comply with applicable recreation plans and policies of the city or county in which they are located. Amendments or variances to local recreation plans, ordinances, and policies would be proposed and adopted as needed for approval of future reclaimed water facilities and other water storage or diversion infrastructure. Overall, cumulative projects would not adversely affect local recreational opportunities, and would not result in cumulatively considerable recreation impacts.

Transportation/Traffic

Based upon the dispersed locations and phased implementation schedule for cumulative project appropriations from the Santa Ana River, construction and operational traffic impacts are anticipated to be less than significant. Further review of potential construction traffic impacts will be prepared when specific facilities, locations, and alignments of recycled water infrastructure are identified during plan implementation.

Utilities and Service Systems

Implementation of cumulative projects is unlikely to increase the demand for utilities such as electricity, natural gas, communications systems, stormwater drainage, or solid waste disposal. Project implementation would affect the quantity of water processed through the Riverside Water Quality Treatment Plant. Overall, however, water treatment impacts would be beneficial to local residents and businesses and would not result in cumulatively considerable utilities and service systems impacts.

Visual and Aesthetics

Impacts to visual and aesthetic resources are typically limited to a given site because a project's changes to the landscape are localized. The combination of the proposed project with other proposed appropriations from the Santa Ana River would result in cumulative visual and aesthetics impacts associated with short-term construction activities. However, based upon the dispersed locations and phased implementation schedule for these projects, these impacts would be less than significant. Future reclaimed water facilities and other water storage or diversion infrastructure would typically be located subsurface, or adjacent to existing related facilities, and would have less-than-significant visual impacts. There are no foreseeable changes in viewshed associated with the cumulative

projects. The proposed project would not be considered to result in cumulatively considerable impacts.

Chapter 5

Other CEQA Considerations

Chapter 5

Other CEQA Considerations

Introduction

This chapter presents the evaluation of types of environmental impacts required by CEQA that are not covered within the other sections of this draft PEIR. The other CEQA considerations include:

- growth-inducing impacts,
- significant unavoidable adverse impacts, and
- irreversible environmental changes and use of nonrenewable resources

Growth-Inducing Impacts

Pursuant to §15126.2(d) of the State CEQA Guidelines, an EIR must address whether a project will directly or indirectly foster growth. Section 15126.2(d) reads as follows:

> [An EIR shall d]iscuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of wastewater treatment plant, might, for example, allow for more construction in service areas). Increases in the population may further tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. [An EIR shall a]lso discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

This section evaluates whether the proposed project would directly or indirectly induce economic, population, or housing growth in the surrounding environment.

Direct Growth-Inducing Impacts

A project would directly induce growth if it would remove barriers to population growth. An example of such a project is a change to a jurisdiction's General Plan and Zoning Ordinance that would allow new residential development to occur.

The proposed project would not change the amount or location of developable lands, the process by which development is authorized, or the rate at which development would occur within the project area. Further, the proposed project would be implemented within an area subject to the growth-related policies in the City's existing, adopted General Plan and Riverside County's RCIP.

In southern California, water supply is typically considered a constraint on new development. To a degree, recycled water can be considered an augment to existing sources and therefore a possible inducement for additional development. At maximum capacity (which is expected to occur in 2025), the proposed project would provide 41,400 afy of water for municipal, commercial, industrial, and agricultural purposes. In 2003–2004, approximately 84,000 afy of water was being used within the area served by the City. By 2020, uses are projected to increase to approximately 105,000 afy. As recognized in the City's existing, adopted General Plan and the RCIP, the availability and use of recycled water is an important factor in estimating and planning future growth. However, the limitations on its use restrict the potential for recycled water to induce growth beyond what otherwise would be supported by groundwater and contract supplies. Housing, commercial, and industrial development requires potable water supplies; recycled water can reduce dependence on and use of, but not the need for, those supplies.

Indirect Growth-Inducing Impacts

A project would indirectly induce growth if it would increase the capacity of the infrastructure in an area in which the public service currently meets demands. Examples would be increasing the capacity of a sewer treatment plant or a roadway beyond that needed to meet existing demands.

The proposed project entails expansion of the RWQCP's capacity. However, the expansion has been planned by the City in order to meet the projected wastewater treatment needs of its service area. The expansion would occur when demand has increased. The expansion and proposed use of the treated effluent would not induce growth beyond that projected by the City.

Significant Unavoidable Environmental Impacts

Significant impacts associated with the project are identified in Section 3A, "Water Resources;" Section 3B, "Biological Resources;" Section 3C, "Cultural Resources," and Chapter 4, "Cumulative Impact Analysis," of this draft PEIR (also see Table 6-1 for list). Where feasible, mitigation has been identified that would reduce the effects to a less-than-significant level. However, the proposed project would result in significant unavoidable impacts to cultural resources.

As noted in Chapter 4, "Cumulative Impact Analysis," the proposed project would contribute to significant combined impacts to river flow from proposed upstream diversions and projects. No feasible mitigation has been identified for the expected combined effect, and a significant unavoidable impact would result if the proposed upstream diversions and projects are implemented. However, the contribution of the proposed project to the combined effect is a less-than-significant impact.

Irreversible Environmental Changes and Use of Nonrenewable Resources

CEQA Guidelines (§15126.2[c]) require an evaluation of significant irreversible environmental changes that would be caused by a project if implemented. Such changes include uses of nonrenewable resources by a project that may be irreversible because a large commitment of such resources makes removal or nonuse afterwards unlikely. CEQA Guidelines refer to the need to evaluate and justify the consumption of nonrenewable resources and the extent to which the project commits future generations to similar uses. In addition, CEQA requires that irreversible damage resulting from an environmental accident associated with a project be evaluated.

Implementation of the proposed project would not include construction or other activity on a scale that would entail the irretrievable commitment of nonrenewable resources.

Chapter 6

Alternatives

Chapter 6
Alternatives

Introduction

CEQA Guidelines Section 15126.6 requires an assessment of a reasonable range of alternatives to a project. The alternatives must meet most of the objectives and avoid or substantially lessen potentially significant environmental impacts associated with the project. CEQA also requires that an EIR assess the No-Project Alternative, providing an assessment of what would reasonably be expected to occur if the project were not implemented.

The City's preferred alternative is the proposed project, which is described in detail in Chapter 2, "Project Description." The City's objectives regarding the proposed project, as stated in Chapter 2, are to:

- adopt the Master Plan as the framework for planning, building, and operating a recycled water distribution system;
- implement capital projects and other activities necessary to distribute recycled water from the RWQCP for municipal, industrial, irrigation, and agricultural uses; and
- direct up to 41,400 afy of treated effluent from the RWQCP into the city's recycled water system.

Significant adverse impacts associated with the project are identified in Section 3A, "Water Resources;" Section 3B, "Biological Resources;" Section 3C, "Cultural Resources," Chapter 4, "Cumulative Impact Analysis," and Appendix C, "Air Quality," of this draft PEIR and are summarized in Table 6-1.

This chapter:

- describes six alternatives that were identified but eliminated from further consideration because they fail to meet most project objectives or do not reduce significant impacts; and
- describes and evaluates three alternatives to the proposed project, including the No-Project Alternative.

Table 6-1. Summary List of Significant Impacts Associated with Proposed Project and Identified Mitigation Measures

Impact ID	Impact ID for Alternative Analysis	Type of Impact	Mitigation Measure
WR-IMP-1A	Impact A	Decreased water quality from construction of all project components	WR-MM-1A-1: Implement requirements of the NPDES General Construction Permit. WR-MM-1A-2: Implement a spill prevention, control, and countermeasure program. WR-MM-1A-3: Prepare a frac-out contingency plan for any jack-and-bore construction activities.
WR-IMP-1B	Impact B	Decreased water quality from construction from construction below the water table	WR-MM-1A-1: Implement requirements of the NPDES General Construction Permit. WR-MM-1A-2: Implement a spill prevention, control, and countermeasure program. WR-MM-1B-1: Implement provisions for dewatering.
BIO-IMP-1B-1 BIO-IMP-1C-1 BIO-IMP-1F-2	Impact C	Impacts to special status species from construction of core distribution system, agricultural use system, and facility expansion/upgrading.	BIO-MM-1: Implement the applicable measures of the WRC MSHCP. BIO-MM-2: Comply with the applicable requirements of the SKR HCP.
BIO-IMP-2A-1 BIO-IMP-2B-1 BIO-IMP-2C-1 BIO-IMP-2F-2	Impact D	Impacts to special status natural communities (habitats) from construction of Phase I, core distribution system, agricultural use system, and facility expansion/upgrading.	BIO-MM-1: Implement the applicable measures of the WRC MSHCP. BIO-MM-2: Comply with the applicable requirements of the SKR HCP.
BIO-IMP-3C-1 BIO-IMP-3F-2	Impact E	Impacts to linkages and corridor from construction of agricultural use system and facility expansion/upgrading.	BIO-MM-1: Implement the applicable measures of the WRC MSHCP. BIO-MM-2: Comply with the applicable requirements of the SKR HCP.
BIO-IMP-4B-1 BIO-IMP-4C-1 BIO-IMP-4F-2	Impact F	Impacts to conservation areas from construction of core distribution system, agricultural use system, and facility expansion/upgrading.	BIO-MM-1: Implement the applicable measures of the WRC MSHCP. BIO-MM-2: Comply with the applicable requirements of the SKR HCP.

Impact ID	Impact ID for Alternative Analysis	Type of Impact	Mitigation Measure
CR –IMP-1	Impact G	Demolition of historic resources from construction of project components.	CR-MM-1B: Conduct further study of the resource to document and convey its significance. CR-MM-1C: Obtain standard photographic and written documentation. CR-MM-2A: Ensure that alterations conform to the Secretary of the Interior's standards. Potential impacts would remain significant and unavoidable.
CR –IMP-2	Impact H	Alteration or restoration of historic resources from construction of project components.	CR-MM-1A: Avoid cultural resources and human remains. CR-MM-2A: Ensure that alterations conform to the Secretary of the Interior's standards. CR-MM-2B: Conduct design review.
CR –IMP-3	Impact I	Relocation of historic resources from project right-of-way acquisition.	CR-MM-1A: Avoid cultural resources and human remains. CR-MM-1B: Conduct further study of the resource to document and convey its significance. CR-MM-1C: Obtain standard photographic and written documentation. CR-MM-2A: Ensure that alterations conform to the Secretary of the Interior's standards. CR-MM-2B: Conduct design review.
CR –IMP-4	Impact J	Disturbance of archaeological resources or human remains from construction of project components.	CR-MM-1A: Avoid cultural resources and human remains. CR-MM-2B: Conduct design review. CR-MM-4A: Comply with State laws pertaining to the discovery of human remains. CR-MM-4B: Conduct archaeological data recovery. CR-MM-4C: Conduct archaeological monitoring. CR-MM-4D: Halt work if cultural resources are suspected to exist in the project area. CR-MM-4E: Cover or "cap" archaeological resources.

Impact ID	Impact ID for Alternative Analysis	Type of Impact	Mitigation Measure
			CR-MM-4F: Restriction of access to Native American traditional or religious sites.
CUM-WR-2	Impact K	Contribution to cumulatively considerable impacts on surface flow of Santa Ana River above Prado Dam from combined effects of all proposed water diversion and in connection with one project with anticipated significant impacts.	None identified.
AQ-IMP-1	Impact L	Temporary air pollutant emissions associated with Phase I construction activities	AQ-MM-1: Minimize construction-related fugitive duct emissions.

Alternatives Eliminated from Further Consideration

The six alternatives considered but eliminated from further analysis are:

- Different Use of the Water Rights/Diverted Effluent,
- Substantially Reduced Agricultural Use Component,
- No Water Rights Application,
- City-Only Recycled Water Distribution System,
- Diversion Never Exceeds Discharge, and
- No Diversion/Maximum Discharge.

A brief description of each alternative follows, together with an explanation of why each was eliminated.

Different Use of Water Rights/Diverted Effluent

In this alternative, the 41,400 afy of treated effluent would be used for groundwater recharge or other allowed uses, rather than for landscape irrigation, industrial uses, or agriculture. The alternative would avoid the potentially significant impacts to water and biological resources from construction of facilities. It was eliminated from further consideration primarily because it would not meet the project's objective regarding reduced dependence on groundwater and contract water supplies. The alternative also would not address the cumulative impact on river flow from the combined effects of the City's project with other water diversions upstream of Prado Dam.

Substantially Reduced Agricultural Use Component

In this alternative, the agricultural use system would be eliminated and distribution for agricultural uses would be limited to what could be delivered by the core distribution system. The alternative would reduce the significant impacts to water and biological resources resulting from construction of the agricultural use system. Such impacts potentially could be more extensive than the comparable impacts of the core distribution system. It also would reduce the project's contribution to the cumulative impact on river flow. It was eliminated from further consideration because it would substantially reduce the City's ability to meet its objectives regarding reduced dependence on existing water sources.

No Water Rights Application

In this alternative, the City would withdraw its application for Santa Ana River water rights. This alternative was eliminated because it would not reduce or avoid any of the impacts associated with the proposed project. The City does not require an appropriation of water rights to implement a recycled water program. The treatment facility is projected to receive increased volumes of wastewater and produce increased volumes of treated effluent that meets recycled water standards regardless of the status of the water rights issue.

City-Only Recycled Water Distribution System

In this alternative, the distribution and use of recycled water from the RWQCP would be limited to the City and would not extend into the community service districts or other unincorporated areas in western Riverside County. The alternative would reduce the potentially significant impacts to water resources and biological resources from construction of facilities. It also would reduce the project's contribution to the cumulative impact on river flow. It was eliminated because it would substantially reduce the City's ability to meet its objectives regarding reduced dependence on existing water sources and because it is inconsistent with the City's wastewater responsibilities in the community service districts.

Diversion Never Exceeds Discharge

In this alternative, the recycled water system would be phased and gauged so that the afy of diverted effluent never exceed the afy discharged into the Santa Ana River. Assuming a 67,400 afy capacity at the RWQCP (same as for the proposed project), the maximum capacity of the recycled water system would be 33,500 afy. Based on projected wastewater volumes, discharges would be reduced to approximately 30,000 afy by 2020 but would stabilize at approximately 33,500 from 2025 through 2050. The alternative was initially considered in response to concerns that the reduced discharge under the proposed

project might result in significant adverse impacts. The alternative was eliminated from further consideration because it would not avoid or reduce the potentially significant impacts associated with construction of facilities.

No Diversion/Maximum Discharge

In this alternative, treated effluent would not be diverted to a recycled water system and would be discharged into the Santa Ana River. There would be no recycled water distribution system or widespread use of recycled water. This alternative would avoid the significant impacts associated with the proposed project. It was eliminated because it would not meet the project's objective regarding reduced dependence on groundwater and contract water supplies and because it is essentially the same as the No-Project Alternative, which is being analyzed.

Alternatives Analyzed in This Draft PEIR

In addition to the proposed project, the following alternatives are analyzed in this draft PEIR:

- Alternative 1: 20,000 AFY Recycled Water System,
- Alternative 2: No RWQCP Expansion, Minimum Discharge, and
- Alternative 3: No-Project Alternative (also Maximum Discharge).

This section presents a description of each alternative and an analysis of the alternatives' impacts compared with the proposed project. It also identifies the environmentally superior alternative. Table 6-2 summarizes the key components of each alternative and the rationale for selecting it for analysis. Table 6-3 indicates the estimated volume of diverted and discharged treated effluent from the RWQCP from 2000 through 2050 for the proposed project and the alternatives.

Table 6-2. Summary of Key Components of the Proposed Project and Alternatives

Alternative	Components	
Proposed Project	RWQCP treatment capacity	67,400 afy
	Diverted to recycled water system	41,400 afy
	Use of recycled water	21,400 for non-agricultural use, 20,000 afy for agricultural use
	System facilities	Phase I, core distribution system, agricultural use system, expanded RWQCP
	Discharge to river at buildout	26,000 afy
	Water rights appropriation	41,400 afy
Alt. 1: Recycled Water System Limited to 20,000 AFY	RWQCP treatment capacity	67,400 afy
	Diverted to recycled water system	20,000 afy
	Use of recycled water	14,000 afy for non-agricultural use, 6,000 afy for agricultural use
	System facilities	Phase I, core distribution system, agricultural use system, expanded RWQCP
	Discharge to river at buildout	47,400 afy
	Water rights appropriation	20,000 afy
Alt. 2: No Treatment Facility Expansion, Minimum Discharge	RWQCP treatment capacity	No expansion; limited to 56,650 afy
	Diverted to recycled water system	41,400 afy
	Use of recycled water	21,400 afy for non-agricultural use; 20,000 afy for agricultural use
	System facilities	Phase I, core distribution system, agricultural use system
	Discharge to river at buildout	15,250 afy
	Water rights appropriation	41,400 afy
Alt. 3: No-Project Alternative (also Maximum Discharge)	RWQCP treatment capacity	67,400 afy
	Diverted to recycled water system	300 afy
	Use of recycled water	Existing uses per Master Plan
	System facilities	Existing distribution system; expanded RWQCP
	Discharge to river at buildout	67,100 afy
	Water rights appropriation	None

Table 6-3. Estimated Volumes of Diverted and Discharged Treated Effluent under the Proposed Project and Alternatives, AFY, 2000–2050

	Base Year 2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Proposed Project											
Recycled	300	2,270	11,000	21,000	31,000	41,400	41,400	41,400	41,400	41,400	41,400
Discharged	36,000	39,730	37,000	33,000	29,000	25,000	26,000	26,000	26,000	26,000	26,000
Net change from baseline discharge	0	3,730	1,000	(3,000)	(7,000)	(11,000)	(10,000)	(10,000)	(10,000)	(10,000)	(10,000)
Alternative 1. Recycled Water System Limited to 20,000 AFY											
Recycled	300	2,270	11,000	14,000	17,000	20,000	20,000	20,000	20,000	20,000	20,000
Discharged	36,000	39,730	37,000	40,000	43,000	47,400	47,400	47,400	47,400	47,400	47,400
Net change from baseline discharge	0	3,730	1,000	4,000	7,000	11,400	11,400	11,400	11,400	11,400	11,40[illegible]
Alternative 2. No Treatment Facility Expansion, Minimum Discharge											
Recycled	300	2,270	11,000	21,000	31,000	41,400	41,400	41,400	41,400	41,400	41,400
Discharged	36,000	39,730	37,000	33,000	29,000	15,250	15,250	15,250	15,250	15,250	15,250
Net change from baseline discharge	0	3,730	1,000	(3,000)	(7,000)	(20,750)	(20,750)	(20,750)	(20,750)	(20,750)	(20,750)
Alternative 3. No-Project Alternative (Maximum Discharge)											
Recycled	300	300	300	300	300	300	300	300	300	300	300
Discharged	36,000	41,700	46,700	53,700	59,700	65,700	67,100	67,100	67,100	67,100	67,100
Net change from baseline discharge	0	5,700	10,700	17,700	23,700	29,700	31,100	31,100	31,100	31,100	31,100

Description of Alternatives

Alternative 1: 20,000 AFY Recycled Water System

This alternative is designed to reduce the significant impacts associated with construction of the system facilities while allowing for a substantial increase in use of recycled water in the project area (and thereby reduced dependency on other water sources). For this alternative, the maximum capacity of the recycled water system would be limited to 20,000 afy. This volume is identified in the market analysis in the Master Plan as available from known sources in the project area. For purposes of the analysis, it is assumed that up to 14,000 afy would be used for non-agricultural uses and up to 6,000 afy would be used for agricultural uses. Based on these proposed uses, the City would seek a 20,000-afy water rights appropriation. The facilities needed for the system would include the Phase I expansion, a smaller-scale core distribution system, and a smaller-scale agricultural use system. Expansion of treatment capacity at the RWQCP would occur as in the proposed project to accommodate increased volumes of wastewater from the City and community service districts served by the City. Discharges into the Santa Ana River at buildout of the recycled water system would increase to 47,400 afy (see Table 6-3 for the projected diversion and discharge levels under this alternative through 2050).

