Updated Integrated Regional Water Management Plan Report

May 2008

Prepared for:

Western Municipal Water District

Kennedy/Jenks Consultants
Engineers & Scientists

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Western Municipal Water District
Integrated Regional Water Management Plan
2008 Update

May 2008

Prepared for

Western Municipal Water District
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Riverside, CA

K/J Project No. 0787128

This Project has been funded by a California Department of Water Resources Proposition 50, Integrated Regional Water Management Program Planning Grant.

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List of Abbreviations

AF	acre-feet
AFY	acre-feet per year
BSMWC	Box Springs Mutual Water Company
CBMWD	Chino Basin Municipal Water District
CDBA	Chino Basin Desalter Authority
cfs	cubic feet per second
CIP	Capital Improvement Program
Corona	City of Corona Water Service
CPA	Central Pool Augmentation
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CVAG	Coachella Valley Association of Governments
DHS	California Department of Health Services
DWR	California Department of Water Resources
DYY	Dry Year Yield
EIR	Environmental Impact Report
EMWD	Eastern Municipal Water District
EVMWC	Eagle Valley Mutual Water Company
EVMWD	Elsinore Valley Municipal Water District
EWD	Elsinore Water District
Gage	Gage Canal Company
gpm	gallons per minute
HGCWD	Home Gardens County Water District
IAS	Integrated Area Study
IEUA	Inland Empire Utilities Agency
IRP	Integrated Resources Plan
IRWMP	Integrated Regional Water Management Plan
IWRP	Integrated Water Resources Plan
JCSD	Jurupa Community Services District
km	kilometers
LLWD	Lee Lake Water District
MARB	March Air Reserve Base
MGD	million gallons per day

mg/L	milligrams per liter
MOU	Memorandum of Understanding
MSHCP	Multiple Species Habitat Conservation Plan
MWD	Metropolitan Water District of Southern California
Norco	City of Norco
NPDES	National Pollutant Discharge Elimination System
OBMP	Optimum Basin Management Program
OCWD	Orange County Water District
RCIP	Riverside County Integrated Plan
RCP	Regional Comprehensive Plan
RCSD	Rubidoux Community Services District
RCWD	Rancho California Water District
RHWC	Riverside Highlands Water Company
Riverside	City of Riverside
RW	Recycled Water
SARWQCB	Santa Ana Regional Water Quality Control Board
SARI	Santa Ana Regional Interceptor
SARWC	Santa Ana River Water Company
SAWPA	Santa Ana Watershed Project Authority
SBVMWD	San Bernardino Valley Municipal Water District
SCAG	Southern California Association of Governments
SCCWRRS	Southern California Comprehensive Water Reclamation and Reuse Study
SDCWA	San Diego County Water Authority
SDRWQCB	San Diego Regional Water Quality Control Board
SRWRF	Santa Rosa Water Reclamation Facility
SWP	State Water Project
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TIN	Total Inorganic Nitrogen
TSS	Total Suspended Solids
TVRWRF	Temecula Valley Regional Water Reclamation Facility
TVP	Temescal Valley Pipeline
UCR	University of California, Riverside
USBR	U.S. Bureau of Reclamation
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

UWMP	Urban Water Management Plan
VDC	Valle de los Caballos
WDR	Waste Discharge Permit
WFP	Water Filtration Plant
Western	Western Municipal Water District
WRF	Water Reclamation Facility
WSA	Water Supply Assessment
WTP	Water Treatment Plant
WVWD	West Valley Water District
WWMP	Wastewater Master Plan
WWTP	Wastewater Treatment Plant

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Executive Summary

The purpose of this Updated Integrated Regional Water Management Plan (IRWMP) for the Western Municipal Water District (Western) service area is to continue to address long range water quantity, quality, and environmental planning needs within Western's service area. In addition, in order to meet the future demands in a rapidly growing area, water supply reliability in the near future is critical. The potential for failures in the imported supply system and more immediate cutbacks to meet environmental needs, have potentially devastating impacts that need to be protected against.

The essence of this IRWMP is the identification and evaluation of water management strategies that could increase local water supply, thereby improving water supply reliability. Additional benefits of the IRWMP are to address local and regional water quality, environmental, and disadvantaged community issues. The IRWMP also includes discussion of other regional planning efforts that impact water management within the Western service area as well as compilation of estimates of water demands by member agencies, water supplies (e.g. local groundwater, recycled water, surface water, imported water) available to the agencies, and is an effort to coordinate investments in water management, as appropriate, between agencies.

The original IRWMP process was started with discussions with Western's member agencies and stakeholders. The update to this process, include more extensive outreach including 7 stakeholder meetings as well as individual meetings with smaller agencies, many serving disadvantaged communities. These meetings served as a forum to exchange information and obtain input on topics such as

- Regional Recycled Water Planning,
- Integration of Habitat Restoration/Mitigation into Water Projects,
- Future Land-Use Projections and Impacts to Water Management Strategies, and
- Regulatory Requirements for Recycled Water Recharge to Groundwater.

The meetings were also a forum for preparing Regional Objectives for Western's service area and member agencies. The IRWMP Update effort was paralleled by a Water Use Efficiency Master Plan (WUEMP) for the Western service area which independently evaluates the water meter data and water conservation best management practice (BMP) implementation of member agencies and makes recommendations for cost-effective BMPs for agencies in the Western service area to focus. The more detailed discussion of this effort is found in Section 4.2.1.1 and in Appendix A.