Alternative 2: No RWQCP Expansion, Minimum Discharge

This alternative is designed to reduce the potentially significant impacts of the proposed project and maximize attainment of the project objective to reduce dependency on groundwater and contract water supplies. In this alternative, impacts associated with the expansion or upgrading of the RWQCP would be avoided by limiting treatment capacity at the facility to 56,650 afy rather than increasing it to 67,400 afy. Measures to reduce wastewater production would be implemented in the project area and/or service contracts to the community service districts would be modified to avert the need for a facility expansion that would entail habitat and species impacts. The advantage of this approach is that it would avoid impacts to some of the most sensitive resources in the project area while allowing project objectives to be met. Except for an expansion of the RWQCP, the recycled water program would be the same as under the proposed project. The maximum capacity of the system would be 41,400 afy, with 21,400 afy for non-agricultural uses and 20,000 afy for agricultural uses. Based on these proposed uses, the City would seek a 41,400-afy appropriation of Santa Ana River water rights (same as for the proposed project). The Phase I, core distribution system, and agricultural use system would be constructed, operated, and maintained as for the proposed project. Because the treatment capacity of the RWQCP would be limited to 56,650 afy (a volume within the master planned capacity of the facility), it would be necessary to reduce discharges to the Santa Ana River in order to meet the 41,400-afy diversion goal. When the recycled water system is at buildout, discharges into the river would drop to 15,250 afy.

This volume is the required discharge level under the pre-existing agreement regarding Prado Basin. See Table 6-3 for the projected diversion and discharge levels under this alternative through 2050.

Alternative 3: No-Project Alternative (Maximum Discharge)

The No-Project Alternative entails continuation of existing conditions and trends under a scenario in which there is no expansion of the City's existing recycled water system and no appropriation of Santa Ana River water rights to the City. In this scenario, the treatment capacity of the RWQCP would be expanded to 67,400 afy to accommodate increased wastewater volumes from City and community service district sources. Approximately 300 afy of treated effluent would be diverted and used as recycled water. No expansion of the City's existing recycled water distribution system would occur. At maximum treatment capacity, the RWQCP would discharge 67,100 afy into the Santa Ana River. In this regard, the No-Project Alternative also would be the "maximum discharge" alternative compared to the proposed project and other alternatives. See Table 6-3 for the projected diversion and discharge levels under the No-Project Alternative through 2050.

Analysis and Comparison of Alternatives

Alternatives 1 and 2 were evaluated in terms of their potential for avoiding or reducing the significant impacts of the proposed project, their own potential for significant impacts, and how they compared with the other alternatives. Environmental conditions under Alternative 3 (No-Project Alternative) were compared with those anticipated under the proposed project. Table 6-4 summarizes the results of the analysis.

Table 6-4. Summary Comparison of Alternatives with the Proposed Project

Point of Comparison	Alternative 1: 20,000 AFY Recycled Water System	Alternative 2: No RWQCP Expansion, Minimum Discharge	Alternative 3: No-Project Alternative
Meets objective to reduce dependency on groundwater and contract water sources	Reduced dependency but by less than half than proposed project.	Reduced dependency, same level as proposed project.	Does not provide but does not preclude way to meet objective.
Decreased water quality from construction of all project components	Reduced impacts; difference not necessarily substantial; same mitigation requirements.	Essentially same as proposed project, except that some impacts would be avoided; same mitigation requirements.	Similar impacts posed by other projects; other projects subject to similar permit and mitigation requirements.

Point of Comparison	Alternative 1: 20,000 AFY Recycled Water System	Alternative 2: No RWQCP Expansion, Minimum Discharge	Alternative 3: No-Project Alternative
Decreased water quality from construction below the water table.	Reduced impacts; difference not necessarily substantial; same mitigation requirements.	Essentially same as proposed project, except that some impacts would be avoided; same mitigation requirements.	Similar impacts posed by other projects; other projects subject to similar permit and mitigation requirements.
Impacts to special status species from construction of facilities.	Reduced impacts; difference not necessarily substantial; same mitigation requirements.	Essentially same as proposed project, except that some species impacts would be avoided; same mitigation requirements; no beneficial effects from addition of wetlands.	Impacts and mitigation similar to those for other projects; WRC MSHCP and SKR HCP implemented (same as for proposed project).
Impacts to special status natural communities (habitats) from construction of facilities.	Reduced impacts; difference not necessarily substantial; same mitigation requirements.	Essentially same as proposed project, except that some wetland and riparian impacts would be avoided; same mitigation requirements; no beneficial effects from addition of wetlands.	Impacts and mitigation similar to those for other projects; WRC MSHCP and SKR HCP implemented (same as for proposed project).
Impacts to linkages and corridor from construction of agricultural use system and RWQCP expansion.	Reduced impacts; difference not necessarily substantial; same mitigation requirements.	Essentially same as proposed project, except that some impacts would be avoided; same mitigation requirements; no beneficial effects from addition of wetlands.	Impacts and mitigation similar to those for other projects; WRC MSHCP and SKR HCP implemented (same as for proposed project).
Impacts to conservation areas from construction of facilities.	Reduced impacts; difference not necessarily substantial; same mitigation requirements.	Same as proposed project, except that wetlands would not be added to Santa Ana River conservation area.	Impacts and mitigation similar to those for other projects; WRC MSHCP and SKR HCP implemented (same as for proposed project).
Contribution to cumulatively considerable impacts on river flow from upstream diversions.	No contribution; 32% increase in discharge compared with baseline.	Increases contribution; 58% decrease in discharge compared with baseline.	No contribution; 86% increase in discharge compared with baseline.

Alternative 1: 20,000 AFY Recycled Water System

Potential to Avoid or Reduce Significant Impacts of the Proposed Project

Impact A: Decreased Water Quality from Construction of All Project Components

Because the recycled water system under Alternative 1 would have a substantially smaller capacity than under the proposed project, there would be less ground disturbance in connection with facility construction and therefore a reduced potential for significant impacts to water quality. The greatest reduction potentially would be in connection with the agricultural use system. However, if existing distribution systems could be used or modified, the potential for significant impacts in connection with the proposed project would be substantially reduced, and the reduced capacity of the agricultural use system under Alternative 1 would not correlate to a reduction in significant impacts. Construction-related impacts of the core distribution system under Alternative 1 could be, but would not necessarily be, lower than those of the proposed project. A 31% reduction in core system capacity would not directly translate into a 31% or greater reduction in pipelines. Actual impacts would depend on the location of the end users. In addition, the construction of the Alternative 1 system would be subject to the same permit requirements as the proposed project.

Impact B: Decreased Water Quality from Construction below the Water Table

For the reasons described for Impact A above, Alternative 1 could but would not necessarily have a reduced potential for significant impacts, as compared to the proposed project. It is possible that the trenching required for the core distribution system could be as extensive as that for the proposed project.

Impact C: Effects on Special Status Species from Construction of Core Distribution System, Agricultural Use System, and Facility Expansion/Upgrading

To the degree that the reduced-capacity system translates into less land and/or river disturbance, Alternative 1 would have reduced impacts on special status species, as compared to the proposed project. Impacts to species in individual locations that might occur under the proposed project could be avoided. However, total impacts would not necessarily be substantially different than those under the proposed project and would be subject to the same WRC MSHCP and SKR HCP requirements as the proposed project.

Impact D: Effects on Special Status Natural Communities (Habitats) from Construction of Phase I, Core Distribution System, Agricultural Use System, and Facility Expansion/Upgrading

For the reasons described regarding Impacts A and C above, Alternative 1 could have, but would not necessarily have, a reduced potential for significant impacts to special status natural communities, as compared with the proposed project.

Impact E: Effects on Linkages and Corridors from Construction of Agricultural Use System and Facility Expansion/Upgrading

For the same reasons described regarding Impact A, Alternative 1 would be less likely to have significant impacts on linkages and corridors than the proposed project, but the difference would not necessarily be substantial.

Impact F: Effects on Conservation Areas from Construction of Core Distribution System, Agricultural Use System, and Facility Expansion/Upgrading

For the reasons described regarding Impacts A and C above, Alternative 1 could have, but would not necessarily have, a reduced potential for significant impacts to existing and proposed conservation areas, as compared with the proposed project.

Impact G: Demolition of Historic Resources from Construction of Project Components

To the degree that the reduced-capacity system translates into less land and/or river disturbance, Alternative 1 would have reduced impacts on historic resources, as compared to the proposed project. Demolition of historic resources in individual locations that might occur under the proposed project could be avoided. In sum, Alternative 1 could have, but would not necessarily have, a reduced potential for significant impacts associated with the demolition of historic resources, as compared with the proposed project.

Impact H: Alteration or Restoration of Historic Resources from Construction of Project Components

For the reasons described regarding Impacts A, C, and G above, Alternative 1 could have, but would not necessarily have, a reduced potential for significant impacts associated with the alteration or restoration of historic resources, as compared with the proposed project.

Impact I: Relocation of Historic Resources from Project Right-of-Way Acquisition

For the reasons described regarding Impacts A, C, and G above, Alternative 1 could have, but would not necessarily have, a reduced potential for significant impacts associated with the relocation of historic resources from project right-of-way acquisition, as compared with the proposed project.

Impact J: Disturbance of Archaeological Resources or Human Remains from Construction of Project Components

For the reasons described regarding Impacts A, C, and G above, Alternative 1 could have, but would not necessarily have, a reduced potential for significant impacts associated with the disturbance of archaeological resources or human remains from construction of project components, as compared with the proposed project.

Impact K: Contribution to Cumulatively Considerable Impacts on Surface Flow of Santa Ana River above Prado Dam from Combined Effects of All Proposed Water Diversion and in Connection with One Project with Anticipated Significant Impacts

Compared with baseline conditions in 2000, Alternative 1 would increase discharges to the river by 11,400 afy (32%) rather than decrease discharges by 10,000 afy (28%) like the proposed project would (see Table 6-3). Consequently, Alternative 1 would not contribute to the cumulative impacts to river flows associated with the combined water rights applications. However, if the San Bernardino Valley Municipal Water District/Western Municipal Water District application and uses are approved, significant cumulative impacts to river flows would still occur.

Impact L: Construction Air Quality Emissions

To the degree that the reduced-capacity system translates into less land and/or river disturbance, Alternative 1 would have reduced temporary construction air quality emissions, as compared to the proposed project.

Potential for Significant Impacts

Implementation of Alternative 1 would result in significant impacts to water, biological resources, cultural resources, and air quality. These impacts would be potentially reduced in scale as compared to the proposed project because Alternative 1 would involve less ground and/or river disturbance in connection with facility construction. Moreover, Alternative 1 would increase discharges to the river (rather than decrease discharges similar to the proposed project), and therefore would not contribute to cumulative impacts to river flows associated with the combined water rights applications.

These impacts would be reduced to less-than-significant levels through the same mitigation measures identified for the proposed project (see Table 6-1; Section 3A, "Water Resources," Section 3B, "Biological Resources;" Section 3C, "Cultural Resources," Chapter 4, "Cumulative Impact Analysis"), and Appendix C, "Air Quality."

Comparison with Alternative 2

For the same reasons described above regarding Impacts A, C, and G, Alternative 1 would likely result in fewer significant impacts to water quality, biological resources, cultural resources, and air quality from construction of system components than Alternative 2, but the difference would not necessarily be substantial. There would likely be fewer significant impacts in connection with the agricultural use system under Alternative 1 than under Alternative 2 (subject to the same caveats identified above under Impact A). Alternative 1 also would avoid contributing to the significant impacts to river flow anticipated in connection with the combined effects of the water rights applications. Alternative 1 would increase discharges into the river by 32% over baseline conditions; Alternative 2 would decrease discharges by 58% (see Table 6-3).

Comparison with Alternative 3 (No-Project Alternative)

Compared with the No-Project Alternative, Alternative 1 would substantially increase use of recycled water and thereby reduce the City's dependence on existing water sources. The estimated increase in discharge to the river would be substantially lower under Alternative 1 than under the No-Project Alternative, which would increase discharges by 31,000 afy (86%).

Alternative 2: No Treatment Facility Expansion, Minimum Discharge

Potential to Avoid or Reduce Significant Impacts of Proposed Project

Impact A: Decreased Water Quality from Construction of All Project Components

Except for the impacts associated with expansion of the RWQCP (which would be avoided), Alternative 2 would have essentially the same potentially significant impacts as the proposed project.

Impact B: Decreased Water Quality from Construction below the Water Table

As with Impact A above, Alternative 2 would have essentially the same potentially significant impacts as the proposed project, except that impacts from RWQCP expansion would be avoided.

Impact C: Effects on Special Status Species from Construction of Core Distribution System, Agricultural Use System, and Facility Expansion/Upgrading

As with Impacts A and B above, Alternative 2 would have essentially the same potentially significant impacts as the proposed project except that impacts from RWQCP expansion would be avoided. Impacts to wetland species would likely be reduced, as compared to the proposed project. However, total impacts would not necessarily be substantially different and would be subject to the same WRC MSHCP and SKR HCP requirements as the proposed project.

Impact D: Effects on Special Status Natural Communities (Habitats) from Construction of Phase I, Core Distribution System, Agricultural Use System, and Facility Expansion/Upgrading

Alternative 2 would avoid the habitat impacts associated with RWQCP expansion but also would forego the benefits associated with increasing the acreage of wetlands as part of the system. Significant impacts to other natural communities would essentially be the same as under the proposed project.

Impact E: Effects on Linkages and Corridors from Construction of Agricultural Use System and Facility Expansion/Upgrading

Alternative 2 would have essentially the same impacts to linkages and corridors as the proposed project. It would avoid temporary impacts associated with

expansion of the RWQCP but also would forego the beneficial effects of adding more wetlands to the riparian corridor.

Impact F: Effects on Conservation Areas from Construction of Core Distribution System, Agricultural Use System, and Facility Expansion/Upgrading

Alternative 2 would have essentially the same impacts as the proposed project but would not add wetlands to the existing and proposed conservation area along the Santa Ana River.

Impact G: Demolition of Historic Resources from Construction of Project Components

Alternative 2 would have essentially the same potentially significant impacts associated with the demolition of historic resources as the proposed project.

Impact H: Alteration or Restoration of Historic Resources from Construction of Project Components

Alternative 2 would have essentially the same impacts associated with the alteration or restoration of historic resources as the proposed project.

Impact I: Relocation of Historic Resources from Project Right-of-Way Acquisition

Alternative 2 would have essentially the same impacts associated with the relocation of historic resources as the proposed project.

Impact J: Disturbance of Archaeological Resources or Human Remains from Construction of Project Components

Except for the impacts associated with expansion of the RWQCP (which would be avoided), Alternative 2 would have essentially the same potentially significant impacts associated with the disturbance of archaeological resources or human remains as the proposed project.

Impact K: Contribution to Cumulatively Considerable Impacts on Surface Flow of Santa Ana River above Prado Dam from Combined Effects of All Proposed Water Diversion and in Connection with One Project with Anticipated Significant Impacts

Under Alternative 2, discharges to the river would decrease by 20,750 afy (58%) compared with baseline conditions in 2000. This decrease is nearly twice the level expected under the proposed project (10,000 afy, 28%) but would meet the discharge requirements under the pre-existing agreement regarding Prado Basin. Alternative 2 would make a larger contribution to the cumulative impacts to river flows than the proposed project, but the increased contribution would not cause a substantial increase in the anticipated impact. Further, as under the proposed project, the primary source of cumulatively significant impacts to the river flows are the projects associated with the San Bernardino Valley Municipal Water District/Western Municipal Water District application.

Impact L: Construction Air Quality Emissions

Except for the construction air quality impacts associated with expansion of the RWQCP (which would be avoided), Alternative 2 would have essentially the same potentially significant impacts as the proposed project.

Potential for Significant Impacts

Alternative 2 has essentially the same potential for significant impacts as the proposed project, except that potential impacts to wetland and riparian habitats would be reduced because there would be no ground and/or river disturbance associated with expansion of the RWQCP, nor would wetlands be added to the existing and proposed conservation area along the Santa Ana River. The significant impacts could be reduced to less-than-significant levels through the same mitigation measures identified for the proposed project.

Comparison with Alternative 1

Alternative 2 would achieve a greater reduction in dependency on existing water sources than Alternative 1. Potentially significant impacts to water and biological resources would be greater under Alternative 2 than Alternative 1, but the difference would not necessarily be substantial. Alternative 2 would contribute to the cumulatively significant impact to river flow; Alternative 1 would not.

Comparison with Alternative 3 (No-Project Alternative)

Compared with the No-Project Alternative, Alternative 2 would substantially increase use of recycled water and thereby reduce the City's dependence on existing water sources. Instead of the projected increase in discharges to the river under the No-Project Alternative (86% increase over baseline), Alternative 2 would decrease discharges by 20,750 afy (58%).

Alternative 3: No-Project Alternative (Maximum Discharge)

Compared with the proposed project, the No-Project Alternative would not provide a way to reduce dependency on existing water sources within the project area. However, the No-Project Alternative would not prevent the City from pursing other ways to meet its objective. Water resources would be subject to impacts from construction and other activities, and those impacts would be subject to permit and mitigation requirements similar to those that apply to the proposed project. Special status species and natural communities would benefit from implementation of the WRC MSHCP and SKR HCP, including completion of the MSHCP reserve system within the City and region. However, these

benefits also would occur under the proposed project. The No-Project Alternative would avoid potential impacts to cultural resources and air quality associated with construction of the recycled water system. The No-Project Alternative would add to the river flow, increasing discharges from the RWQCP by 86% over baseline. However, this increase would not offset the anticipated cumulative impacts to river flow in dry periods as the result of upstream diversions that potentially would be approved.

Environmentally Superior Alternative

The proposed project is the environmentally superior alternative because it would allow the City to reduce dependence of groundwater and contract water supplies through activities that would have less-than-significant residual effects on water and biological resources. Further, the proposed project has the potential to contribute to completion of the MSHCP reserve system via mitigation for species and habitat impacts from construction of system components and potentially by adding wetlands in connection with expansion of the RWQCP.

Chapter 7

References

Chapter 7

References

Printed References

Barbour, M. G., and J. Wirka. Classification of Alluvial Scrub in Los Angeles, Riverside and San Bernardino Counties. 1997. Long Beach, CA: CDFG, Region 5.

Bean, L.J., and C.R. Smith. 1978. Gabrielino. Pages 538-549 in R.L. Heizer (ed.), *Handbook of North American Indians*, Volume 8, California. Smithsonian Institution, Washington, D.C.

Bean, L. J. 1978. Cahuilla. Pages 575–587 in R.L. Heizer (ed.), *Handbook of North American Indians, Volume 8, California.* Smithsonian Institution, Washington, DC.

Bean, W., and J. J. Rawls. 1993. *California: An Interpretive History.* 4th Edition. McGraw Hill, New York.

Beck, W. A., and Y. D. Haase. 1974. *Historical Atlas of California.* University of Oklahoma Press, Norman, OK.

Belnap, J., J. H. Kaltenecker, R. Rosentreter, J. Williams, S. Leonard, and D. Eldridge. Biological Soil Crusts: Ecology and Management. 2001. Denver, CO, U.S. Department of the Interior, Bureau of Land Management.

Brown, James. 1985. *Harvest of the Sun: An Illustrated History of Riverside County.* Windsor Publications. Available at the Riverside Central Library, Riverside, CA.

Brown, John Jr., and James Boyd. 1922. History of San Bernardino and Riverside Counties, Vol. I. The Lewis Publishing Company, Chicago.

California Department of Fish and Game (DFG). 2004. California Natural Diversity Database. Sacramento, CA. Data Date May 2, 2004.

California Department of Health Services (DHS). 1998. Drinking Water Program, Draft Water Recycling Criteria.

———. 1999. Draft Proposed Groundwater Recharge Regulation.

———. 2001. California Health Laws Related to Recycled Water, "The Purple Book." June.

———. 2003. California Drinking Water: NDMA-Related Activities. Available: <http://www.dhs.ca.gov/ps/ddwem/chemicals/NDMA/NDMAindex.htm>. Accessed: October 22, 2004.

California Department of Water Resources (DWR). 2002. Southern California Comprehensive Water Reclamation and Reuse Study, Phase II.

———. 2003. California's Water Bulletin 118, Upper Santa Ana Valley Groundwater Basin. Available: <http://www.dpla2.water.ca.gov/publications/groundwater/bulletin118/basins/pdfs_desc/8-2.03.pdf>. Last Revised: 2003. Accessed: August 6, 2004.

———. 2004. California's Groundwater Bulletin No. 118. Hydrologic Region South Coast Upper Santa Ana Valley Groundwater Basin, Chino Subbasin. Available: <http://www.dpla2.water.ca.gov /publications/ groundwater/ bulletin118/basins/82.03_Upper_Santa_Ana_Valley_Groundwater_Basin_Chino_Subbasin.pdf>. Department of Planning and Local Assistance. Accessed: July 26, 2004.

California Native Plant Society (CNPS). 2004. California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California, CNPS Special Pub. No. 1 (Sixth Edition, 2004 Electronic Inventory Update). Skinner, M. W., and B. M. Pavlik (eds.). California Native Plant Society, Sacramento, CA. Available: <http://www.cal.net/~levinel/cgi-bin/cnps/sensinv.cgi)>. Accessed: August 25, 2004.

City of Riverside. 2003. Recycled Water Master Plan. Riverside, CA.

———. 2003. Historic Preservation Element of the City of Riverside General Plan. Prepared by Architectural Preservation Planning Services, Pasadena, CA. Available on line at: http://www.riversideca.gov/planning/genplan2025-document-title.htm

———. 2004a. Draft Program Environmental Report on the Draft Riverside General Plan 2025.

———. 2004b. Draft Riverside General Plan 2025.

———. 2005. Urban Water Management Plan. Riverside, CA.

City of San Jacinto. 2003. Available: http://www.ci.san-jacinto.ca.us/html_2003/history.htm. Accessed: December 23, 2003.

Cooper, D. 2004. Important Bird Areas of California. Pasadena, CA: Audubon California.

Davis, C. A. 1981. Newberry Cave: An Elko religious site in San Bernardino County, California. MA thesis.

Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual, technical report Y-87-1. U.S. Army Engineer Waterways Experimental Station, Vicksburg, MS.

Gudde, E. 1998. *California Place Names: The Origin and Etymology of Current Geographical Names*. Revised and Enlarged by William Bright. University of California Press, Berkeley, CA.

Heilbron, C. H., W. Davidson, A. H. Cawston, R. F. Heilbron, and B. Biewener. 1936. *History of San Diego County*. The San Diego Press Club. San Diego, CA.

Holmes, E. W., et al. 1912. History of Riverside County, California, with Biographical Sketches of The Leading Men and Women of the County Who Have Been Identified with Its Growth and Development from the Early Days to the Present. Historic Record Company. Los Angeles, CA.

Hoover, M. B., H. E. Rensch, E. G. Rensch, W. N. Abeloe. 1990. Historic Spots in California. Revised by Douglas E. Kyle. Stanford University Press, Stanford, CA.

Jelinek, L. J. 1982. *Harvest Empire: A History of California Agriculture*. Second Edition. Boyd and Fraser. San Francisco, CA.

———. 1999. "Property of *Every* Kind: Ranching and Farming During the Gold Rush Era." In *A Golden State: Mining and Economic Development in Gold Rush California*, edited by J. J. Rawls and J. Orsi. Pages 233–249. University of California Press, Berkeley.

Jones & Stokes. 2000. Final Cultural Resources Report for the Williams Communications, Inc., Fiber Optic Cable System Installation Project, Riverside to San Diego, California, Vol. I–IV. Jones & Stokes, Sacramento, CA.

Kroeber, Alfred L. 1925. *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, DC. Reprinted by Dover, NY.

May, R. V. 1976. An early ceramic date threshold in southern California. *The Masterkey* 50(3):
103–107.

Moratto, M. J. 1984. *California Archaeology*. San Diego: Academic Press. San Diego, CA.

Moyle, P. B. 2002. Inland Fishes of California. Berkeley, CA: University of California Press.

Moyle, P. B., R. M. Yoshiyama, J. E. Williams, and E. D. Wikramanayake. 1995. Fish Species of Special Concern in California. 2nd edition. Sacramento, CA: California Department of Fish and Game.

New England Water Works Association. 2004. Trihalomethane Fact Sheet. Available: <http://www.newwa.org/public_info/fact_sheets_thms.pdf>.

North Carolina Cooperative Extension Service. 1996. Volatile Organic Compounds (VOCs) in Drinking Water. Publication Number AG 473-5. Available: <www.bae.ncsu.edu/programs/extension/publicat/wqwm/ag473_5.html>.

Parsons. 2003. Recycled Water Phase I Feasibility Study and Citywide Master Plan. September. Pasadena, CA. Prepared for the City of Riverside, Riverside, CA.

Patterson, Tom. 1996. *A Colony for California: Riverside's First Hundred Years*, 2nd edition. The Museum Press, Riverside Museum Associates, CA.

Riverside County Habitat Conservation Agency (RCHCA). 1996. Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County.

Riverside County. 2003a. Final Environmental Impact Report for the Western Riverside County Multiple Species Habitat Conservation Plan. Available: <http://www.rcip.org/conservation.htm>.

———. 2003b. Regional Comprehensive Integrated Project, Riverside County General Plan. Available: <http://www.rcip.org>.

———. 2003c. Western Riverside County Multiple Species Habitat Conservation. Available: <http://www.rcip.org/conservation.htm>.

Riverside Public Utilities Department. 2004. Where Does Riverside Get Its Water? Available: <http://www.ci.riverside.ca.us/utilities/basinmap.htm>. Accessed: July 26, 2004.

Riverside-Corona Resources Conservation District. 2002. Long-Range Plan 2000–2004. Available: <http://www.carcd.org/wisp/riversidecorona/lr-plan.htm>. Accessed: October 20, 2004.

Robinson, John W., and Bruce D. Risher. 1993. *The San Jacintos*. Big Santa Ana Historical Society, Arcadia, CA.

Robinson, W. W. 1948. *Land in California*. University of California Press, Berkeley.

———. 1957. *The Story of Riverside County*. Riverside Title Company, Riverside, CA.

San Bernardino Valley Municipal Water Department. 2003. Change in Groundwater Storage for the San Bernardino Basin Area, Calendar Years 1934 to 2002, Executive Summary and Appendix. May.

San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County. 2004. Draft Environmental Impact Report for Santa Ana River Water Right Applications for Supplemental Water Supply.

San Marino Environmental Associates. 2003. Revised draft: Results of the Year 3 Implementation of the Santa Ana Sucker Conservation Program for the Santa Ana River. Prepared for the Santa Ana Sucker Conservation Team, SAWPA Task Order SMEA 370-03, Riverside, CA. San Marino, CA: San Marino Associates.

Santa Ana Regional Water Quality Control Board (Santa Ana RWQCB). 1995a. Water Quality Control Plan, Santa Ana River Basin (8). Riverside, CA: CRWQ.

———. 1995b. Basin Plan. Riverside, CA: CRWQ.

———. 2004a. Resolution No. R8-2004-0001 Incorporate an Updated Total Dissolved Solids (TDS) and Nitrogen Management Plan.

———. 2004b. Santa Ana Regional Water Quality Control Board Watershed Management Initiative Chapter. Revised May 2004. Available: http://www.swrcb.ca.gov/rwqcb8/html/wmi.html.

Santa Ana Watershed Protection Association (SAWPA). 2002. Santa Ana Integrated Watershed Plan.

———. 2004a. About the Watershed. Available: www.sawpa.org/about/watershed.htm. Last Updated: April 2004. Accessed on June 28, 2004, by Bob Collacott.

———. 2004b. Santa Ana Watershed Protection Association Annual Report 2002–2003. Riverside, CA.

Simberloff, D., and J. Cox. 1987. Consequences and Costs of Conservation Corridors. Conservation Biology 1:63-71.

Simberloff, D., J. A. Farr, J. Cox, and D. W. Mehlman. 1992. Movement Corridors: Conservation Bargains or Poor Investments? Conservation Biology 6:493-504.

Swift, C., T. Haglund, M. Ruiz, and R. Fisher. 1993. The status and distribution of the freshwater fishes of southern California. Bulletin of the Southern California Academy of Sciences 92(3):101-167.

U.S. Army Corps of Engineers (Corps). 2000. Seven Oaks Dam. Available: <http://www.spl.usace.army.mil/resreg/htdocs/7oaks.html>. Los Angeles District, Reservoir Regulation Section. Last Revised: August 2, 2000. Accessed: December 6, 2004.

U.S. Fish and Wildlife Service (USFWS). 1988. Draft Fish and Wildlife Coordination Act Report, Santa Ana River Flood Control Project, Orange, Riverside, and San Bernardino Counties, California. Carlsbad, CA: USFWS.

———. 2004. Biological and Conference Opinion for Permit TE-088609-0 for the Western Riverside County Multiple Species Habitat Conservation Plan.

U.S. Geological Survey. 2004a. Monthly Streamflow Statistics for California, USGS 11066460 Santa Ana R A MWD Crossing CA. Accessed: http://nwis.waterdata.usgs.gov/ca/nwis/annual/calendar_year?site_no=11066460&agency_cd=USGS. Last updated: Not available. Accessed on July 22, 2004, by Garrick Jones.

U.S. Geological Survey, National Water Quality Assessment Program. 2004b. Concentrations of Dissolved Solids and Nutrients in Water Sources and Selected Streams of the Santa Ana Basin, California, October 2008–September 2001. Robert and Kenneth Belitz, Water-Resources Investigations Report 03-4326.

Vail Speck Associates, Inc. 1992. Appendix D: Biological Assessment of the San Bernardino Valley Water Conservation District Master Plan Study Area. Report prepared for San Bernardino Valley Water Conservation District, San Bernardino, CA.

Warren, C. N. 1984. The Desert Region. In Chapter 8 of *California Archaeology*, by M. J. Moratto. Academic Press, San Diego, CA.

Warren, C. N. and R. H. Crabtree. 1986. Prehistory of the Southwestern Area. In *Handbook of North American Indians, Volume 11: Great Basin*, edited by W. L. D'Azevedo, pages 183–193. Smithsonian Institution, Washington, DC.

Zembal, R. L., and K. J. Kramer. 1985. Survey of Vegetation and Vertebrate Fauna in the Prado Basin and the Santa Ana River Canyon, California. Laguna Niguel, CA: U.S. Fish and Wildlife Service Division of Ecological Services.

Personal Communication

Malone, Andrew. Wildermuth Incorporated. August 18, 2004—Email attachment: Data for 10-year TDS/TIN Calibration for Santa Ana River TDS/TIN Task Force.

Chapter 8

List of Preparers

Chapter 8

List of Preparers

Riverside Public Utilities

Kevin Milligan, P.E.	Assistant Director - Water

Jones & Stokes

Charles Smith, AICP	Project Manager
Jean Carr	Biological Resources / CEQA Compliance
Kurt Campbell	Biological Resources
Tom Trexler	Water Resources
Nate Martin	Water Resources
Noelle Shaver	Cultural Resources
Dana Byrne (PAN Environmental)	Air Quality
Elizabeth Irvin	Technical Editor
Mindy Higginson	Technical Editor
Susie Steed-Wilson	Graphics

Appendix A

Initial Study/Notice of Preparation and Comments

RIVERSIDE

PUBLIC UTILITIES

3900 MAIN STREET | RIVERSIDE CA | 92522 | PHONE (909) 826-5285 | FAX (909) 826-2498 | WWW.RIVERSIDEPUBLICUTILITIES.COM

Notice of Preparation

March 17, 2004

To: Interested Parties

Subject: Notice of Preparation (NOP) of an Environmental Impact Report assessing the City of Riverside adoption of the 2003 Recycled Water Phase I Feasibility Study and Citywide Master Plan and the City of Riverside Application to Appropriate Santa Ana River Water by Permit

The City of Riverside (City) is the Lead Agency under the California Environmental Quality Act (CEQA) for the preparation of a Program Environmental Impact Report (PEIR) to assess the adoption of the 2003 Recycled Water Phase I Feasibility Study and Citywide Master Plan (Plan), the City of Riverside Application to Appropriate Santa Ana River Water by Permit (Application), and a program of near term and long term projects the City will implement to provide recycled tertiary treated effluent from the City of Riverside Water Quality Control Plant for municipal, industrial, irrigation, and agricultural uses throughout the City of Riverside service territory.

The City is soliciting comments and requesting information relative to the scope and content of the environmental information to be studied in the PEIR. In accordance with CEQA, agencies and other interested parties are requested to review the project description provided in this NOP and provide comments on environmental issues related to the statutory responsibilities of the agency. If you are an agency with statutory responsibilities in connection with the proposed project, your agency will need to use the PEIR prepared by the City when considering your permit or other approval for the project.

Project Location: The project is located within the City of Riverside. The City's Water Quality Control plant discharges water to the Santa Ana River in the vicinity of Van Buren Boulevard. The proposed recycled water system includes facilities located within the City of Riverside corporate boundary and those portions of Riverside County located within the Public Utilities Department's Service Area. The area encompasses approximately 89 square miles. Water discharged from the Water Quality Control Plant

migrates via surface and subsurface flow from the plant outfall easterly of Van Buren Boulevard to the Prado Dam flood pool approximately 10 miles downstream.

Project Description: The City's Water Quality Control Plant (WQCP) is located in the vicinity of Van Buren Boulevard and the Santa Ana River. The plant currently discharges approximately 36,000 acre-feet annually of tertiary treated effluent to the Santa Ana River east of Van Buren Boulevard. The City of Riverside Public Utilities Department has responsibility under the City Charter for water supplies, services, and conservation within the City. The Department currently operates a small-recycled water system, composed of 8-inch and 12-inch diameter distribution mains. The system serves two customers in the immediate vicinity of the WQCP.

The minimum volume of treated effluent discharged to the Santa Ana River is governed by the so-called "Prado Settlement" agreement dated November 20, 1968 between Western Municipal Water District of Riverside County and the City of Riverside. Under this agreement the City has an obligation to discharge 15,250 acre-feet per year (afy) – subject to an adjustment for water quality – to the Santa Ana River. The City has filed an application to appropriate 41,400 afy of current and future effluent in excess of its minimum obligation.

In September 2003, the City of Riverside completed its Recycled Water Phase I Feasibility Study and Citywide Master Plan (Plan). This Plan identifies a potential market for recycled water, including municipal, industrial, irrigation and agricultural uses. Under the Plan, the City would design and construct a recycled water distribution system, consisting of pipelines, booster stations and enclosed storage reservoirs. Effluent from the WQCP would be incrementally diverted from the Santa Ana River and delivered to customers through the recycled water system.

The City contemplates immediate construction of Phase 1 improvements to serve a market demand of approximately 2,270 afy. Future phases of the distribution system are to be developed as the market dictates and funding allows.

CEQA Compliance: The PEIR will serve as the basis of environmental review for the City's adoption of the Recycled Water Phase I Feasibility Study and Citywide Master Plan, for processing of the City's Application No. 31372 by the State Water Resources Control Board, and impacts related to construction of future infrastructure at a programmatic level. Impacts related to infrastructure location and construction will be addressed in subsequent CEQA documents.