In addition, through these meetings and a call for projects, over 85 ideas for water management strategies were presented. The water management strategies were divided into categories based on screening criteria described in Section 5. The categories are centered around how the project meets the Regional Objectives, readiness to proceed of a project, the regional

benefit of a project, and how it serves disadvantaged communities. All of the projects submitted are shown on Figure ES-1.

Projects are described in greater detail in Section 5 and are categorized as:

- Regional projects directly benefiting 3 or more agencies- ready to proceed (Ready – Regional)
- Local projects directly benefiting 1 to 2 agencies – ready to proceed (Ready – Local)
- Conceptual Projects Requiring Further Planning (Future Planning)

In addition, projects were separated because they addressed specific needs and/or provide specific benefits such as:

- Directly Serve the Needs of Disadvantaged Communities
- Septic Tank Conversions for Public Health and Water Quality Benefit
- Environmental protection and restoration
- Integrate Multiple Water Management Strategies
- Regional Benefits
- Potable and Non-Potable Supply Projects

The needs and benefits identified above are often overlooked and/or not addressed comprehensively but can represent significant health and water quality needs within a region. By focusing attention on these types of projects, this IRWMP seeks to educate agencies and policy makers of these needs.

Implementation of these water management strategies will be critical to meeting the water supply reliability, water quality, and environmental needs of region. Some of the projects have already received some funding from local agencies as well as from state grants and have proceeded into environmental documentation and design. These projects are categorized as Ready- Regional or Ready-Local) and found in Table ES-1 that follows.

TABLE ES-1
SUMMARY OF PROJECTS READY TO PROCEED

Lead Agency	Project Name	Project No.	Description
City of Corona	New Water Wells	C-01	The City plans for the construction of one new water production well every two to three years. Wells will also be located to capture a portion of groundwater discharge that is currently exiting the groundwater basin, thereby increasing the basin yield. This Project includes drilling and equipping one new water well in 2009.
City of Corona	Replacement Water Wells	C-02	This project includes drilling and equipping one replacement water well. The City's wells service life is 30 years. The City has eight water wells that have exceeded the 30-year service life.
City of Corona	Groundwater Blending Program	C-07	Replace analyzers and SCADA interface for existing groundwater blending program
City of Corona	Improvement of Groundwater Quality/Quantity Monitoring Program	C-08	Development of specific monitoring protocols including monitoring locations, frequency, measurements, sampling procedures, data management, and quality assurance/quality control measures in order to improve current groundwater monitoring program.
City of Corona	Recharge Basins within Oak Avenue Detention Basin	C-10	Project will configure Oak Avenue Detention Basin for groundwater recharge of stormwater. According to a pilot study, a recharge basin constructed within the larger detention basin is capable of receiving and percolating about 2,500 AF/year or 4,000/5,000 AF/year if two basins are constructed. Recycled water or imported water can also be conveyed to the basin for recharge.
City of Corona	Recharge Basins within Main Street Detention Basin	C-11	Project will configure Main Street Detention Basin for groundwater recharge of stormwater. According to a pilot study, a recharge basin constructed within the larger detention basin is capable of receiving and percolating about 500 AF/year or 1,500 AF/year if two basins are constructed.
City of Corona	Upgradient Injection Wells	C-12	Enhanced recharge through wells at the upgradient portion of the Channel Aquifer, near Arlington Gap. Potable, recycled, or blended water could be injected into these wells.
City of Corona	Recycled Water Injection Wells	C-13	Recycled water injection wells could be constructed in several areas of the City. Specific components at each site include a well, well head, down-comer pipes, flow metering, piping and valving that are connected to the adjacent recycled water piping, and a flow control and pressure reducing valve.

Lead Agency	Project Name	Project No.	Description
City of Corona	Lincoln and Cota Street Perculation Ponds Maintenance Program	C-19	Project consists of removing the fine soil particulates (filter cake) from the pond bottom and sides and hauling the filter cake off site for legal disposal.
EVMWD	Wildomar Recyled Water Project-Phase1	EV-04	Construct 32,500 feet of recycled water pipelines and the necessary on-site system conversions to provide recycled water service to thirty (34) sites including seven schools, a cemetery, park, church, and the Diamond Stadium.
EVMWD	Wildomar Recyled Water Project-Phase1A	EV-05	Construct 7,200 feet of recycled water pipelines, two pump stations, and two storage reservoirs, and the necessary on-site system conversions to provide recycled water to six (6) sites including one school and five landscape areas.
JCSD	Indian Hills Water Recycling Project	J-03	Construct pipeline to deliver treated effluent from Riverside Regional Water Quality Control Plant south of District's boundary to Indian Hills area and adjacent water purveyor.
JCSD	Plant No. 1 - 5Yr and 100Yr Flood Protection	J-04	Provide flood protection improvements including levees to protect sewage treatment plant from SAR flood flows and prevent collection ponds from overflowing into SAR.
JCSD	Teagarden Ion Exchange Expansion	J-05	Upgrade JCSD's Ion Exchange Plant from 8 mgd to 15 mgd
JCSD	Selby Street - Water & Sewer Services	J-06	3,520 feet of domestic water pipeline and 1,354 feet of sewer pipeline to serve approximately 60-80 homes and businesses in Eastvale area currently served through private wells and septic systems. Currently, high nitrate levels are found in local private wells. Project will help improve basin water quality.
JCSD	High School Well Renovation	J-08	Project will renovate an existing well and convey the discharge through a converted raw-water pipeline to the Ion Exchange Plant.
OCWD	River Road Wetlands	OC-01	The River Road Wetlands Project is an environmental enhancement project that provides water quality enhancement benefits, recreational benefits and wildlife enhancement benefits. The project consists of 192 acres of freshwater marsh area that would be used for water quality enhancement, 134 acres of riparian forest open space and 11 acres of access ways and public trails.
City of Riverside	Riverside Highgrove Septic Conversion Project - Phase II	R-02	Convert approximately 260 residential onsite wastewater systems (septic) within the County of Riverside’s Highgrove community and connecting them to the City of Riverside’s wastewater collection system. The project components include constructing approximately 22,500 linear feet of sewer pipelines and other improvements.