Environmental Resources to be Assessed: An Initial Study Checklist is provided as an attachment to this Notice of Preparation. Potential environmental effects to be addressed in the PEIR include the following:

- Water Resources
- Biological Resources

- Mandatory Finding of Significance

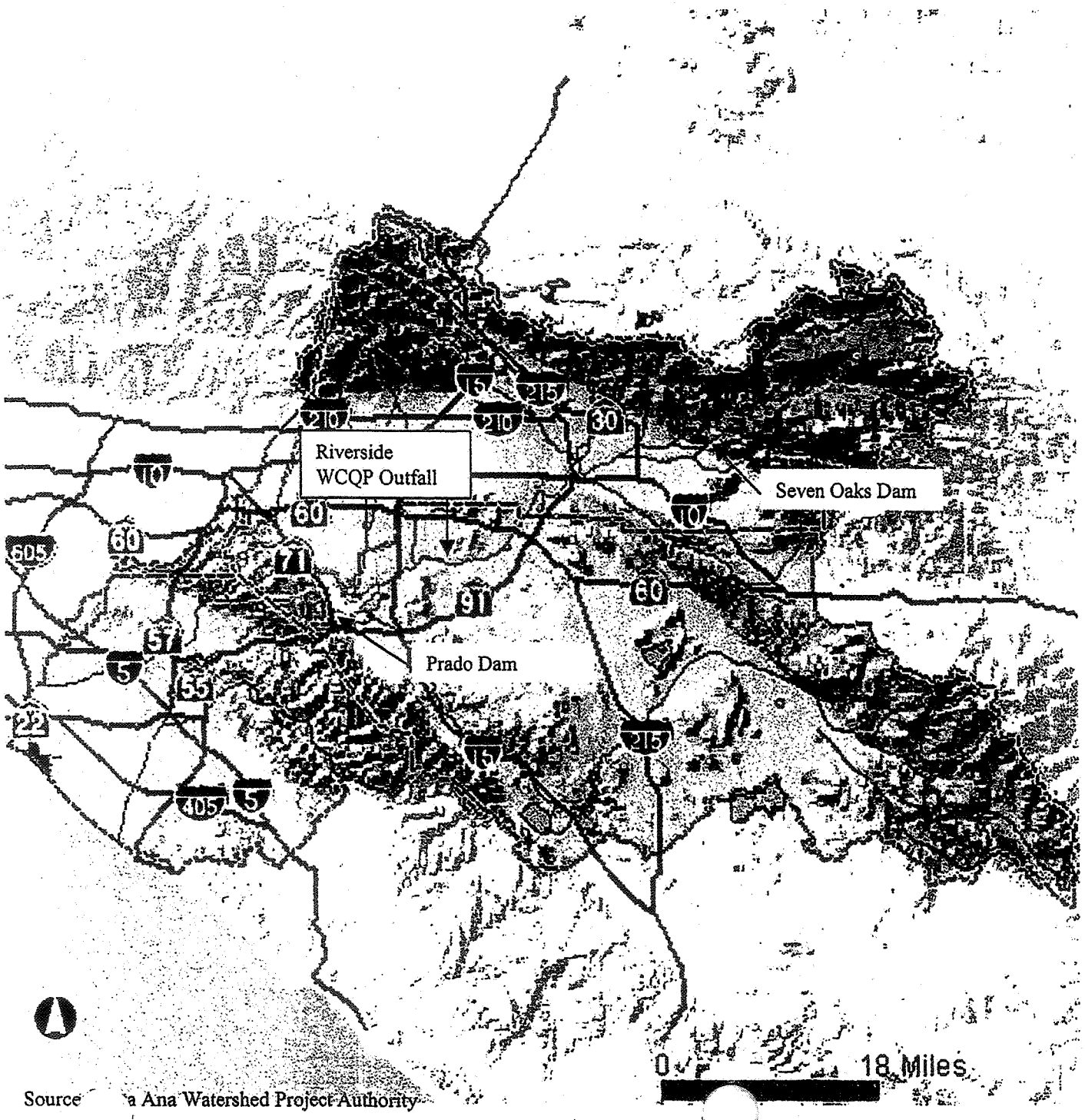
Documents Available for Review: Public Documents and studies by the City and others are the primary sources of background information for this project. These documents are available for review at the Riverside City Hall at the address shown below.

Responses to this NOP: In accordance with the time limits mandated by CEQA, responses to the NOP must be received by the City no later than 30 days after receipt of this notice. **We request that comments to this NOP be received no later than April 20, 2004.** Please send your comments to Kevin S. Milligan, P.E. at the address shown below. Please include a return address and contact name with your comments.

Send Responses to: City of Riverside Public Utilities Department
Attention: Kevin S. Milligan, P.E.
Riverside City Hall
3900 Main Street
Riverside, CA 92522
(909) 826-5612

By: _____
Thomas P. Evans
Public Utilities Director
City of Riverside

Enclosures: Exhibit 1, Vicinity Map
Exhibit 2, City of Riverside Service Area Map
Mailing List for NOP
Environmental Initial Study – (City of Riverside Case #P03-1193)



Source: Santa Ana Watershed Project Authority

Exhibit 1

Vicinity Map

City of Riverside Recycled Water MP and Water Rights Application PEIR

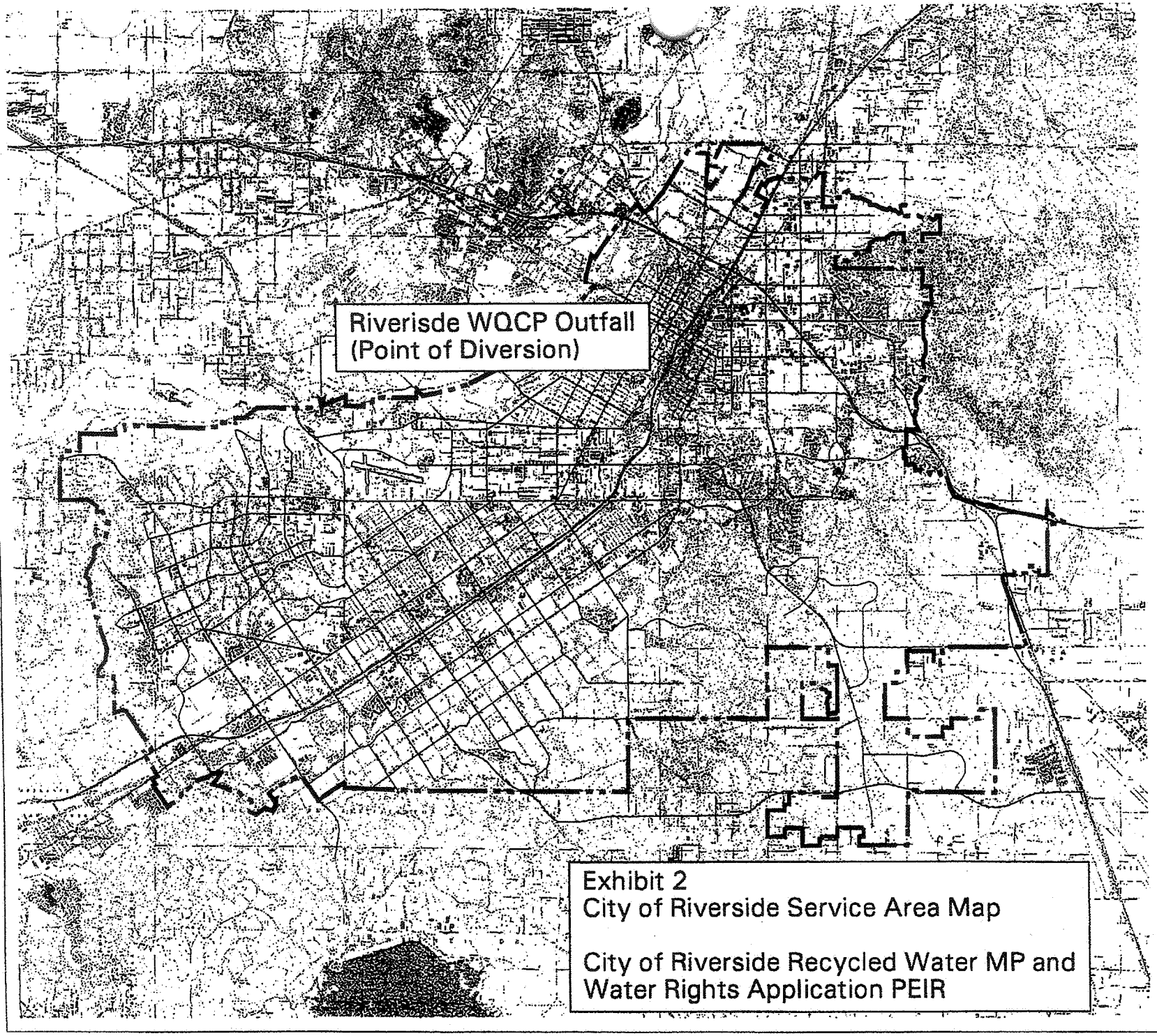


Exhibit 2
City of Riverside Service Area Map

City of Riverside Recycled Water MP and Water Rights Application PEIR

1 inch = 10000 feet

Symbology

City Limits

Map Produced on:
March 12, 2004

Aerial photos taken March 2003. The City of Riverside makes no warranty on the accuracy or content of the data shown on this map. This map shall not be reproduced or distributed.
© Copyright 2004, City of Riverside, California
Printed by: MILLIGAN

CITY OF RIVERSIDE PLANNING DEPARTMENT

Water Committee Agen
January 21, 2003
Item #2

Draft Negative Declaration

1. **Case Number:** P03-1193

2. **Project Title:** Citywide Recycled Water Feasibility Study

3. **Hearing Date:** December 18, 2003

4.

5. **Lead Agency:** City of Riverside, Planning Department
3900 Main Street, 3rd Floor
Riverside, CA 92522

6. **Contact Person:** Jeff Belier, Senior Planner
Phone Number: (909) 826-5874

7. **Project Location:** Citywide

8. **Project Applicant:** Kevin S. Milligan, P.E. Principal Water Engineer
City of Riverside Public Utilities Department (909) 826-5793
3900 Main Street, Riverside, CA 92522

9. **General Plan Designation:** N/A

10. **Zoning:** N/A

11. **Description of Project:**

The City of Riverside is proposing to adopt the "Recycled Water Phase I Feasibility Study and Citywide Master Plan" prepared by Parsons of Pasadena, CA in September, 2003. The purpose of the Project Plan was to assist the City in evaluating the cost effectiveness and benefits of using recycled water for landscape irrigation, agricultural irrigation, ground water recharge, and commercial and industrial users throughout the city, including the Jurupa Community Services District.

The citywide recycled water system consists of the diversion of recycled water from the Riverside Water Quality Control Plant (RWQCP) to existing and future customers for various non-potable applications. The recycled water used for irrigation will replenish the ground water basin and eventually find its way into the Santa Ana River. The amount of discharge of recycled water into the Santa Ana River is governed by the so-called "Prado Settlement" agreement dated November 20, 1968 between Western Municipal Water District of Riverside County and the City of Riverside where the City has an obligation to discharge a minimum flow at Prado Dam of 15,250 acre-feet per year (afy). The City currently discharges approximately 36,000 afy from the RWQCP.

The recycled water system will help attain one of the City objectives of optimizing the use of recycled water from the RWQCP for various non-potable water applications along the

proposed pipeline route. Presently, the City supplies recycled water to the Van Buren Golf Center, Van Buren Urban Forest, and Toro Manufacturing Company and has existing recycled water pipelines in Van Buren Boulevard and Doolittle Avenue. Use of recycled water for various non-potable uses will reduce dependence of fresh water and ultimately decrease Riverside's dependence on scarce State Water project and Colorado River supplies. A significant aspect of adoption of the project is the appropriation of treated effluent from the RWQCP, which currently flows to the Santa Ana River. As previously noted, the City currently discharges approximately 36,000 afy to the Santa Ana River. As potable water demand increases, discharge from the RWQCP is expected to increase proportionally.

The potential market identified in the "Recycled Water Phase I Feasibility Study and Citywide Master Plan totals 20,400 afy of direct reuse. City staff estimates a total potential market of 41,400 afy, including placement of pumped nonpotable ground water with recycled water. Currently, the extent of the ultimate recycled water system cannot be defined and the location of the actual users cannot be determined. Appropriation of the treated effluent will be developed in phases as the market develops and water becomes available at the RWQCP.

The citywide recycled water facilities, as described in the project plan, consist of approximately 52 miles of pipelines, 4 storage reservoirs, and 6 booster pumping stations at various locations within the city (preliminary pipe alignment and location of facilities are shown in Figure 5-1 in the project plan) in addition to a booster pumping station and disinfection/miscellaneous structures located at the RWQCP. The pipeline alignment does not set the specific route for the recycled water distribution system. It merely identifies a possible alignment to best serve the potential largest users and user clusters. Site constraints such as existing water and sewer lines, traffic, and utilities may revise the alignment.

No other projects are anticipated as a result of this project.

Existing Land Uses and Setting: The is a Citywide plan and affects various land uses

12. **Surrounding Land Uses and Setting:** N/A

13. **Other agencies whose approval is required:** Department of Health Services, Water Quality Control Board- Santa Ana Region, Department of Fish and Game, Army Corps of Engineers, and other State Clearinghouse agencies.

14. **Other Environmental Reviews Referenced in this Review:** None

Exhibits

1. Recycled Water Phase I Feasibility Study and Citywide Master Plan

DETERMINATION:

On the basis of this initial evaluation which reflects the independent judgement of the Planning Department, it is recommended that:

The City Planning Commission find that the proposed project may have a significant effect on the environment and an Environmental Impact Report should be required by the City Council. The project will have the following environmental effects, as indicated in the initial study: ☒

Water Resources
Biological Resources
Mandatory Findings of Significance

The City Planning Commission find that the proposed project COULD NOT have a significant effect on the environment, and that a NEGATIVE DECLARATION be prepared. ☐

The City Planning Commission find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the recommended mitigation measures have been added to the project (see attached recommended mitigation measures). A mitigated NEGATIVE DECLARATION will be prepared. ☐

The City Planning Commission find there is no evidence before the agency that the proposed project will have any potential for adverse effect on wildlife resources, and the impacts of the project are de minimis pursuant to Section 711.4 of the Fish and Game Code. ☐

Ken Gutierrez, Planning Director

CITY OF RIVERSIDE PLANNING DEPARTMENT

Environmental Initial Study

Project Description: See Draft Negative Declaration

Evaluation of Environmental Impacts:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources cited in the parentheses following each question. A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards.

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) An answer of "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) An answer of "Less than Significant Impact" is appropriate *only* in the event there is **no** substantial evidence that an effect is significant.

5) An answer of "Potentially Significant Unless Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from a "Potentially Significant Impact" to a "Less than Significant Impact." A description of the mitigation measures is required, along with an explanation of how they reduce the effect to a less than significant level (mitigation measures from a previous analysis may be cross-referenced).

6) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. When an earlier analysis is used, the initial study shall:

   a. **Reference earlier analyses used.** Identify earlier analyses. Unless noted otherwise, all previous environmental documents are available at the City of Riverside Planning Department.

   b. **Note impacts adequately addressed.** Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c. **Identify mitigation measures.** For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures which were incorporated or

refined from the earlier document and the extent to which they address site-specific conditions for the project.

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
1. LAND USE AND PLANNING. Would the proposal:				
a. Conflict with general plan designation or zoning? (Source: GENERAL PLAN LAND USE DIAGRAM; TITLE 19 RIVERSIDE MUNICIPAL CODE) **The proposal involves the adoption of the "Recycled Water Phase I Feasibility Study and Citywide Master Plan. No conflicts within the Zoning Code or General Plan are anticipated.**	☐	☐	☐	☒
b. Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project? (Source: Staff Analysis) **The "Recycled Water Phase I Feasibility Study and Citywide Master Plan" does not conflict with applicable environmental plans.**	☐	☐	☐	☒
c. Be incompatible with existing land use in the vicinity? (Source: Staff Analysis) **The "Recycled Water Phase I Feasibility Study and Citywide Master Plan" will not affect existing land use or create land use compatibility issues.**	☐	☐	☐	☒
d. Affect agricultural resources or operations (e.g., impacts to soils or farmlands, or impacts from incompatible land uses)? (Source: Staff Analysis) **The Project Plan will not affect agricultural resources or operations.**	☐	☐	☐	☒
e. Disrupt or divide the physical arrangement of an established community? (Source: Staff Analysis) **The Project Plan will not change the physical arrangement of any existing development.**	☐	☐	☐	☒

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
2. POPULATION AND HOUSING. Would the proposal:				
a. Cumulatively exceed official regional or local population projections? (Source: Staff analysis) **The proposed Project Plan will not result in an intensification or increase in population in the City . The project is intended to enhance water supply in the area and will not increase either the instantaneous or annual water withdrawals.**	☐	☐	☐	☒
b. Induce substantial growth in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)? (Source: Staff Analysis) **See response 2a. above.**	☐	☐	☐	☒
c. Eliminate existing housing, especially affordable housing? (Source: Staff Analysis) **The project will not eliminate any existing housing.**	☐	☐	☐	☒
3. GEOLOGY AND SOILS. Would the proposal result in or expose people to potential impacts involving:				
a. Fault rupture? (Source: GENERAL PLAN EXHIBIT 6 - SEISMIC HAZARDS) **The "Recycled Water Phase I Feasibility Study and Citywide Master Plan" will not expose people to seismic hazards. The City itself is over five miles from the nearest earthquake fault, the San Jacinto fault.**	☐	☐	☐	☒
b. Seismic ground shaking? (Source: GENERAL PLAN EXHIBIT 6 - SEISMIC HAZARDS) **There are portions of the City that may experience high levels of ground shaking, the project, however, will not expose people or property to additional risks.**	☐	☐	☐	☒

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c. Seismic ground failure, including liquefaction? (Source: GENERAL PLAN EXHIBIT 6 - SEISMIC HAZARDS) **Although there are areas of high liquefaction potential within the City, the project will not affect the existing seismic conditions. Also see response 3a. above.**	☐	☐	☐	☒
d. Seiche hazard? (Source: GENERAL PLAN EXHIBIT 7 - HYDROLOGY) **See response 3a. above.**	☐	☐	☐	☒
e. Grading on natural slopes over 10 percent? (Source: CITY GIS MAPS) **See response 3a. above.**	☐	☐	☐	☒
f. Erosion, changes in topography or unstable soil conditions from excavation, grading, or fill? (Source: **See response 3a. above.**	☐	☐	☐	☒
g. Subsidence of the land? (Source: Staff Analysis) **See response 3a. above.**	☐	☐	☐	☒
h. Expansive soils? (Source: GENERAL PLAN EXHIBIT 5 - UNSUITABLE SOILS) **See response 3a. above.**	☐	☐	☐	☒
i. Unique geologic or physical features? (Source: Staff Analysis) **See response 3a. above.**	☐	☐	☐	☒
4. WATER. Would the proposal result in:				
a. Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff? (Source: staff analysis) **The Project Plan proposes to divert water from the Riverside Water Quality Control Plant (RWQCP) for non-potable water users and could affect absorption rates, drainage patterns, and the rate and amount of surface runoff. However, this is considered insignificant and the adoption of the plan itself will not cause physical changes that would result in alteration to the existing conditions. Implementation of the project will require additional environmental review.**	☐	☐	☒	☐