Lead Agency	Project Name	Project No.	Description
City of Riverside	Pellesier Ranch Barrier Wells and Water Treatment Plant	R-03	Project consists of pumping and treating groundwater contaminated with wastewater effluent and manganese that could potentially migrate towards City of Riverside's domestic water wells. The treated water will be used for non-potable purposes by the City of Riverside and WMWD. The proposed manganese treatment plant would be located within the Riverside's Garner Tract off Placentia Lane.
City of Riverside	Water Recycling Project-Phase1	R-05	Construct 11.9 miles pipeline to supply City of Riverside and provide backup source to WMWD for JCSD. Will provide 1.4 MGD to RPU and 0.7 MGD to JCSD
City of Riverside	Riverside North Basin Recharge Basin	R-06	Construct 2 recharge facilities to recharge Riverside Basin.
City of Riverside	Riverside Pump Station #1 (Raub Regional Emergency Supply Project)	R-07	Emergency supply connection to SBVMWD Central Feeder pipeline.
City of Riverside	Waterman-Gage Intertie	R-08	The Waterman line and the Gage line deliver approximately 75 percent of the City's groundwater production. The construction of the Waterman-Gage Intertie Project (Intertie) would increase the operational flexibility and reliability of supplying water to the City and WMWD, helping to ensure the availability of potable water conveyed from the Bunker Hill Basin.
RCSD	Well 17 and 18 Manganese Removal Treatment Facility	RB-03	Design and construct new manganese treatment facility to remove manganese from Wells 17 and 18, allowing for 7,900 AF/year of additional potable water for regional system.
LESJWA	Lake Elsinore Fishery Enhancement Project	SJ-03	The project is a part of an adaptive fishery enhancement and maintenance program to create a balanced, self-sustaining sport fishery, which complements efforts to rehabilitate lake water quality. Project includes carp control, zooplankton enhancement, aquaitic and emergent vegetation restoration, fish habitat improvement, and fish community structure improvement.
WMWD	Arlington Desalter Expansion of 3.6 MGD	W-01	Enhance and expand existing Arlington desalter by 4000 AF/yr to 10 MGD. Suitable for potable delivery. Also desalinizes and blends water for recharge in the Santa Ana River (OCWD). Intercept perchlorate-contamined groundwater flows to Santa Ana River and use discharge as Desalter water. Brine discharges to SARI line.

Lead Agency	Project Name	Project No.	Description
WMWD	March Reclamation Facility Phase 2 Expansion	W-05	Expand the March Reclamation Facilty from 1 MGD to 3 MGD and add tertiary treatment in order to provide additional treatment capacity and irrigation water for new developments as well as water for groundwater recharge.
WMWD	Perris North Basin Groundwater Model	W-07	The Perris North Groundwater Basin contains high TDS and nitrate levels. Water Quality sampling is required. Develop model for groundwater management and well siting.
WMWD	RC Feeder - Central Reach	W-09.2	Infrastructure from Jurupa to Mockingbird P.S.
WMWD	RC Feeder - Southern1 Reach	W-09.3	Infrastructure from Arlington Desalter to Central Reach
WMWD	Riverside/Arlington Groundwater Basin Model	W-10	A numerical model for the Riverside Basin will be developed in order to facilitate groundwater management. The model will aid in running scenarios including, but not limited to, new production wells, new desalter production wells, and conjunctive use.
WMWD	WMWD WUEMP	W-11	Regional implementation of Water Use Efficiency Plan. Project could include components such as aiding small or disadvantaged agencies in carrying out conservation programs.
WMWD	Chino II Desalter Expansion	W-12	Expansion from 10 MGD to 20.5 MGD
WMWD	System interconnections with City of Riverside	W-13	Three system interties with City of Riverside to serve WMWD Retail area average day demands. Will allow WMWD to store water in Bunker Hill basin and access through City of Riverside system.
WMWD	System interconnections with City of Corona	W-14	Interties at Lester WTP PS and Arlington Desalter Turnout to City of Corona to provide additional reliability to WMWD with the proposed expansion of Arlington and Chino Desalters.
WMWD	System interconnections with EVMWD	W-15	Intertie at EVMWD Temescal Pump station that will raise the HGL and increase capacity of the EVMWD Temescal Valley Pipeline from WMWD to EVMWD. Another intertie in southern EVMWD service area to serve the Murrieta Division.

Other projects that require additional development and investment are presented in Section 5. These projects will be periodically reviewed and the project list will be updated as more information becomes available and they are developed further. Many of these projects may be appropriate to be implemented by individual local agencies with some support from other partners because they are smaller in scale and scope.