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b. Exposure of people or property to water related hazards such as flooding? (Source: Staff analysis) **The Project Plan is not anticipated to result in any changes to the existing flow of water and should not increase the exposure of people or property to flooding.**	☐	☐	☐	☒
c. Discharge into surface waters or other alteration of surface water quality? (Source: Staff Analysis) **The project Plan proposes to divert water from the RWQCP for non-potable water users. The impact of these future diversions cannot be predicted at this time, however, there is a potential for the diversion to have a significant impact on surface water quality. It is recommended that these impacts be addressed in an environmental impact report.**	☒	☐	☐	☐
d. Changes in the amount of surface water in any water body? (Source: Staff Analysis) **The Project Plan proposes to divert water from the RWQCP for non-potable water users and could result in changes in the amount of surface water that may have a potentially significant impact.**	☒	☐	☐	☐
e. Changes in the course or direction of water movement? (Source: Staff analysis) **The Project Plan proposes to divert water from the RWQCP for non-potable water users and could result in changes in the course or direction of water movement that may have a potentially significant impact. Refer also to 4c. and 7a.**	☒	☐	☐	☐
f. Changes in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations, or through substantial loss of groundwater recharge capability? (Source: Staff Analysis) See 4c. and 7a.	☒	☐	☐	☐

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
g. Altered direction or rate of flow of groundwater? (Source: Staff Analysis) **The Project Plan will not change the direction or rate of flow of groundwater.**	☐	☐	☐	☒
h. Impacts to groundwater quality? (Source: Staff Analysis) **The Project plan will not cause discharge of ground water contaminants.**	☐	☐	☐	☒
i. Substantial reduction in the amount of local groundwater otherwise available for public water supplies? (Source: Staff Analysis) **See 4f.**	☐	☐	☐	☒
5. AIR QUALITY. Would the proposal:				
a. Violate any air quality standard or contribute to an existing or projected air quality violation? (Source: Staff Analysis) **The adoption of the Project Plan itself will not have recognizable impacts on the ambient air quality. Further analysis would be required when specific facilities, and alignments are identified.**	☐	☐	☒	☐
b. Create a CO hotspot, or expose individuals to CO concentrations above established standards? (Source: Staff Analysis) **See response 5a.**	☐	☐	☒	☐
c. Expose sensitive receptors to pollutants? (Source:Staff analysis) **See response 5a.**	☐	☐	☒	☐
d. Create objectionable odors? (Source: Staff Analysis) **See response 5a.**	☐	☐	☒	☐
e. Be subject to Transportation Demand Measures? (Source: Staff Analysis) **The TDM requirements will not apply since there are no employees generated by this project plan.**	☐	☐	☐	☒

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
6. TRANSPORTATION/CIRCULATION. Would the proposal result in:				
a. Increased vehicle trips or traffic congestion? (Source: Staff Analysis) **The adoption of the "Recycled Water Phase I Feasibility Study and Citywide Master Plan" would not impact vehicle trips or traffic congestion. Further environmental review would be required when specific facilities, locations, and alignments are identified when the plan is implemented.**	☐	☐	☒	☐
b. Reduction in Level of Service (LOS) of intersections? (Source: Staff Analysis) **See response 6a. above.**	☐	☐	☒	☐
c. Hazards to safety from design features (e.g., sharp curves or dangerous intersections) or incompatible uses? (Source: Staff Analysis) **See response 6a above.**	☐	☐	☒	☐
d. Inadequate emergency access or access to nearby uses? (Source: Staff Analysis) **See response 6a. above.**	☐	☐	☒	☐
e. Insufficient parking capacity on-site or off-site? (Source: Staff Analysis) **See response 6a. above.**	☐	☐	☒	☐
f. Hazards or barriers for pedestrians or bicyclists? (Source: Staff f Analysis) **See response 6a above.**	☐	☐	☒	☐
g. Conflicts with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)? (Source: Staff Analysis) **See response 6a. above.**	☐	☐	☒	☐
h. Rail or air traffic impacts? (Source: Staff Analysis) **See response 6a. above.**	☐	☐	☒	☐

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
7. BIOLOGICAL RESOURCES. Would the proposal result in impacts to:				
a. Federally endangered, threatened, or rare species or their habitats (including but not limited to plants, fish, insects, animals, and birds)? (Source: Staff Analysis) **Diversion of future stream discharges could result in variations in river flow. The impact of these future diversions cannot be predicted at this time, however, there is a potential that these variations in River flow could have a potentially significant impact on biological resources.**	☒	☐	☐	☐
b. Species identified as a sensitive or special status species in local or regional plans or listings maintained by the California Department of Fish and Game? (Source: Staff Analysis) **See response 7a. above.**	☒	☐	☐	☐
c. Locally important natural communities (e.g., sage scrub, etc.)? (Source: St6aff Analysis) **See response 7a. above.**	☒	☐	☐	☐
d. Wetland habitat (e.g. riparian and vernal pool)? (Source: Staff Analysis) **See response 7a. above.**	☒	☐	☐	☐
Wildlife dispersal or migration corridors? (Source: Staff Analysis) **See response 7a. above.**	☒	☐	☐	☐
e. Wildlife resources pursuant to Section 711.4 of the Fish and Game Code? (Source: Staff Analysis) **See response 7a. above.**	☒	☐	☐	☐
8. ENERGY AND MINERAL RESOURCES. Would the proposal:				
a. Conflict with the General Plan Energy Element? (Source: GENERAL PLAN ENERGY ELEMENT) **The adoption of the "Recycled Water Phase I Feasibility Study and Citywide Master Plan" will not conflict with the General Plan Energy Element.**	☐	☐	☐	☒

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b. Use non-renewable resources in a wasteful and inefficient manner? (Source: Staff Analysis) **See 8a. above.**	☐	☐	☐	☒
c. Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State? (Source: GENERAL PLAN ENERGY ELEMENT) **See 8a. above.**	☐	☐	☐	☒
9. HAZARDS. Would the proposal involve:				
a. A risk of accidental explosion or release of hazardous substances (including, but not limited to: oil, pesticides, chemicals, or radiation)? (Source: Staff Analysis) **The adoption of the "Recycled Water Phase I Feasibility Study and Citywide Master Plan" would not result in the creation or exposure to any hazards. Further environmental review would be required when specific facilities, locations, and alignments are identified when the plan is implemented.**	☐	☐	☐	☒
b. Possible interference with an emergency response plan or emergency evacuation plan? (Source: Staff Analysis) **See 9a. above.**	☐	☐	☐	☒
c. The creation of any health hazard or potential health hazard? (Source: Staff Analysis) **See 9a. above.**	☐	☐	☐	☒
d. Exposure of people to existing sources of potential health hazards? (Source: Staff Analysis) **See 9a. above.**	☐	☐	☐	☒
e. Increased fire hazard in areas with flammable brush, grass, or trees? (Source: Staff Analysis) **See 9a. above.**	☐	☐	☐	☒
f. Exposure of people to risk from airport operations? (Source: Staff Analysis) See 9a. Above.	☐	☐	☐	☒

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
10. NOISE.				
Would the proposal result in:				
a. Increase in existing noise levels? (Source: Staff Analysis) **The adoption of the"Recycled Water Phase I Feasibility Study and Citywide Master Plan" will not affect existing noise levels. However, construction of facilities to implement the project could result in impacts. Further analysis would be required when specific facilities, locations, and alignments are identified.**	☐	☐	☒	☐
b. Exposure to severe noise levels, including construction noise? (Source: Staff Analysis) **See 10a. above.**	☐	☐	☒	☐
11. PUBLIC SERVICES.				
Would the proposal have an effect upon, or result in a need for new or altered government services in any of the following areas:				
a. Fire protection? (Source: Staff Analysis) **The project is consistent with the General Plan and is not likely to increase the demand for public utilities. No intensification of land uses is expected.**	☐	☐	☐	☒
b. Police protection? (Source: Staff analysis) **See response 11a. above.**	☐	☐	☐	☒
c. Schools? (Source: Staff Analysis) **See response 11a. above.**	☐	☐	☐	☒
d. Maintenance of public facilities, including roads? (Source: Staff Analysis) **See response 11a. above.**	☐	☐	☐	☒
e. Other governmental services? (Source: Staff Analysis) **See response 11a. above.**	☐	☐	☐	☒

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
12. UTILITIES AND SERVICE SYSTEMS. Would the proposal result in a need for new systems or supplies, or substantial alterations to the following utilities:				
a. Power or natural gas? (Source: Staff Analysis) **The adoption of the "Recycled Water Phase I Feasibility Study and Citywide Master Plan" would not impact utilities and service systems. However, construction of facilities to implement the project could result in impacts on utility and service systems. Further analysis would be required when specific facilities, locations, and alignments are identified.**	☐	☐	☒	☐
b. Communications systems? (Source: Staff Analysis) **See response 12a. above.**	☐	☐	☒	☐
c. Local or regional water treatment or distribution facilities? (Source: Staff Analysis) **See response 12a. above.**	☐	☐	☒	☐
d. Sewer or septic tanks? (Source: Staff Analysis) **See response 12a. above.**	☐	☐	☒	☐
e. Storm water drainage? (Source: Staff Analysis) **See response 12a. above.**	☐	☐	☒	☐
f. Solid waste disposal? (Source: Staff Analysis) **See response 12a. above.**	☐	☐	☒	☐
g. Local or regional water supplies? (Source: Staff Analysis) **See response 12a. above.**	☐	☐	☒	☐
13. AESTHETICS. Would the proposal:				
a. Have a demonstrable negative aesthetic effect? (Source: Staff Analysis) **Adoption of the "Recycled Water Phase I Feasibility Study and Citywide Master Plan" will not result in negative aesthetic impacts.**	☐	☐	☐	☒
b. Create light or glare? (Source: Staff Analysis) **See 13a. above.**	☐	☐	☐	☒
c. Affect a scenic vista or roadway? (Source: Staff Analysis) **See 13a. above.**	☐	☐	☐	☒

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
14. CULTURAL RESOURCES. Would the proposal:				
a. Disturb paleontological resources? (Source: Staff analysis) **Adoption of the "Recycled Water Phase I Feasibility Study and Citywide Master Plan" would not create a disturbance of paleontological, archeological, and historical resources. However, construction of facilities to implement the project could result in impacts. Further analysis would be required when specific facilities, location, and alignments are identified.**	☐	☐	☒	☐
b. Disturb archaeological resources? (Source: Staff Analysis) **See response 14a. above.**	☐	☐	☒	☐
c. Have the potential to cause a physical change which would affect historical resources, including heritage trees? (Source: Staff Analysis) **See response 14a. above.**	☐	☐	☒	☐
d. Have the potential to cause a physical change which would affect unique ethnic cultural values, including those associated with religious or sacred uses? (Source: Staff Analysis) **See response 14a. above.**	☐	☐	☒	☐
15. RECREATION. Would the proposal:				
a. Increase the demand for neighborhood or regional parks or other recreational facilities? (Source:) **The adoption and implementation of the 'Recycled Water Phase I Feasibility Study and Citywide Master Plan" will not impact recreational facilities.**	☐	☐	☐	☒
b. Affect existing recreational opportunities, including trails? (Source: Staff Analysis) **See response 15a. above.**	☐	☐	☐	☒

ISSUES (AND SUPPORTING INFORMATION SOURCES):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
16. MANDATORY FINDINGS OF SIGNIFICANCE.				
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory? (Source: Staff Analysis) **See responses in Sections 7 and 14.**	☒	☐	☐	☐
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (Source: Staff Analysis) **Information contained in this initial study supports the conclusion that no long term environmental goals will be impacted by the project.**	☐	☐	☐	☒
c. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, and the effects of probable future projects.) (Source: Staff Analysis) **No adverse cumulative impacts were identified in the initial study analysis.**	☐	☐	☐	☒
d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? (Source: Staff Analysis) **See responses in Section 9.**	☐	☐	☐	☒

FINDING (To be completed by the City Planning Commission)

☐ It has been found that the project will not have a significant effect on the environment and a Negative Declaration should be adopted by the City Council. As part of this determination, the approved mitigation measures shall be required for the project. The proposed Negative Declaration reflects the independent judgement of the City of Riverside.

☒ Limited to Case P03-1193

☒ It has been found that the project may have a significant effect on the environment and an Environmental Impact Report should be required by the City Council. The project will have the following environmental effects, as indicated in the initial study.

Water
Biological Resources
Mandatory Findings of Significance

☐ There is no evidence before the agency that the proposed project will have any potential for adverse effect on wildlife resources, and the impacts of the project are found to be de minimis pursuant to Section 711.4 of the Fish and Game code.

Signature _____ Date _____

City Planning Commission

Case Number: P03-1193

Service List for City of Riverside Recycled Water and Water Rights Application EIR – Page 1

Bear Valley Mutual Water Company
Mr. Michael Huffstutler
101 East Olive St.
Redlands, CA 92373

Big Bear Municipal Water District
Sheila Hamilton
P.O. Box 2863, 40524 Lakeview Dr.
Big Bear Lake, CA 92315

Big Bear Watermaster
Donald E. Evenson
1340 Treat Boulevard, Ste. 300
Walnut Creek, CA 94596

California Department of Conservation
801 K Street, MS 24-01
Sacramento, CA 95814

California Department of Fish & Game
Mr. Curt Taucher
330 Golden Shore, Ste. 210
Long Beach, CA 90982

California Department of Fish and Game
Ms. Nancee Murray
Legal Office
1416 9th St., 12th Floor
Sacramento, CA 95814

California Regional Water Quality Board
Gerard Thibeault
3737 Main St., Ste. 500
Riverside, CA 92501-3339

California Sportfishing Protection Alliance
Mr. Jerry Mensch
2553 Stonehaven Dr.
Sacramento, CA 95827

California State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

CEMEX
Ms. Christine Jones
P.O. Box 4120
Ontario, CA 91761-1607

Chino Basin Water Conservation District
c/o William J. Brunick, Esq
Brunick, Battersby, McElbaney & Beckett
P.O. Box 6425
San Bernardino, CA 92412

Chino Basin Watermaster
Mr. John Rossi
8632 Archibald Ave., Ste. 109
Rancho Cucamonga, CA 91730

Chino Basin Watermaster
C/o Hatch & Parent
Mr. Michael Fife
21 E. Carrillo St.
Santa Barbara, CA 93101

City of Chino
Jimmy L. Gutierrez
12616 Central Ave.
Chino, CA 91710

City of Colton
Mr. Eric Fraser
650 North La Cadena Dr.
Colton, CA 92324

City of Grand Terrace
22795 Barton Road
Grand Terrace, CA 92313

City of Highland
Mr. Sam Racadio
27215 Base Line
Highland, CA 92346

City of Loma Linda
Planning Utilities
25541 Barton Road
Loma Linda, CA 92354

City of Ontario
C/o Eric L. Garner
Best, Best & Kreiger, LLP
P.O. Box 1028
Riverside, CA 92502

City of Pomona
C/o Thomas S. Bunn, III
Lagerlof, Senecal, Bradley, Gosney,
& Kruse, LLP
301 North Lake Ave., 10th Floor
Pasadena, CA 91101-4108

City of Redlands
Mr. John Jaquess
P.O. Box 3005
Redlands, CA 92373-1505

Service List for City of Riverside Recycled Water and Water Rights Application EIR – Page 2

City of Rialto Water Department
Mr. Rick Wellington
150 South Palm Ave.
Rialto, CA 92376

City of Riverside Public Utilities Dept.
Mr. Dieter Wirtzfield
3900 Main St., 4th Floor
Riverside, CA 92522

City of Riverside
C/o Best, Best &Krieger
Mr. Eric Garner
3750 University Ave.
P.O. Box 1028
Riverside, CA 92502

City of San Bernardino
300 North D Street
San Bernardino, CA 92418

City of San Bernardino
Municipal Water Department
Stacey Aldstadt
300 North D. Street, 5th Floor
San Bernardino, CA 92418

City of San Bernardino
Municipal Water Department
Mr. Joel Moskowitz
1880 Century Park East, Ste. 350
Los Angeles, CA 90067-1603

Crafton Water Company
Mr. Ed Patterson, Jr.
Route 1, Box 624
Redlands, CA 92374

Cucamonga Co. Water District
C/o Eric L. Garner
Best, Best & Krieger LLP
P.O. Box 1028
Riverside, CA 92502

Daniel J. McHugh, City Attorney
City of Redlands
P.O. Box 3005
Redlands, CA 92373

Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92572-8300

East Valley Water District
Mr. Robert Martin
P.O. Box 3427
1155 Del Rosa Ave.
San Bernardino, CA 92413-3427

EDAW, Inc.
Mr. Phillip Dunn
2022 J. Street
Sacramento, CA 95814

Elsinore Valley Municipal Water District
Mr. Ron Young
31315 Chaney St.
Lake Elsinore, CA 92530-2707

Fontana Union Water Company
Mr. Gerald Black
P.O. Box 309
Fontana, CA 92335

Inland Empire Utilities Agency
C/o Jean Cihigoyenctche
Cihigoyenetche, Grossberg, & Clouse
3038 Haven Ave., Ste. E
Rancho Cucamonga, CA 91730

Inland Empire Utilities Agency
Mr. Rich Atwater
P.O. Box 697
Rancho Cucamonga, CA 91729

Loma Linda University
11234 Anderson
Loma Linda, CA 92350

Lugonia Water Company
Mr. David Knight
P.O. Box 711
Mentone, CA 92359

Manatt, Phelps, Phillips
Mr. Marc Luesebrink
11355 W. Olympic Blvd.
Los Angeles, CA 90064

Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Service List for City of Riverside Recycled Water and Water Rights Application EIR – Page 3

Montecito Memorial Park
Mr. Robert Hinze
P.O. Box 5546
San Bernardino, CA 92412

Monte Vista Water District
C/o Arthur J. Kidman
McCormick, Kidman, & Behrens LLP
695 Town Center Drive, Ste. 1400
Costa Mesa, CA 92626

Muscoy Mutual Water Company
Mr. Joe Carabajal
2167 Darby ST.
San Bernardino, CA 92405

North Fork Water Company
Mr. Arnold Wright
29412 Water St.
East Highland, CA 92329

OC Planning Department
Mr. Mike Wellborn
P.O. Box 4048
Santa Ana, CA 92702-4048

Orange County Flood Control District
C/o Anne J. Schneider/Robert E. Donlan
Ellison & Schnieder
2015 H Street
Sacramento, CA 95814
Orange County Public Facilities & Resources Dept. (Flood Control District)
Mr. Ken Smith
300 N. Flower St.
Santa Ana, CA 92703

Orange County Water District
C/o Christopher J. McNevin
Pillsbury Madison & Sutro LLP
725 S. Fiqueroa St., Ste. 1200
Los Angeles, CA 90017-5443

Orange County Water District
Ms. Virginia Grebbien
P.O. Box 8300
Fountain Valley, CA 92728-8300

Redlands Municipal Utilities Department
Mr. Gary Phelps
P.O. Box 3005
Redlands, CA 92373-1505

Riverside County Flood Control & WCD
Mr. David Zappe
1995 Market St.
Riverside, CA 92501

Riverside Highland Water Company
Mr. Don Hough
1450 Washington St.
Colton, CA 92324

Roberton's Ready Mix
Mr. Rich Robertson
P.O. Box 1659
Corona, CA 92878

San Bernardino County Flood Control District
Mr. Ken Miller
825 E. 3rd Street, Room 101
San Bernardino, CA 92415-0835

San Bernardino County Land Use Services Dept.
Mr. Randy Scott
385 N. Arrowhead
San Bernardino, CA 92415

San Bernardino Valley Municipal Water District
Mr. Robert Reiter
P.O. Box 5906
San Bernardino, CA 92412-5906

San Bernardino Valley Municipal Water District, et al.
C/o David Aladjem
Downey, Brand, Seymour & Rohwer
555 Capitol Mall, 10th Floor
Sacramento, CA 95814

San Bernardino Valley Water Conservation District
C/o David B. Cosgrove
Rutan & Tucker
611 Anton Blvd., Ste. 1400
Costa Mesa, CA 92626

San Gorgonio Pass Water Agency
Mr. Steve Stockton
P.O. Box 520
Beaumont, CA 92223

Service List for City of Riverside Recycled Water and Water Rights Application EIR – Page 4

Santa Ana River Local Sponsors
C/o Ellison, Schneider & Harris
Mr. Robert Donlan
2015 H. Street
Sacramento, CA 95814-3109

Santa Ana Watershed Project Authority
Mr. Joe Grindstaff
11615 Sterling Ave.
Riverside, CA 92503

Sheila Hamilton
Big Bear Municipal Water District
P.O. Box 2863
Big Bear Lake, CA 92315-2863

Sierra Club, San Gorgonio Chapter
Mr. Ralph Salisbury
2995 Floral Ave.
Riverside, CA 92507

Southern California Edison
Mr. John Hayball
12353 Hesperia Road
Victorville, CA 92392

State of California
C/o Marilyn H. Levin
300 South Spring St., Ste. 5212
Los Angeles, CA 90013

State Water Resources Control Board
Mr. Lewis Moeller
1002 I Street
Sacramento, CA 95814

U.S. Army Corps of Engineers
Col. Richard G. Thompson
P.O. Box 532700
Los Angeles, CA 900153-2352

U.S. Bureau of Land Management, Palm Springs South Coast Field Office
P.O. Box 581260
North Palm Springs, CA 92258-1260

U.S. Dept of Agriculture, Forest Service
Mr. Jack Gipsman
33 New Montgomery St., 17th Floor
San Francisco, CA 94105

U.S. Fish & Wildlife Service
Mr. Jim Bartel
6010 Hidden Valley Road
Carlsbad, CA 92009

U.S. Forest Service
Mr. Gene Zimmerman
1824 S. Commercenter Circle
San Bernardino, CA 92408

U.S. Dept of Agriculture, Forest Service
Mr. Jack Gipsman
33 New Montgomery St., 17th Floor
San Francisco, CA 94105

Wash Committee
P.O. Box 1839
Redlands, CA 92373

West Valley Water District
Mr. Anthony Araiza
West Valley Water District
P.O. Box 920
Rialto, CA 92377-0920

Western Hieghts Water Company
Mr. Joe Calpino
32352 Avenue D
Yucaipa, CA 92399

Western Municipal Water District
Mr. Norm Thomas
P.O. Box 5286
Riverside, CA 92517-5286

Western Municipal Water District of Riverside County
C/o David Aladjem
Downey, Brand, Seymour & Rohwer
555 Capitol Mall, 10th Floor
Sacramento, CA 95814

State Water Resources Control Board

Division of Water Rights
1001 I Street, 14th Floor • Sacramento, California 95814 • (916) 341-5300
Mailing Address: P.O. Box 2000 • Sacramento, California • 95812-2000
FAX (916) 341-5400 • Web Site Address: http://www.waterrights.ca.gov

y Tamminen
ecretary for
Environmental
Protection

Arnold Schwarzenegg
Governor

In Reply Refer to:JF:A031372

MAY - 5 2004

RECEIVED
MAY 10 2004
CITY OF RIVERSIDE
WATER ENGINEERING

City of Riverside Public Utilities Department
Recycled Water and Water Rights Application EIR
Attention: Kevin S. Milligan, P.E.
Riverside City Hall
3900 Main Street
Riverside, CA 92522

NOTICE OF PREPARATION (NOP) OF AN ENVIRONMENTAL IMPACT REPORT ASSESSING THE CITY OF RIVERSIDE ADOPTION OF THE 2003 RECYCLED WATER PHASE I FEASIBILITY STUDY AND CITYWIDE MASTER PLAN AND THE CITY OF RIVERSIDE APPLICATION TO APPROPRIATE SANTA ANA RIVER WATER BY PERMIT

Dear Mr. Milligan:

On March 17, 2004, the City of Riverside (City) issued a Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the 2003 Recycled Water Phase I Feasibility Study and Citywide Master Plan and the Application to Appropriate Santa Ana River Water by Permit. Staff of the State Water Resources Control Board (SWRCB), Division of Water Rights (Division) submits these comments in its capacity as a responsible agency for the above-referenced NOP, specifically for the water right application component of the Project. As a responsible agency, the SWRCB must consider the environmental effects of the project as shown in the EIR, but will make independent findings and may require additional or different mitigation measures for impacts identified in resource areas within the SWRCB's jurisdiction. (Cal. Code Regs., tit. 14, § 15096.) SWRCB staff will address other permitting process issues in a separate correspondence.

The EIR must address the application component of the Project with sufficient specificity for the SWRCB to consider issuing a permit. Under the California Environmental Quality Act (CEQA), a programmatic EIR may be appropriate for reviewing a large project that includes components as logical parts in a chain of contemplated actions. (Cal. Code Regs., tit. 14, § 15168.) A programmatic EIR should address subsequent activities as specifically and comprehensively as possible. (Cal. Code Regs., tit. 14, § 15168, subd. (C)(5).) The degree of specificity should correspond to the underlying activity described in the EIR. (Cal. Code Regs., tit. 14, § 15146.) If the project includes the adoption of a plan, the EIR must focus on the secondary effects that can be expected to follow from the adoption, but the EIR need not include as much detail on the specific construction projects that might follow. (Cal. Code Regs., tit. 14, § 15146.)

The City's NOP states that under the Recycled Water Phase I Feasibility Study and Citywide Master Plan (Plan), effluent from the City's Water Quality Control Plant (RWQCP) would be incrementally diverted from the Santa Ana River and delivered to customers throughout the

MAY - 5 2004

system. (NOP at p.2.) Immediate construction of Phase I improvements will serve the market demand of 2,270 acre-feet per year (afa) and future phases will be developed as the market dictates. Thus, the City plans to produce a programmatic EIR that will identify impacts related to construction of future infrastructure at a programmatic level. (*Id.*)

The application before the SWRCB, however, requests water for the entire project. Therefore, the EIR must address all the impacts of this proposal. The SWRCB may or may not have review over subsequent construction projects, and cannot defer additional analysis in deciding whether to issue a permit to appropriate water. Thus, resource areas impacted from the water right application must be fully analyzed in this EIR. This includes direct and indirect impacts, and cumulative impacts.

Under section 4(a), the NOP states: "The Project Plan proposes to divert water from the RWQCP for non-potable water users and could affect absorption rates, drainage patterns, and the rate and amount of surface runoff. However, this impact is considered insignificant and the adoption of the Plan itself will not cause physical changes that will result in alteration to the existing conditions. Implementation of the project will require additional review." (NOP at p.4.) This statement misses the point of conducting a programmatic environmental review. It is not enough to claim no impact because at this time no action will occur on the ground. The document must forecast foreseeable impacts and mitigate such impacts to the extent possible. It must address the impacts from <u>implementing</u> the Plan, although the level of analysis may not address site-specific detail. This same comment applies to all similarly phrased conclusions in the NOP.

Similarly, section 7(a) states: "Diversions of future stream discharges could result in variations in river flow. The impact of these future diversions cannot be predicted at this time, however, there is a potential that these variations in River flow could have a potentially significant impact on biological resources." To the extent that reductions of stream flow will occur from the appropriation of water applied for in the City's water right application, the SWRCB expects these impacts to be fully analyzed in the EIR. This comment applies to all biological and water quality impacts resulting from reduced stream flow.

In general, the NOP does not identify any impacts associated with future construction of facilities. SWRCB staff suggests that the programmatic EIR call out potential impacts and mitigation measures in a general way so that subsequent environmental documentation may be tiered. Otherwise, entirely new CEQA review must be prepared at a later date.

If you have any questions, please contact me at (916) 341-5349.

Sincerely,

Jane Farwell

Jane Farwell
Environmental Scientist

Directors
PHILIP L. ANTHONY
WES BANNISTER
THRYN L. BARR
ENIS R. BILODEAU
RICHARD CHAVEZ
PAUL COOK
JAN DEBAY
BRETT FRANKLIN
LAWRENCE P. KRAEMER JR.
SHAWN NELSON

ORANGE COUNTY WATER DISTRICT

Orange County's Groundwater Authority

Officers
DENIS R. BILODEAU
President
PAUL COOK
First Vice President
PHILIP L. ANTHONY
Second Vice President
—
VIRGINIA GREBBIEN
General Manager
JANICE DURANT
District Secretary

April 20, 2004

RECEIVED
APR 21 2004
CITY OF RIVERSIDE
WATER ENGINEERING

City of Riverside Public Utilities Department
Recycled Water and Water Rights Application EIR
Attention: Kevin S. Milligan, P.E.
Riverside City Hall
3900 Main Street
Riverside, CA 92522

Dear Mr. Milligan:

The Orange County Water District (OCWD) appreciates the opportunity to review the Notice of Preparation of the Environmental Impact Report assessing the City of Riverside adoption of the 2003 Recycled Water Phase I Feasibility Study and Citywide Master Plan and the City of Riverside Application to Appropriate Santa Ana River Water by Permit dated March 17, 2004 and respectfully submits the following comments on the Notice of Preparation and Initial Study.

1. The Project description identifies that 36,000 acre-feet per year (afy) of tertiary treated effluent is currently discharged to the Santa Ana River, there is an obligation to discharge 15,250 afy, an application was submitted to appropriate 41,400 afy, and the City contemplates immediate construction of Phase 1 improvements to serve a market demand of 2,270 afy. We were not able to identify the scope of the project with respect to the annual volume of recycled water usage. Please clarify the project description and what project the EIR will address.

2. Page 6 of the Initial Study indicates that there would be "no impact" under category 4h "impacts to groundwater quality". Potential impacts to groundwater quality should be evaluated in the Environmental Impact Report. The proposed project would deliver recycled water to various water uses, including municipal industrial, irrigation, and agricultural uses. Some of the recycled water delivered for these uses may impact groundwater quality. For example, at irrigation sites, salts in the recycled water would likely impact groundwater quality. Even if all the recycled water is consumed during irrigation, some of the salts in the recycled water will remain behind in the subsurface and could migrate to groundwater. This

P.O. Box 8300, Fountain Valley, CA 92728-8300 • 10500 Ellis Avenue, Fountain Valley, CA 92708
Telephone (714) 378-3200 Fax (714) 378-3373 Web Page www.ocwd.com

is particularly the case if the recycled water salt level is higher than the existing water supply used for irrigation.

3. The EIR needs to quantify water quality impacts to river flows and groundwater. It also needs to quantify the impacts, present a monitoring and mitigation strategy, and demonstrate how the proposed project will comply with the Santa Ana River Basin Plan.

4. With reduced flows from 36,000 afy to 15,250 afy, the EIR should identify potential impacts to receiving water habitats, endangered or listed species, and critical habitats identified within and downstream of the area.

5. #7- Biological Resources [a-e]: The project states, "diversion of future stream discharges could result in variation in river flow. The impact of these future diversions cannot be predicted at this time, however, there is a potential that these variations in River flow could have a potentially significant impact on biological resources." The project should address known biological issues, critical/listed habitat, endangered or listed species as presently identified today and develop mitigation plans.

6. #16. Mandatory Findings of Significance [a] The project is noted as "potentially significant impact" with a note to see the response in Sections 7 and 14. Section 7 does not provide activities to address the noted natural resources issues as described above.

7. #16. Mandatory Findings of Significance [b] Information in the Initial Study acknowledges the potentially significant impact and is contradictory to the "no impact" identified in this section. The EIR should evaluate the water quality and biological resources issues identified as 'potentially significant impact' or 'potentially significant unless mitigation incorporated' to provide data that no long-term environmental goals would be impacted by the proposed project.

We look forward to working with you to protect the water resources in the Santa Ana River watershed. If you have any questions regarding these comments, you may contact me at 714-378-3220.

Sincerely,

Virginia Grebbien

Virginia Grebbien, P.E.
General Manager

BRUNICK, BATTERSBY, McELHANEY & BECKETT
PROFESSIONAL LAW CORPORATION
1839 COMMERCENTER WEST
POST OFFICE BOX 6425
SAN BERNARDINO, CALIFORNIA 92412
TELEPHONE. (909) 889-8301
FAX: (909) 388-1889
E-MAIL: bralba@eee.org

RENE S. ABRAHAM
MARGUERITE P. BATTERSBY
STEVEN K. BECKETT
WILLIAM J. BRUNICK
HARRY C. CARPELAN
RAYMOND F. DOLEN
STEVEN M. KENNEDY
LELAND P. McELHANEY
STEPHEN MILLER

OF COUNSEL
CHARLES A. PECKHAM

215 CAJON STREET
P. O. BOX 1320
REDLANDS, CALIFORNIA 92373
TELEPHONE (909) 793-0818

PLEASE REFER TO

April 8, 2004

VIA FAX AND MAIL

City of Riverside Public Utilities Department
Recycled Water and Water Rights Application EIR
Attention: Kevin S. Milligan, P.E.
Riverside City Hall
3900 Main Street
Riverside, CA 92522

RECEIVED
APR 09 2004
CITY OF RIVERSIDE
WATER ENGINEERING

Re: Notice of Preparation of an Environmental Impact Report assessing the City of Riverside adoption of the 2003 Recycled Water Phase I Feasibility Study and Citywide Master Plan and the City of Riverside Application to Appropriate Santa Ana River Water by Permit

Dear Mr. Milligan:

This office serves as General Counsel to the East Valley Water District ("EVWD").

Pursuant to the authority provided in the California Environmental Quality Act ("CEQA"), Public Resources Code ("PRC") Section 21000 et seq., and the Guidelines adopted thereunder, California Code of Regulations ("CCR") Section 15000 et seq., EVWD submits the following comments to the Notice of Preparation ("NOP") issued by the City of Riverside on March 17, 2004, in connection with the above-referenced matter.

In this regard, CEQA requires that the preparation and review of an environmental impact report ("EIR") "should be coordinated in a timely fashion with the existing planning, review, and project approval process being used by each public agency." CCR Section 15004(c). To help facilitate inter-agency coordination, PRC Section 21080.3(a) requires that the lead agency consult with all responsible agencies and trustee agencies before preparation of an EIR.

The NOP is the procedural device used to initiate such interagency dialogue. PRC Sections 21080.4, 21092.2, 21092.3; CCR Section 15082(a). The NOP must be written so as to provide the agencies with sufficient information to enable them to make meaningful responses. At a minimum, the NOP must include a description of the project, its location on a map, and a statement of the project's probable environmental effects. CCR Section 15082(a)(1).

Here, EVWD has raised concerns with respect to the proposed project as described in the NOP and the Draft Negative Declaration accompanying the NOP ("Project") as identified in the Protests filed with the State Water Resources Control Board ("SWRCB") on July 17, 2002 (with respect to Application Nos. 31174 and A031165 to appropriate water by permit), and on April 1, 2003 (with respect to Application Nos. 31369, 31370, 31371, and 31372 to appropriate water by permit), which Protests are incorporated herein by this reference.

Therefore, EVWD requests that the scope of the EIR include a complete and detailed discussion and analysis of each and every one of the issues raised, directly or indirectly, in the Protests submitted to the SWRCB in connection with the above Applications, as well as the operational plan for the Project, its effect on the legal, contractual, historical, and other rights, duties, limitations, entitlements, and responsibilities of the parties affected thereby (including EVWD), and the impact of the Project on all related environmental interests, including but not limited to existing water quality, water supply, contaminant plumes, and native species and habitat.

Further, EVWD requests that, pursuant to PRC Section 21091(d) and CCR Section 15002(j), a detailed written response to all comments previously submitted, all comments included herein, and all future comments subsequently added by EVWD with respect to the Project, be included in the environmental review record for the Project. EVWD expressly reserves the right to submit additional comments resulting from EVWD's review of the proposed EIR and EVWD's receipt of the responses to those comments provided by EVWD and/or to object to the approval of the Project based upon other areas of the law, including failure to the NOP to satisfy the requirements of CEQA and/or adequately correlate to the EIR.

Your anticipated consideration of these comments is greatly appreciated.