Western will also include additional water conservation as part of any water supply development program. The WUEMP identified that more consistent implementation of BMPs will be critical to the region to meet the Governor's recent target of attaining 20% reduction in water demand on a gallon per capita per day (gpcd) basis by the year 2020. The WUEMP has received support from Western's member agency stakeholders and early efforts for implementation are already underway.

It is anticipated that this IRWMP will be updated, at a minimum, on a cycle that is coordinated with Urban Water Management Plan (UWMP) updates. Quarterly agency general managers' meetings will also provide a venue to discuss updates to the water management strategies, coordination of activities that impact multiple agencies, as well as an opportunity to discuss advocacy needs for the region.

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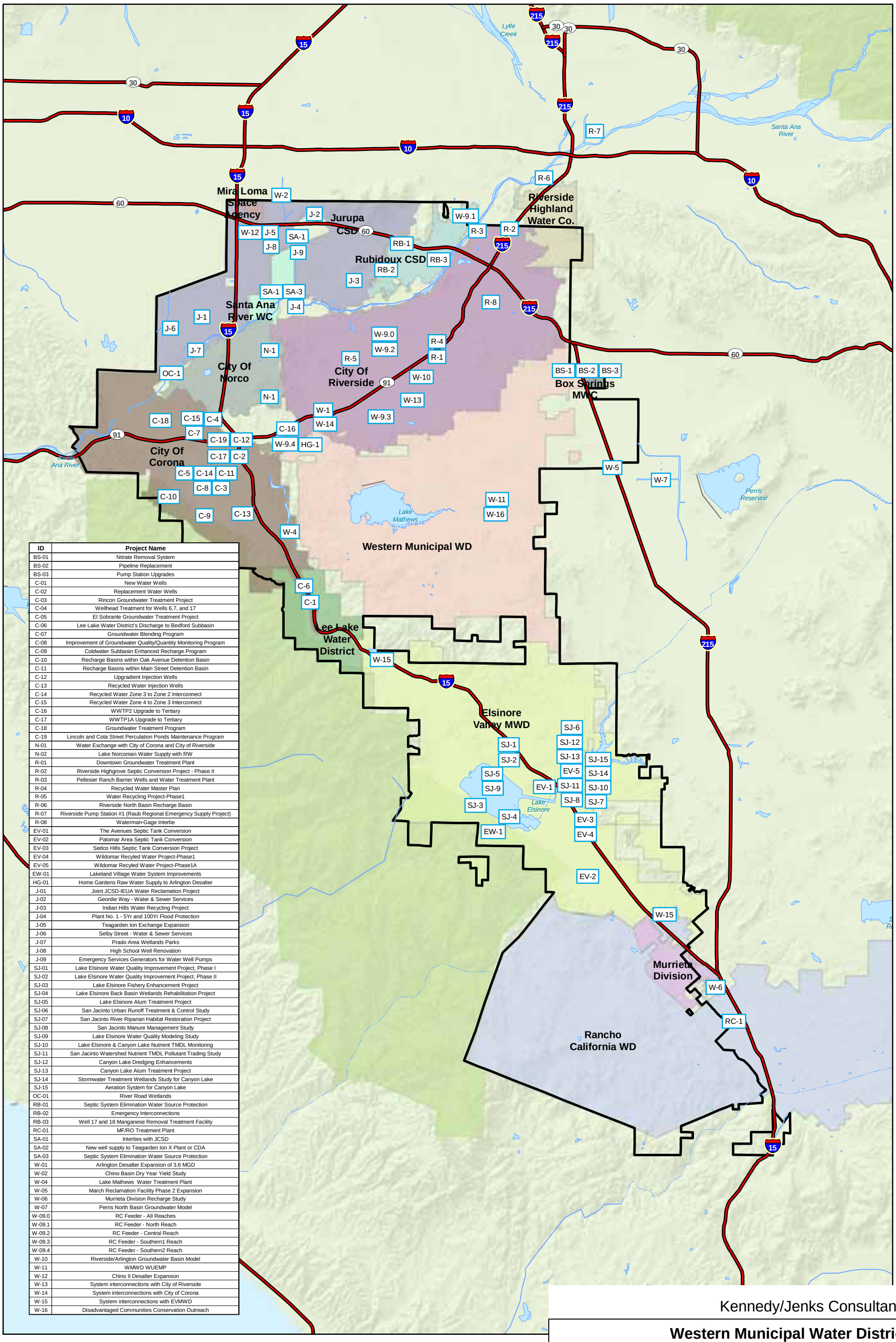

ID	Project Name
BS-01	Nitrate Removal System
BS-02	Pipeline Replacement
BS-03	Pump Station Upgrades
C-01	New Water Wells
C-02	Replacement Water Wells
C-03	Rincon Groundwater Treatment Project
C-04	Wellhead Treatment for Wells 6,7, and 17
C-05	El Sobrante Groundwater Treatment Project
C-06	Lee Lake Water District's Discharge to Bedford Subbasin
C-07	Groundwater Blending Program
C-08	Improvement of Groundwater Quality/Quantity Monitoring Program
C-09	Coldwater Subbasin Enhanced Recharge Program
C-10	Recharge Basins within Oak Avenue Detention Basin
C-11	Recharge Basins within Main Street Detention Basin
C-12	Upgradient Injection Wells
C-13	Recycled Water Injection Wells
C-14	Recycled Water Zone 3 to Zone 2 Interconnect
C-15	Recycled Water Zone 4 to Zone 3 Interconnect
C-16	WWTP2 Upgrade to Tertiary
C-17	WWTP1A Upgrade to Tertiary
C-18	Groundwater Treatment Program
C-19	Lincoln and Cota Street Perculation Ponds Maintenance Program
N-01	Water Exchange with City of Corona and City of Riverside
N-02	Lake Norconian Water Supply with RW
R-01	Downtown Groundwater Treatment Plant
R-02	Riverside Highgrove Septic Conversion Project - Phase II
R-03	Pellesier Ranch Barrier Wells and Water Treatment Plant
R-04	Recycled Water Master Plan
R-05	Water Recycling Project-Phase1
R-06	Riverside North Basin Recharge Basin
R-07	Riverside Pump Station #1 (Raub Regional Emergency Supply Project)
R-08	Waterman-Gage Intertie
EV-01	The Avenues Septic Tank Conversion
EV-02	Palomar Area Septic Tank Conversion
EV-03	Sedco Hills Septic Tank Conversion Project
EV-04	Wildomar Recyled Water Project-Phase1
EV-05	Wildomar Recyled Water Project-Phase1A
EW-01	Lakeland Village Water System Improvements
HG-01	Home Gardens Raw Water Supply to Arlington Desalter
J-01	Joint JCSD-IEUA Water Reclamation Project
J-02	Geordie Way - Water & Sewer Services
J-03	Indian Hills Water Recycling Project
J-04	Plant No. 1 - 5Yr and 100Yr Flood Protection
J-05	Teagarden Ion Exchange Expansion
J-06	Selby Street - Water & Sewer Services
J-07	Prado Area Wetlands Parks
J-08	High School Well Renovation
J-09	Emergency Services Generators for Water Well Pumps
SJ-01	Lake Elsinore Water Quality Improvement Project, Phase I
SJ-02	Lake Elsinore Water Quality Improvement Project, Phase II
SJ-03	Lake Elsinore Fishery Enhancement Project
SJ-04	Lake Elsinore Back Basin Wetlands Rehabilitation Project
SJ-05	Lake Elsinore Alum Treatment Project
SJ-06	San Jacinto Urban Runoff Treatment & Control Study
SJ-07	San Jacinto River Riparian Habitat Restoration Project
SJ-08	San Jacinto Manure Management Study
SJ-09	Lake Elsinore Water Quality Modeling Study
SJ-10	Lake Elsinore & Canyon Lake Nutrient TMDL Monitoring
SJ-11	San Jacinto Watershed Nutrient TMDL Pollutant Trading Study
SJ-12	Canyon Lake Dredging Enhancements
SJ-13	Canyon Lake Alum Treatment Project
SJ-14	Stormwater Treatment Wetlands Study for Canyon Lake
SJ-15	Aeration System for Canyon Lake
OC-01	River Road Wetlands
RB-01	Septic System Elimination Water Source Protection
RB-02	Emergency Interconnections
RB-03	Well 17 and 18 Manganese Removal Treatment Facility
RC-01	MF/RO Treatment Plant
SA-01	Interties with JCSD
SA-02	New well supply to Teagarden Ion X Plant or CDA
SA-03	Septic System Elimination Water Source Protection
W-01	Arlington Desalter Expansion of 3.6 MGD
W-02	Chino Basin Dry Year Yield Study
W-04	Lake Mathews Water Treatment Plant
W-05	March Reclamation Facility Phase 2 Expansion
W-06	Murrieta Division Recharge Study
W-07	Perris North Basin Groundwater Model
W-09.0	RC Feeder - All Reaches
W-09.1	RC Feeder - North Reach
W-09.2	RC Feeder - Central Reach
W-09.3	RC Feeder - Southern1 Reach
W-09.4	RC Feeder - Southern2 Reach
W-10	Riverside/Arlington Groundwater Basin Model
W-11	WMWD WUEMP
W-12	Chino II Desalter Expansion
W-13	System interconnections with City of Riverside
W-14	System interconnections with City of Corona
W-15	System interconnections with EVMWD
W-16	Disadvantaged Communities Conservation Outreach

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Western Municipal Water District
Integrated Regional Water Management Plan
2008 Update

All Proposed Water Supply Projects

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May 2008
Figure ES-1

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Section 1: Introduction and Plan Objectives

1.1 Introduction

Western Municipal Water District (Western) and retailers within the Western service area have prepared this updated Integrated Regional Water Management Plan (IRWMP) in order to further identify and evaluate water management alternatives for Western and its member agencies. The IRWMP was prepared through a public outreach effort targeted at both the larger member agencies through larger stakeholder meetings as well as at smaller agencies, many of which serve disadvantaged communities through one-on-one meetings. Water management strategies were identified through these efforts and a process for evaluating, comparing, integrating and finding project partners water management strategies developed.

1.1.1 The IRWMP Update

Western completed an IRWMP in October 2006. Since that time there have been many developments related to regional water planning. These developments include preparation of a Draft Water Conservation Master Plan for the Western, release of a Drought Shortage Allocation Plan by the Metropolitan Water District of Southern California (MWD or Metropolitan), judicial decisions affecting availability of State Water Project (SWP), and the publication of Integrated Regional Water Management Plans for neighboring regions. Furthermore, in November 2006, California voters passed Proposition 84, a bond measure specifically addressing Integrated Regional Management Plans. These events merit an update of the Western IRWMP. This update is being funded in part using a Proposition 50 planning grant awarded to Western.