Very truly yours,

BRUNICK, BATTERSBY, McELHANEY & BECKETT

Steven M. Kennedy

cc: Robert E. Martin, EVWD General Manager
Robert C. Wagner

WARREN D. WILLIAMS
General Manager-Chief Engineer

1995 MARKET STREET
RIVERSIDE, CA 92501
909.955.1200
909.788.9965 FAX

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

April 19, 2004

RECEIVED
APR 21 2004
CITY OF RIVERSIDE
WATER ENGINEERING

Mr. Kevin S. Milligan, P.E.
City of Riverside
Public Utilities Department
3900 Main Street
Riverside, CA 92522

Dear Mr. Milligan:

Re: Notice of Preparation of a Program Environmental Impact Report for the 2003 Recycled Water Phase I Feasibility Study and Citywide Master Plan and the City of Riverside Application to Appropriate Santa Ana River Water by Permit

This letter is written in response to the Notice of Preparation of a Program Environmental Impact Report (PEIR) for the 2003 Recycled Water Phase I Feasibility Study (Study) and Citywide Master Plan (Plan) and the City of Riverside Application (Application) to Appropriate Santa Ana River Water by Permit. The proposed project will assess the above Study, Plan, Application, and a program of near term and long term projects the City will implement to provide recycled tertiary treated effluent from the City of Riverside Water Quality Control Plant for municipal, industrial, irrigation, and agricultural uses throughout the City of Riverside service territory. The proposed project area is located throughout the City of Riverside, Riverside County and comprises approximately 89 square miles.

The Riverside County Flood Control and Water Conservation District (District) has the following comments/concerns that should be addressed in the PEIR:

1. The proposed project area is located within the District's Master Drainage Plans (MDPs) for the University, Box Springs, Central, Monroe, La Sierra, Southwest Riverside, and Mockingbird Canyon areas. When fully implemented, the MDP facilities will provide adequate drainage outlets and will relieve those areas within the MDP boundaries of the most serious flooding problems. The District's MDP facility maps can be viewed online at www.co.riverside.ca.us/depts/flood/mdp.asp. To obtain further information on the MDPs and the proposed District facilities, contact Art Diaz of the District's Planning Section at 909.955.1345.

2. The District has numerous facilities within the proposed project area that may be impacted. Any work that involves District right of way, easements or facilities will require an encroachment permit from the District. To obtain further information on encroachment permits or existing facilities, contact Ed Lotz of the District's Encroachment Permit Section at 909.955.1266.

3. Depending on the application and infiltration rate of the reclaimed water and the depth to ground water, improper application of reclaimed water could mobilize pollutants present on the property to groundwater. Additionally, reclaimed water should be properly applied in order to avoid its conveyance beyond the limits of the property on which it is used.

4. Construction projects that result in the disturbance of 1 or more acre of land (or less than 1 acre if part of an overall plan of common development) may require coverage under the State Water Resources Control Board's (SWRCB) NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Construction Activity General Permit). Copies of the Construction Activity General Permit and Fact Sheet may be obtained from the SWRCB website (www.swrcb.ca.gov).

5. The City of Riverside is a co-permittee under the NPDES Municipal Stormwater Permit for the Santa Ana River watershed. Thus, the City should ensure that the proposed project complies with the stormwater permit requirements. In that regard, the proposed project should include any necessary stormwater quality controls described in Supplement A "New Development Guidelines" and the Attachment to Supplement A "Selection and Design of Stormwater Quality Controls". The City should have copies of these documents or they can be viewed on the District's website at www.co.riverside.ca.us/depts/flood/waterqualitynpdes.asp. Since these issues could substantially affect project plans and costs, project proponents should be made aware of the stormwater permit requirements as early as possible during the project review process. The CEQA document should address this issue and include any necessary mitigation measures. Please refer any questions regarding the stormwater permit requirements to the City's NPDES representative or to Jason Uhley of the District at 909.955.1273.

Thank you for the opportunity to comment on the Notice of Preparation. Please forward any subsequent environmental documents regarding the project to my attention at this office. Any further questions concerning this letter may be referred to me at 909.955.1233 or Marc Mintz at 909.955.4643.

Very truly yours,

Teresa Tung

TERESA TUNG
Senior Civil Engineer

c: Ed Lotz
Art Diaz
Jason Uhley

MAM:mcv
PC\87515

MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Executive Office

RECEIVED
APR 20 2004
CITY OF RIVERSIDE
WATER ENGINEERING

April 15, 2004

Mr. Kevin S. Milligan
Riverside Public Utilities Department
Riverside City Hall
3900 Main Street
Riverside, CA 92522

Dear Mr. Milligan:

Notice of Preparation for a Program Environmental Impact Report for the 2003 Recycled Water Phase I Feasibility Study and Citywide Master Plan and the City of Riverside Application to Appropriate Santa Ana River Water by Permit

The Metropolitan Water District of Southern California (Metropolitan) has received a copy of the Notice of Preparation (NOP) for a Program Environmental Impact Report (PEIR) for the 2003 Recycled Water Phase I Feasibility Study and Citywide Master Plan and the City of Riverside Application to Appropriate Santa Ana River Water by Permit (Project). The city of Riverside (City) is acting as the Lead Agency under the California Environmental Quality Act (CEQA) for this Project. The proposed Project is located within the City corporate boundary and those portions of Riverside County located within the Public Utilities Department's service area. The area encompasses approximately 89 square miles. The Riverside Water Quality Control Plant (RWQCP) discharges water to the Santa Ana River in the vicinity of Van Buren Boulevard. The purpose of the Project is to assist the City in evaluating the cost effectiveness and benefits of using recycled water for landscape irrigation, agricultural irrigation, ground water recharge, and commercial and industrial uses throughout the City, including the Jurupa Community Services District. The citywide recycled water facilities, as described in the Master Plan, consist of approximately 52 miles of pipelines, 4 storage reservoirs, and 6 booster pumping stations at various locations within the City in addition to a booster pumping station and disinfection/miscellaneous structures located at the RWQCP. The pipeline alignment does not set the specific route for the recycled water distribution system. It merely identifies a possible alignment to best serve the potential largest users and user clusters. Site constraints such as existing water and sewer lines, traffic, and utilities may revise the alignment.

Metropolitan owns and operates a facility within in City boundary. Based on Figure 5-1 Citywide Recycled Water Distribution System, of the Recycled Water Phase I Feasibility Study and Citywide Master Plan you provided via facsimile to Metropolitan's staff, Metropolitan's Upper Feeder pipeline traverses the project area. The Upper Feeder pipeline is a 124-inch

diameter pipeline located in both fee-property and permanent easement right-of-way and runs in a generally north-south direction traversing the City along the central-western portion of its boundary. Additionally, Metropolitan owns fee property right-of-way within the City boundary which runs, generally, near the intersection of the I-215 and State Highway 60 in a southwesterly direction to approximately Van Buren Boulevard. Metropolitan is concerned with potential impacts to our facility and fee-owned property that may occur as a result of development associated with the approval of the proposed Project.

The NOP does not address our facility or fee property right-of-way. Metropolitan is concerned with potential impacts to our facility associated with excavation, construction, operations, or any development that may occur as a result of the Project. It is necessary that the City identify and avoid potential impacts to Metropolitan's facility and property that may occur as a result of implementation of the proposed Project, including any restrictions on Metropolitan's day-to-day operations or access to its property. Metropolitan requests that the Riverside Public Utilities consider our facility and property during its project planning and in the impact analysis in the PEIR. In addition, Metropolitan will be a responsible agency for those Project elements that occur at or affect our facilities and property.

Metropolitan must also be allowed to maintain its rights-of-way and access to all of its facilities at all times in order to repair and maintain the current condition of those facilities. In order to avoid potential conflicts with Metropolitan's rights-of-way, we request that any design plans for any activity in the area of Metropolitan's pipelines or facilities be submitted for our review and written approval.

The Applicant may obtain detailed prints of drawings of Metropolitan's pipelines and rights-of-way by calling Metropolitan's Substructures Information Line at (213) 217-6564. To assist the Applicant in preparing plans that are compatible with Metropolitan's facilities and easements, enclosed is a copy of the "Guidelines for Developments in the Area of Facilities, Fee Properties, and/or Easements of The Metropolitan Water District of Southern California." Please note that all submitted designs or plans must clearly identify Metropolitan's facilities and rights-of-way.

We appreciate the opportunity to provide input to your planning process and we look forward to receiving future environmental documentation on this project. If we can be of further assistance, please contact Ms. Ana Reyes of the Environmental Planning Team at (213) 217-7079.

Very truly yours,

Laura J. Simonek

Laura J. Simonek
Manager, Environmental Planning Team

LIM/rdl
(Public Folders/EPU/Letters/14-APR-04A.doc – Kevin S. Milligan)
Enclosure: Planning Guidelines

City Of Loma Linda

25541 Barton Road, Loma Linda, California 92354-3160 • (909) 799-2830 • FAX (909) 799-2894

From The Department Of Community Development

RECEIVED

MAR 25 2004

CITY OF RIVERSIDE
WATER ENGINEERING

March 24, 2004

City of Riverside Public Utilities Department
Recycled Water and Water Rights Application EIR
Attention: Kevin S. Milligan, P.E.
Riverside City Hall
3900 Main Street
Riverside CA 92522

RE: Notice of Preparation (NOP) of an Environmental Impact Report assessing the City of Riverside Adoption of the 2003 Recycled Water Phase I Feasibility Study and Citywide Master Plan and the City of Riverside Application to Appropriate Santa Ana River Water by Permit – Review and Comments
Planning Letter (PL) No. 04-07

Dear Mr. Milligan:

The City of Loma Linda has completed its review of the Notice Of Preparation referenced above. Due to the distance between our two cities and the scope and nature of the proposal, we have no comments on the project.

Thank you for the opportunity to review and comment on the project. Please feel free to contact me at (909) 799-2830 if you have any questions or concerns regarding this correspondence.

Sincerely,

Deborah Woldruff

Deborah Woldruff, AICP
Director

c.c. Project File - PL No-04-07

NOP COMMENTS SUMMARY
Riverside Public Utilities Recycled Water Program EIR

Reference	Comment	Where Addressed in PEIR
SWRCB		
p. 1, para 1	SWRCB may require additional or different mitigation measures for impacts identified in resource areas within the SWRCB's jurisdiction.	Impact analysis.
p. 1, para 2	The EIR must have sufficient specificity for SWRCB to consider issuing a permit.	Project and alternatives descriptions; impact analysis.
p. 1, para 2	The EIR must focus on the secondary effects that can be expected to follow from adoption of the plan.	Impact analysis.
p. 2, para 2	The EIR must address impacts from the entire project. The analysis should address direct, indirect, and cumulative impacts.	Impact analysis.
p. 2, para 3	The EIR must address impacts from implementing the pan, even if the level of analysis may not address site-specific detail.	Impact analysis.
p. 2, para 4	Biological and water quality impacts resulting from reduced stream flow must be fully analyzed.	Biological resources and water quality impact analysis.
p. 2, para 5	Potential construction impacts and mitigation measures should be called out in a general way so that subsequent environmental documentation may be tiered.	Impact analysis.
OCWD		
p. 1, no. 1	The EIR should clarify the scope of the project with respect to the annual volume of water usage.	Project description.
p. 1, no. 2	The EIR should address potential impacts to groundwater quality.	Groundwater quality impact analysis.
p. 2, no. 3	The EIR should quantify water quality impacts to river flows and groundwater, and should demonstrate compliance with the Santa Ana River Basin Plan.	Water quality impact analysis.
p. 2, no. 4	The EIR should identify potential impacts to receiving water habitats, endangered or listed species, and critical habitats within and downstream of the area.	Biological resources impact analysis.
p. 2, no. 5	The EIR should address biological impacts resulting from reduced stream flow.	Biological resources impact analysis.
p. 2, no. 6	The EIR should provide adequate information to analyze biological	Biological resources impact analysis.

Reference	Comment	Where Addressed in PEIR
	resources impacts.	
p. 2, no. 7	The EIR should provide adequate information to analyze biological resources and water quality impacts.	Biological resources and water quality impact analysis.
EVWD		
p. 2, para 1	The EIR must discuss and analyze issues raised in the Protests filed with the SWRCB.	Impact analysis. Note: Our anticipated monitoring strategy will propose coordination with existing flow, surface, and groundwater quality monitoring conducted by the City, RCFCD, RCWCD, USGS, OCWD, SAWPA, RWQCB, and others.
p. 2, para 2	The EIR administrative record should include a detailed written response to all past, present, and future EVWD comments.	Project and alternatives descriptions; impact analysis.
RCFCD		
p. 1, no. 1	The EIR should acknowledge that RCFCD's Master Drainage Plans will (when fully implemented) provide adequate drainage outlets and relieve areas from serious flooding problems.	Water resources impact analysis.
p. 1, no. 2	The EIR should note that any work that involves RCFCD right-of-way, easements, or facilities will require an encroachment permit from the RCFCD.	Project description.
p. 2, no. 3	The EIR should note that improper application of reclaimed water could mobilize pollutants to groundwater.	Water resources impact analysis.
p. 2, no. 4	The EIR should note that construction projects that disturb 1+ acres of land may require coverage under the SWRCB's NPDES General Permit for Construction.	Water resources impact analysis.
p. 2, no. 5	The project should comply with the stormwater permit requirements under the NPDES Municipal Stormwater Permit for the Santa Ana River watershed. The EIR should include any necessary mitigation measures.	Water resources impact analysis. Note: This is being superceded by the RCFCD Water Quality Management Plan, which is the subject of a public workshop 5/18/04.
MWD		
p. 2, para 2-3	The EIR must identify potential impacts to MWD's Upper Feeder pipeline and fee-owned property resulting from excavation, construction, operations, or any development that may occur as a result of the project.	Project and alternatives descriptions; impact analysis.
Loma Linda		
p. 1, para 1	No comments.	N/A.

Appendix B

City of Riverside

Application to Appropriate Water by Permit

MINIMUM FILING FEE: $100.00
FILE ORIGINAL & ONE COPY
TYPE OR PRINT IN BLACK INK
(For explanation of entries required, see booklet "How to File an Application to Appropriate Water in California")

STATE OF CALIFORNIA
State Water Resources Control Board
DIVISION OF WATER RIGHTS
901 P Street, Sacramento
P. O. Box 2000, Sacramento, CA 95812-2000

[X] APPLICATION TO APPROPRIATE WATER BY PERMIT

or

(Check one box only)

[ ] REGISTRATION OF SMALL DOMESTIC USE APPROPRIATION*

(If this form is used to register a small domestic use appropriation, the terms "application" and "applicant" herein, and in related forms, shall mean "registration" and "registrant".)

Application No. _____ (Leave blank)

1. APPLICANT

City of Riverside (Name of applicant)

(909) 826 - 5793 (Telephone number where you may be reached between 8 a. m. and 5 p. m. - include area code)

3900 Main Street (Mailing address)

Riverside, Ca. 92522 (City or town) (State) (Zip code)

2. SOURCE

a. The name of the source at the point of diversion is Santa Ana River (Treated effluent from the applicant's Regional Water Quality Control Plant) (If unnamed, state that it is an unnamed stream, spring, etc.)

tributary to Pacific Ocean

b. In a normal year does the stream dry up at any point downstream from your project? YES [ ] NO [X] If yes, during what months is it usually dry? From _____ to _____

What alternate sources are available to your project should a portion of your requested direct diversion season be excluded because of a dry stream or nonavailability of water? groundwater and imports from Western Municipal Water District and Gage Canal Company

3. POINTS of DIVERSION and REDIVERSION

a. The point(s) of diversion will be in the County of Riverside

b.

List all points giving coordinate distances from section corner or other tie as allowed by Board regulations i. e. California Coordinate System	Point is within (40-acre subdivision)	Section	Township	Range	Base and Meridian
See Attachment	1/4 of 1/4				
	1/4 of 1/4				
	1/4 of 1/4				

c. Does applicant own the land at the point of diversion? YES [X] NO [ ]

d. If applicant does not own the land at point of diversion, state name and address of owner and what steps have been taken to obtain right of access: _____

4. PURPOSE of USE, AMOUNT and SEASON

a. In the table below, state the purpose(s) for which water is to be appropriated, the quantities of water for each purpose, and the dates between which diversions will be made. Use gallons per day if rate is less than 0.025 cubic foot per second (approximately 16,000 gallons per day). Purpose must only be "Domestic" for registration of small domestic use.*

PURPOSE OF USE (Irrigation, Domestic, etc.)	DIRECT DIVERSION				STORAGE		
	QUANTITY		SEASON OF DIVERSION		AMOUNT	COLLECTION SEASON	
	RATE (Cubic feet per second or gallons per day)	AMOUNT (Acre-feet per year)	Beginning Date (Mo. & Day)	Ending Date (Mo. & Day)	Acre-feet per annum	Beginning Date (Mo. & Day)	Ending Date (Mo. & Day)
M & I	75	21,400	1/1	12/31			
Irrigation		20,000	1/1	12/31			
		41,400	TOTAL AMOUNT			TOTAL AMOUNT	

b. Total combined amount taken by direct diversion and storage during any one year will be 41,400 acre-feet.

* *Not to exceed 4,500 gallons per day by direct diversion or 10 acre-feet per annum by storage.*

FOR0053-R1

WR 1 (6/91)

5. **JUSTIFICATION OF AMOUNT** (For small domestic use registration, complete item b. only)

a. IRRIGATION: Maximum area to be irrigated in any one year is 5,600 acres.