This update provides the most current information on water supplies and demands in the Western service area. This information was developed through outreach and coordination with agencies receiving water from Western, including:

- Box Springs Mutual Water Company
- City of Corona
- City of Norco
- City of Riverside
- Eagle Valley Mutual Water Company
- Elsinore Valley Municipal Water District
- Elsinore Water District
- Jurupa Community Services District

- Lee Lake Water District
- Rancho California Water District

This IRWMP update also takes into consideration information from neighboring water agencies, including Riverside Highlands Water Company, the Rubidoux Community Services District, and the Santa Ana River Water Company. Additional information on these agencies is provided in Section 2 of this IRWMP.

Further, this update reflects new information gathered through coordination with other regional planning efforts, including:

- Santa Ana Watershed Project Authority (SAWPA) One Water, One Watershed. Western is a member agency of SAWPA. This program is currently in the process of developing a regional water management plan and has generated information which complements this IRWMP. The One Water, One Watershed program will also address the San Jacinto Watershed (a tributary to the Santa Ana River).
- The Upper Santa Ana River Watershed IRWMP led by the San Bernardino Valley Municipal Water District (SBVMWD). This IRWMP addresses water resources in the upper Santa Ana River area, including the Bunker Hill Groundwater Basin. Western agencies withdraw groundwater from the Bunker Hill Groundwater Basin and Western participates in the management of this adjudicated basin.

These planning efforts are further described in Section 3.

This update to the IRWMP has taken into consideration relevant sections of Proposition 50, Proposition 84, and IRWMP principles and criteria for integrated water management planning as set forth in the current IRWMP Guidelines. One of the goals of this update is to revise the IRWMP to be consistent with potential revisions to the Guidelines following the passage of Proposition 84. The preparation of this IRWMP has been informed by discussions with the Department of Water Resources and others, but since new Guidelines for IRWMPs have been significantly delayed, consideration of only Proposition 84 itself has been included. Once the Proposition 84 Guidelines are available, or when guidelines for other funding sources become available, it may be necessary to refine portions of this IRWMP.

1.1.2 Plan Preparation

This IRWMP was prepared using a series of group meetings between Western, Western member agencies, neighboring water agencies, and representatives of SAWPA. Meetings focused on topics related to regional water management:

- Water and environmental restoration
- Future land-use projections and impacts to water
- Planning activities of SAWPA and Riverside County Resource Conservation District

- Opportunities for recycled water use, and recycled water regulation
- Groundwater recharge, particularly by recycled water
- Flood control and opportunities for groundwater recharge
- Supply reliability
- Water use efficiency

The topics and the resultant discussion were used as the basis for identifying regional issues, regional needs, and assisted in identifying and refining appropriate regional water management strategies. These meetings also informed the criteria and ultimate process used to categorize and rank IRWMP projects. Individual meetings with were held with the various stakeholders to develop and refine specific projects, and these projects were then taken to the group for broader discussion.

1.1.3 Plan Objectives

As described above, the following objectives were identified for the IRWMP by the entities participating in the IRWMP plan:

1. Prepare a comprehensive document to describe Western, its member agencies and the local and regional water planning issues.
2. Identify and evaluate programs on a regional basis that:
    a. Provide water supply reliability for dry periods as well as short-term MWD outages
    b. Address regional surface water, groundwater quality, and environmental concerns particularly as they intersect with water supply
    c. Provide operational redundancy especially for MWD outages; and
3. Provide an on-going process with which to evaluate and compare water supply and other water management strategies.

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Section 2: Description of the Regional Agency - Western Municipal Water District

This section provides a description of the Regional Agency, Western, and includes information on Western's sub-agencies, such as service area, number of services, water sources, and current water usage. (Detailed information on the water demands of each sub-agency is provided in Section 4.) The information provided herein was derived primarily from urban water management plans (UWMPs), water master plans, water supply assessments, and watershed management plans prepared for each Western sub-agency. In addition, this section describes the Santa Ana River (SAR) and Santa Margarita River watersheds, within which Western's boundaries lie.

Western serves a 527-square-mile area in Western Riverside County that has a population of more than 825,000 people. Within its boundaries lie the communities of Jurupa, Rubidoux, Riverside, Norco, Corona, Elsinore Valley, and Temecula. Ten wholesale customers are served by Western using Colorado River and SWP water. Western provides imported water for its direct retail customers, which include approximately 24,000 domestic and 130 connections, which are located in the unincorporated and non-water-bearing areas around Lake Mathews, portions of the City of Riverside and Murrieta. Figure 2-1 shows Western's boundaries and the boundaries of Western's sub-agencies.

Within Western Riverside County,Western, Eastern Municipal Water District (EMWD), which has a wholesale service area adjacent to and east of Western, and Inland Empire Utility Agency (IEUA) which has a wholesale service area to the north of Western all purchase wholesale imported water from MWD on behalf of their sub-agencies.

Ten wholesale customers are served both treated and raw water by Western using Colorado River and State Water Project supplies transported by MWD, and treated water from the Arlington and Chino II Desalters. Many of these wholesale customers also pump and deliver local groundwater and/or recycled water within their respective service areas. These customers are:

- Box Springs Mutual Water Company (BSMWC)
- City of Corona (Corona)
- City of Norco (Norco)
- City of Riverside (Riverside)
- Eagle Valley Mutual Water Company (EVMWC)
- Elsinore Valley Municipal Water District (EVMWD)
- Elsinore Water District (EWD)
- Home Gardens County Water District (HGCWD)
- Lee Lake Water District (LLWD)
- Rancho California Water District (RCWD)
- Jurupa Community Services District (includes Santa Ana River Water Company within Service Area) (JCSD)[(a)]

Note: (a) JCSD receives water through Corona and Norco and does not purchase water directly from Western.

Western also provides imported water directly to more than 18,000 domestic and 200 irrigation connections, located in the unincorporated and non-water bearing areas around Lake Mathews and portions of the City of Riverside. These areas are known as Western North Retail Service Area and the South Retail Service Area.

In 2005, Western also merged with Murrieta County Water District (MCWD) to form the Murrieta Division, a separate retail area. Since 2003, MCWD had purchased small quantities (100 to 200 acre-feet per year [AFY]) of imported water through the EMWD, another MWD member agency, as MCWD had an intertie with EMWD.

In addition to Western's wholesale customers, the following water purveyors are within Western boundaries but are self-sufficient for water supply and currently do not rely on Western to supply imported water to them.

- Riverside Highlands Water Company (RHWC)
- Rubidoux Community Services District (RCSD)

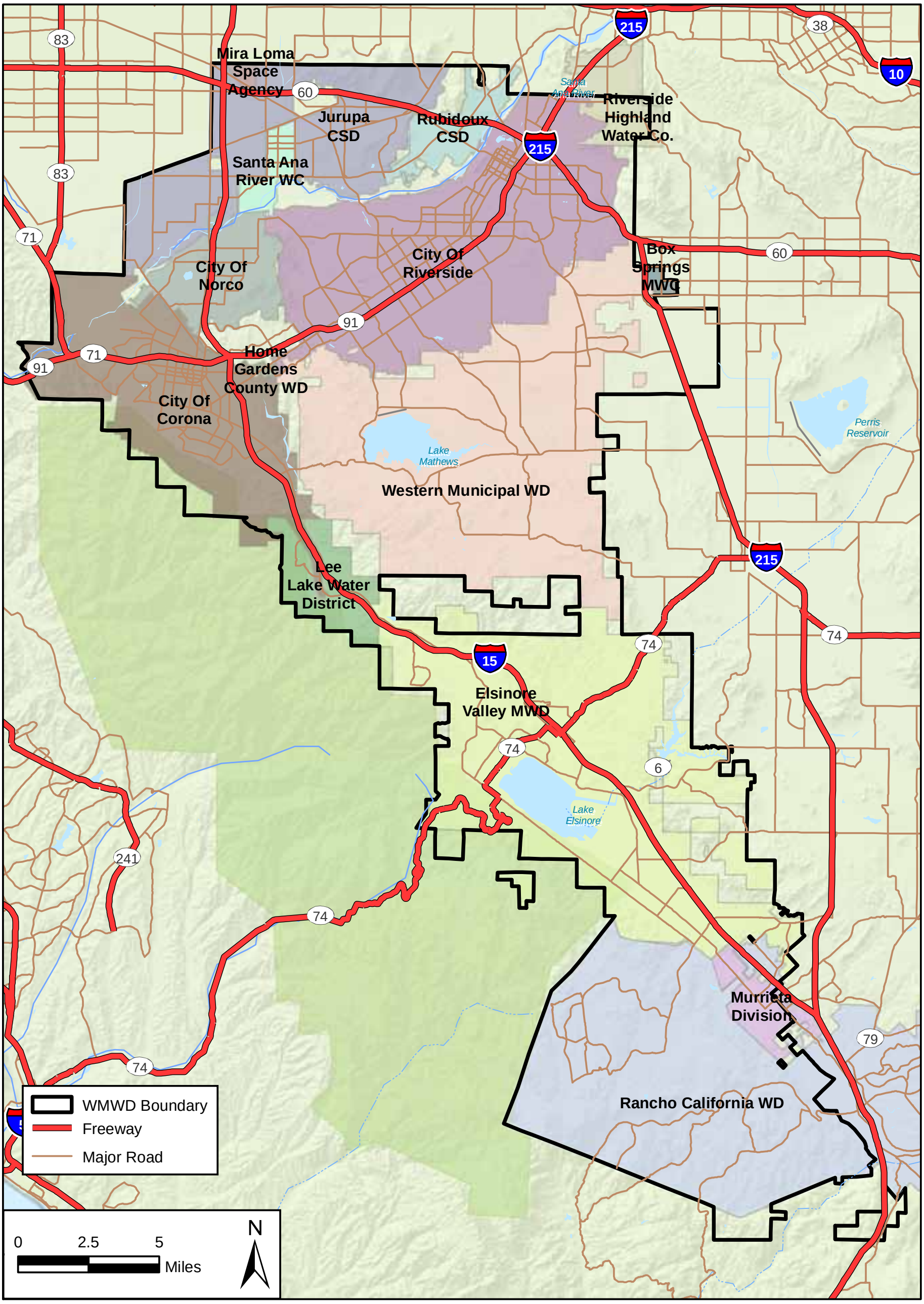
Western is one of five of the member agencies of SAWPA, a regional water resources planning and project implementation organization. Other SAWPA agencies include EMWD, IEUA, SBVMWD, and Orange County Water District (OCWD). Western's general manager is a court-appointed Watermaster, responsible for reporting compliance with water quality and quantity provisions of court orders regarding water rights issues in the Santa Ana watershed which are discussed in greater detail in Section 2.2.5.4 below.