CROP	ACRES	METHOD OF IRRIGATION (Sprinklers, flooding, etc.)	ACRE-FEET PER YEAR	NORMAL SEASON	
				Beginning Date	Ending Date
Citrus, Nurseries	5,600	Flood, Drip	20,000	1/1	12/31

b. DOMESTIC: Number of residences to be served is _____. Separately owned ? YES ☐ NO ☐
Total number of people to be served is _____. Estimated daily use per person is _____ (Gallons per day)
Total area of domestic lawns and gardens is _____ square feet.
Incidental domestic uses are _____
(Dust control area, number and kind of domestic animals, etc.)

c. STOCKWATERING: Kind of stock _____ Maximum number _____
Describe type of operation: _____
(Feed lot, dairy, range, etc.)

d. RECREATIONAL: Type of recreation: Fishing ☐ Swimming ☐ Boating ☐ Other ☐

e. MUNICIPAL: (Estimated projected use) See Attachment

POPULATION 5-Year periods until use is completed		MAXIMUM MONTH		ANNUAL USE		
PERIOD	POP.	Average daily use (gal. per capita)	Rate of diversion (c/s)	Average daily use (gal. per capita)	Acre-foot (per capita)	Total acre-feet
Present	250,000	416	161	277	0.31	77,626
2005	267,000	413	170	277	0.31	82,283
2010	283,000	408	179	268	0.30	86,268
2015	300,000	404	187	268	0.30	90,475
2020	316,000	402	197	268	0.30	94,886

Month of maximum use during year is September. Month of minimum use during year is March

f. HEAT CONTROL: The total area to be heat protected is _____ net acres.
Type of crop protected is _____
Rate at which water is applied to use is _____ gpm per acre.
The heat protection season will begin about _____ (Date) and end about _____ (Date)

g. FROST PROTECTION: The total area to be frost protected is _____ net acres.
Type of crop protected is _____
Rate at which water is applied to use is _____ gpm per acre.
The frost protection season will begin about _____ (Date) and end about _____ (Date)

h. INDUSTRIAL: Type of industry is Manufacturing
Basis for determination of amount of water needed is included in Item 5.e.

i. MINING: The name of the claim is _____. Patented ☐ Unpatented ☐
The nature of the mine is _____. Mineral to be mined is _____
Type of milling or processing is _____
After use, the water will be discharged into _____ (Name of stream)
in _____ 1/4 of _____ 1/4 of Section _____, T _____, R _____, _____ B. & M.
(40-acre subdivision)

j. POWER: The total fall to be utilized is _____ feet. The maximum amount of water to be used through the penstock is _____ cubic feet per second. The maximum theoretical horsepower capable of being generated by the works is _____ (Cubic feet per second x fall ÷ 8.8). Electrical capacity is _____ (Hp x 0.746 x efficiency) kilowatts at _____ % efficiency.
After use, the water will be discharged into _____ (Name of stream)
in _____ 1/4 of _____ 1/4 of Section _____, T _____, R _____, _____ B. & M. FERC No. _____
(40-acre subdivision)

k. FISH AND WILDLIFE PRESERVATION AND/OR ENHANCEMENT: YES ☐ NO ☐ If yes, list specific species and habitat type that will be preserved or enhanced in item 17 of Environmental Information form WR 1-2.

l. OTHER: Describe use: _____. Basis for determination of amount of water needed is _____

6. PLACE OF USE

a. Does applicant own the land where the water will be used? YES [ ] NO [X] Is land in joint ownership? YES [ ] NO [ ]
(All joint owners should include their names as applicants and sign the application.)
If applicant does not own land where the water will be used, give name and address of owner and state what arrangements have been made with the owner.
Place of use is within the City of Riverside city limits and Water Service Area Boundary

b.

USE IS WITHIN (40-acre subdivision)		SECTION	TOWNSHIP	RANGE	BASE & MERIDIAN	IF IRRIGATED	
						Number of acres	Presently cultivated (Y/N)
1/4 of	1/4	See Attached Map					
1/4 of	1/4						
1/4 of	1/4						
1/4 of	1/4						
1/4 of	1/4						
1/4 of	1/4						

(If area is unsurveyed, state the location as if lines of the public land survey were projected, or contact the Division of Water Rights. If space does not permit listing all 40-acre tracts, include on another sheet or state sections, townships and ranges, and show detail on map.)

7. DIVERSION WORKS

a. Diversion will be by gravity by means of _____
(Dam, pipe in unobstructed channel, pipe through dam, siphon, weir, gate, etc.)

b. Diversion will be by pumping from Sump (Sump, offset well, channel, reservoir, etc.) Pump discharge rate 270 (cfs or gpm) Horsepower 6,000

c. Conduit from diversion point to first lateral or to offstream storage reservoir:

CONDUIT (Pipe or channel)	MATERIAL (Type of pipe or channel lining) (Indicate if pipe is buried or not)	CROSS SECTIONAL DIMENSION (Pipe diameter or ditch depth and top and bottom width)	LENGTH (Feet)	TOTAL LIFT OR FALL		CAPACITY (Estimate)
				Feet	+ or -	
Buried Pressurized Pipeline System						

d. Storage reservoirs: (For underground storage, complete Supplement 1 to WR1, available upon request.)

Name or number of reservoir, if any	DAM				RESERVOIR		
	Vertical height from downstream toe of slope to spillway level (ft.)	Construction material	Dam length (ft.)	Freeboard Dam height above spillway crest (ft.)	Approximate surface area when full (acres)	Approximate capacity (acre-feet)	Maximum water depth (ft.)

e. Outlet pipe: (For storage reservoirs having a capacity of 10 acre-feet or more.)

Diameter of outlet pipe (inches)	Length of outlet pipe (feet)	FALL (Vertical distance between entrance and exit of outlet pipe in feet)	HEAD (Vertical distance from spillway to outlet pipe in reservoir in feet)	Estimated storage below outlet pipe entrance (dead storage)

f. If water will be stored and the reservoir is not at the point of diversion, the maximum rate of diversion to offstream storage will be _____ cfs. Diversion to offstream storage will be made by: [ ] Pumping [ ] Gravity

8. COMPLETION SCHEDULE

a. Year work will start 2003 b. Year work will be completed 2019
c. Year water will be used to the full extent intended 2020 d. If completed, year of first use _____

9. GENERAL

a. Name of the post office most used by those living near the proposed point of diversion is Riverside Downtown

b. Does any part of the place of use comprise a subdivision on file with the State Department of Real Estate? YES [X] NO [ ]

If yes, state name of the subdivision Numerous subdivisions on file with the Dept. of Real Estate

If no, is subdivision of these lands contemplated? YES [ ] NO [ ]

Is it planned to individually meter each service connection? YES [ ] NO [ ] If yes, When? _____

c. List the names and addresses of diverters of water from the source of supply downstream from the proposed point of diversion: Refer to information on file at the State Water Resources Control Board, Division of Water Rights

d. Is the source used for navigation, including use by pleasure boats, for a significant part of each year at the point of diversion, or does the source substantially contribute to a waterway which is used for navigation, including use by pleasure boats? YES [ ] NO [X] If yes, explain: _____

10. EXISTING WATER RIGHT

Do you claim an existing right for the use of all or part of the water sought by this application? YES [ ] NO [ ]

If yes, complete table below:

Nature of Right (riparian, appropriative, groundwater)	Year of First Use	Purpose of use made in recent years including amount, if known	Season of Use	Source	Location of Point of Diversion
See Attachment					

11. AUTHORIZED AGENT (Optional)

With respect to [X] all matters concerning this water right application [ ] those matters designated as follows:

Wagner & Bonsignore, Consulting Civil Engineers (Name of agent) (916)441-6850 (Telephone number of agent between 8 a. m. and 5 p. m.)

444 N. Third St., suite 325 (Mailing address) Sacramento (City or town) Ca. (State) 95814 (Zip code)

is authorized to act on my behalf as my agent.

12. SIGNATURE OF APPLICANT –

I (we) declare under penalty of perjury that the above is true and correct to the best of my (our) knowledge and belief.

Dated March 14, 19 2002, at Sacramento, California

Ms. Mr.
Miss. Mrs. Robert C. Wagner (Signature of applicant)
Robert C. Wagner, P.E.

(If there is more than one owner of the project, please indicate their relationship.)

Ms. Mr.
Miss. Mrs. _____ (Signature of applicant)

Additional information needed for preparation of this application may be found in the Instruction Booklet entitled "HOW TO FILE AN APPLICATION TO APPROPRIATE WATER IN CALIFORNIA". If there is insufficient space for answers in this form, attach extra sheets. Please cross-reference all remarks to the numbered item of the application to which they may refer. Send original application and one copy to the STATE WATER RESOURCES CONTROL BOARD, DIVISION OF WATER RIGHTS, P. O. Box 2000, Sacramento, CA 95810, with $100 minimum filing fee.

NOTE:

If this application is approved for a permit, a minimum permit fee of $100 will be required before the permit is issued. There is no additional fee for registration of small domestic use.

ATTACHMENT TO WATER RIGHT APPLICATION BY CITY OF RIVERSIDE

Re: 3.b. Points of Diversion and Rediversion

Point	Description
#1	Point of Direct Diversion: Located N. 656,200 and E. 1,633,300 California Coordinate System, Zone 6, being within the SW ¼ of SE ¼ of Section 25, T2S, R6W, SBB&M.

Re: 5.e. Justification of Amount, Municipal – Information shown on this table is the total municipal and industrial use from all sources. The maximum amount of demand to be met by treated effluent under this application is 21,400 acre-feet annually.

Re: 10. Existing Water Right

Nature of Right (riparian, appropriative, groundwater)	Year of First Use	Purpose of use made in recent years including amount, if known	Season of Use	Source	Location of Point Diversion
Groundwater	Late 1800s	M&I, irrigation - 77,000 AF	Year-round	Bunker Hill, Colton, Riverside North, Riverside South, and Arlington Groundwater Basins	Numerous wells within these basins
Contract Import	1981	M&I - 365 AF	Summer	Western Municipal Water District	N/A
Contract Import	1887	Irrigation – 20,000 acre-feet	March through January	Gage Canal Company	N/A

Appendix C

Air Quality Analysis

Appendix C

Air Quality Analysis

Introduction

This air quality analysis has been conducted to estimate potential construction and operational impacts associated with the proposed Riverside Public Utilities Recycled Water Master Plan. The analysis provides quantitative studies on potential air quality impacts associated with the Master Plan.

The proposed project is located in northwestern Riverside County, California, east of Orange County, and south of San Bernardino County. The Master Plan considers three types of projects:

- Core Distribution System,
- Phase 1 Expansion, and
- Agricultural Use System.

Of these three types of projects, the Master Plan provides the most detail about the Phase 1 expansion of the existing recycled water system. The location and extent of the Core Distribution System and Agricultural Use System of future phases are too speculative to identify at this time, and these two types of projects are subject to future planning and environmental review. Detailed information regarding the proposed program is presented in Chapter 2 of the Draft EIR. This analysis analyzes potential air quality impacts associated with the program Phase 1 expansion.

Impacts and Mitigation

Significance Thresholds

The proposed program is located in the South Coast Air Basin (Basin). The South Coast Air Quality Management District (SCAQMD) has established emission thresholds for criteria air pollutants to evaluate the significance levels of land use projects located in the Basin. The applicable significance thresholds are listed in Table C-1.

Table C-1. SCAQMD Significance Thresholds

Phase/Pollutant	Daily (lbs/day)	Quarterly (tons/quarter)
Construction		
Carbon monoxide (CO)	550	24.75
Nitrogen oxides (NO_x)	100	2.5
Particulate matter with diameter less than or equal to 10 microns (PM_{10})	150	6.75
Reactive organic compounds (ROC)	75	2.5
Sulfur oxides (SO_x)	150	6.75
Operations		
Carbon monoxide (CO)	550	NA
Nitrogen oxides (NO_x)	55	NA
Particulate matter with a diameter less than or equal to 10 microns (PM_{10})	150	NA
Reactive organic compounds (ROC)	55	NA
Sulfur oxides (SO_x)	150	NA

Source: South Coast Air Quality Management District 1993.

Impact Analysis

Table C-2 lists the potential impacts and their level of significance (potentially significant impacts are highlighted in bold). Mitigation measures for significant impacts are identified in the analysis of individual effects and described in detail in "Mitigation for Significant Impacts."

Table C-2. Summary List of Air Quality Impacts and Level of Significance

Impact ID	Type of Impact	Level of Impact
AQ-IMP-1	**Temporary air pollutant emissions associated with Phase I construction activities**	**Potentially significant (less than significant with mitigation incorporated)**
AQ-IMP-2	Air pollutant emissions associated with operation of the Core Distribution System	Less than significant
AQ-IMP-3	Cumulative air pollutant emissions associated with development pursuant to the City of Riverside 2025 General Plan	Less than significant

AQ-IMP-1: Construction Air Quality Emissions

A construction impact analysis was conducted for the Phase 1 expansion of the existing recycled water system. The Phase 1 expansion encompasses a radius of approximately two miles around the Regional Water Quality Control Plant (RWQCP). In Phase 1, approximately 47,026 linear feet of pipelines would be installed within the existing city's rights-of-way and a booster pumping station would be installed at the chlorine contact tanks. Construction activities for the pipeline system would be conducted in three stages: 1) digging trenches, 2) installation of pipes, and 3) trench backfilling and resurfacing. Construction activities associated with the pumping station would include site grading and pump station construction.

Construction activities would result in temporary increases of air pollutant emissions. These emissions would be generated in the form of fugitive dust emissions (PM_{10}) and exhaust emissions (NO_x, SO_x, CO, ROC, and PM_{10}). Air pollutant emissions to be generated during project construction phases were estimated using on-road and off-road mobile emission factors compiled by the SCAQMD.

Emissions from construction equipment were estimated using composite off-road emission factors compiled by the SCAQMD. The composite off-road emission factors were derived based on the equipment category (loader, dozer, trencher, etc.), average fleet make-up for each year through 2020, and vehicle population (number) in each equipment category by horsepower rating and load factor. Daily emissions were calculated using the emission factors multiplied by the number of pieces of equipment. Quarterly emissions were then calculated based on estimated working days for equipment to be used in different construction stages.

For vehicles, the composite on-road emission factors compiled by the SCAQMD were used. Air pollutant emissions were calculated using the emission factors multiplied by vehicle activity data. This data includes the number of vehicles, traveling distances, and vehicle classes (e.g., passenger cars, delivery trucks, or heavy-heavy duty trucks).

A summary of the emission calculation results for Phase 1 expansion construction activities are provided in Tables C-3 and C-4. Worksheets documenting the calculations are provided as an attachment to this study.

Table C-3. Construction Peak Daily Emissions (lbs/day)

Construction Activity	CO	ROC	NO_x	SO_x	PM_{10}
Pipeline Installation - Dirt Trenching	19.52	4.04	23.98	3.45	259.48
Pipeline Installation - Pipe Installation	14.79	2.86	18.72	2.02	5.38
Pipeline Installation - Backfilling	16.72	2.85	23.69	3.43	26.94
Pump Station Construction	12.88	3.11	18.37	1.40	3.72
Peak Daily Emissions	**63.91**	**12.86**	**84.75**	**10.30**	**295.52**
Peak Daily Emissions after Mitigation	**63.91**	**12.86**	**84.75**	**10.30**	**105.37**
Significance Threshold	**550**	**75**	**100**	**150**	**150**
Significant Impact	**No**	**No**	**No**	**No**	**No**

Table C-4. Construction Peak Quarterly Emissions (tons/quarter)

Construction Activity	CO	ROC	NO_x	SO_x	PM_{10}
Pipeline Installation - Dirt Trenching	0.63	0.13	0.78	0.11	11.75
Pipeline Installation - Pipe Installation	0.48	0.09	0.61	0.07	0.17
Pipeline Installation - Backfilling	0.45	0.07	0.58	0.08	0.86
Pump Station Construction	0.27	0.07	0.39	0.03	0.08
Peak Quarterly Emissions	**1.83**	**0.36**	**2.35**	**0.28**	**12.87**
Peak Quarterly Emissions after Mitigation	**1.83**	**0.36**	**2.35**	**0.28**	**4.44**
Significance Threshold	**24.75**	**2.5**	**2.5**	**6.75**	6.75
Significant Impact	**No**	**No**	**No**	**No**	**No**

As shown in Tables C-3 and C-4, the estimated air pollutant emissions for PM_{10} associated with the construction activities would be above the applicable significance emission thresholds prior to mitigation. Accordingly, Mitigation Measure AQ-MM-1 shall be implemented to minimize the short-term fugitive dust emissions associated with the subject construction activities. With the implementation of Mitigation Measure AQ-MM-1, construction-related PM_{10} emissions would be reduced below the level of significance.

AQ-IMP-2: Operational Air Quality Emissions

Operation of the Core Distribution System will involve five additional full-time staff for standard operations and maintenance activities. Air pollutant emissions associated with vehicle use (commuting) by these staff were estimated using the SCAQMD composite on-road emission factors multiplied by traveling distances. The average traveling distance was assumed to be 22 miles per vehicle. A summary of emission calculation results for program operations is provided in

Table C-5. Worksheets documenting the calculations are provided as an attachment to this study.

Table C-5. Operations Peak Daily Emissions (lbs/day)

Emission Source	CO	ROC	NO_x	SO_x	PM_{10}
Exhaust Emissions - Autos	1.53	0.16	0.16	0.00	0.01
Fugitive Dust Emissions - Autos on Paved Roads	0.00	0.00	0.00	0.00	0.13
Peak Daily Emissions	**1.53**	**0.16**	**0.16**	**0.00**	**0.14**
Significance Threshold	**550**	**55**	**55**	**150**	**150**
Significant Impact	**No**	**No**	**No**	**No**	**No**

As shown in Table C-5, the estimated air pollutant emissions associated with program operations would be well below the applicable significance emission thresholds. Implementation of the Master Plan would not have significant air quality impacts during program operations.

AQ-IMP-3: Cumulative Air Quality Emissions

The proposed Recycled Water Master Plan is included in the City's General Plan 2025 Program (City, 2005). The General Plan 2025 Program was approved by the City Planning Commission on August 18, 2005. Development pursuant to the 2025 General Plan Program will result in the addition of up to 38,100 new dwelling units and 39,600,000 square feet of new non-residential construction over the 20-year horizon of the General Plan within the planning area, including the project area.

The Riverside General Plan EIR estimated potential long-term air quality impacts associated with the proposed General Plan development. Table C-6 reports estimated air pollution emissions associated with existing conditions and buildout conditions of the General Plan land uses (City, 2004).

Table C-6. Estimated Air Pollution Emissions for Existing and General Plan Buildout Land Uses / Comparison of Project Emissions with the Total General Plan Buildout Emissions

Pollutant	Existing Land Use (lbs/day)	Land Use at Buildout of General Plan (lbs/day)	Program Emissions (lbs/day)	Program Emission Contribution (%)
ROC	24,150	13,039	0.16	0.001
NO_x	22,082	7,667	0.16	0.002
CO	227,002	64,125	1.53	0.002
PM_{10}	16,075	24,105	0.14	0.001
SO_x	181	145	<0.01	0.001

Source: City of Riverside 2004.

As shown in Table C-6, for all pollutant categories except for PM_{10}, long-term air pollutant emissions in 2025 were projected to decrease relative to existing conditions. The Riverside General Plan EIR identified significant cumulative PM_{10} impacts associated with the 2025 General Plan.

The proposed program is part of the General Plan. Consistent with the General Plan EIR, the proposal program would not have significant cumulative impacts for NO_x, CO, SO_x, and ROC. As shown in Table C-5, the air pollutant emissions generated from the proposed program would be less than 0.002 percent of the total emissions estimated for the General Plan. Therefore, the proposed program would not significantly contribute to cumulative air quality impacts in the region.

Mitigation for Significant Impacts

AQ-MM-1: Minimize Construction-Related Fugitive Dust Emissions

During project construction, graded areas and storage piles shall be watered three times per day to minimize fugitive dust emissions. In addition, ground cover in disturbed areas shall be replaced as quickly as practicable.

References

City of Riverside. 2005. Communication with Diane Jenkins of City of Riverside Community Development Department. October.

City of Riverside. 2004. General Plan and Supporting Documents Environmental Impact Report. November.

South Coast Air Quality Management District. 1993. CEQA Air Quality Handbook.