2.1 Description of Stakeholders

2.1.1 Box Springs Mutual Water Company

Box Springs Mutual Water Company (BSMWC) has approximately 585 service connections in a 430-acre service area that is a disadvantaged community based on a income survey completed in the area. BSMWC currently receives water from one BSMWC-owned well located in the Riverside South Groundwater Basin. The well has a 4-inch metered connection to Western. This Well No. 17 produces 700 to 800 gallons per minute (gpm) at 16 pounds per square inch (psi) pressure. Water is purchased from Western to meet peak-flow requirements during the summer months and for blending to alleviate the moderate nitrate levels from Well No. 17. Water purchases from Western have averaged approximately 160 AFY during the 1980s, or approximately 100 gpm average day demand. In 2000, purchases from Western totaled approximately 12 acre-feet (AF), and there were no purchases in 2005.

Currently, the BSMWC is connected to Western's distribution system. The interconnection is controlled by the BSMWC's system pressure. When system pressure drops below 55 psi, the interconnection opens, providing additional flow to meet demand. The interconnection closes when system pressure returns to 75 psi. The use of the interconnection eliminates the need for fire-flow storage. The BSMWC currently has 800,000 gallons of storage, which sufficiently accommodates operational storage and a portion of emergency storage. Portions of BSMWC



Kennedy/Jenks Consultants

Western Municipal Water District
Integrated Regional Water Management Plan
2008 Update

Agency and Sub-Agency Boundaries

0787128.01
May 2008
Figure 2-1

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distribution infrastructure are in poor condition and require upgrade to prevent water loss as well as to be able to provide fire flow demand to fire hydrants.

2.1.2 City of Corona

According to the City of Corona's (Corona) website, Corona serves approximately 148,000 customers in a 45-square-mile service area both inside the city limits and in unincorporated Riverside County. Corona's 2005 UWMP projected a service area population of more than 150,000 persons in 2005. In 2006, Corona received approximately 52 percent of its total water from local groundwater sources (from the Bedford, Coldwater, and Temescal groundwater basins), 34 percent from the Colorado River, and 14 percent from the SWP. Corona reversed the trend of increasing imported water use by replacing two wells (Glen Ivy) in 1998. At that time, the City imported 48.3 percent of its yearly water supply and produced 51.7 percent locally. Low rainfall and recharge of the Coldwater Basin has caused Corona to reduce pumping and revert back to using approximately 62 percent imported and 38 percent local water. In 2005, Western delivered approximately 17,520 AF of imported water to Corona.

The City of Corona currently operates and maintains 21 active potable groundwater production wells, three (3) water treatment plants (WTPs) receiving Colorado River water, and a connection to the SWP on the Mills (Woodcrest) Pipeline from MWD's Mills WTP. Imported water from MWD is delivered to Corona via three Western service connections on MWD's Lower Feeder, which transverses Corona on an east-west alignment along Chase Drive and south of Green River Drive and its western projection. The untreated Colorado River water is distributed to Corona's Lester WTP, Sierra del Oro WTP, and Green River WTP.

Corona has commissioned the preparation of an AB3030 Groundwater Management Plan for the Temescal, Bedford, and Coldwater subbasins, anticipated to be complete in the summer of 2008. The goals of the Plan are to: operate the groundwater basin in a sustainable manner for future beneficial uses, increase the reliability of the water supply for basin users, and to develop appropriate groundwater management objectives and strategies for the basins.

In 2006, Corona began serving recycled water to its customers and currently has 57 connections using on average 1.4 million gallons per day (MGD). Corona's new infrastructure for the recycled water program consists of approximately 27 miles of pipeline, three storage reservoirs, and three pump stations. The new recycled water system will produce approximately 6 million gallons (MG) of recycled water per day. This water will then be used for the irrigation of golf courses, local parks, landscape maintenance districts, schools, and freeway landscaping.

2.1.3 City of Norco

As discussed in the City of Norco's (Norco) 2001 Water Master Plan, Norco serves approximately 26,000 customers in a 15.5-square-mile service area. Norco currently extracts groundwater from both the Chino Groundwater Basin and the Temescal Groundwater Basin as shown on Figures 2-3 and 2-4 in Section 2.2.5.2.2. In addition, the City of Norco has system interconnections with the Chino Basin I Desalter and the City of Corona. Currently Norco produces 40 percent of its water from five deep wells, four within the Temescal Basin and one lying north of the SAR in the Chino Basin. In 2006, Norco purchased approximately 800 AF from the Chino II Desalter, and approximately 4,300 AF from Arlington Desalter.

Norco's UWMP update is in progress and the 2001 Water Facilities Master Plan by Krieger and Stewart was updated in 2006 to reflect additional capital improvements.

2.1.4 City of Riverside

The City of Riverside (Riverside) provides water through approximately 62,000 water service connections within a service area of 74 square miles, of which approximately 69 square miles are within the City limits. Approximately 9 square miles within the City limits are served by Western and 1 square mile within the City of Riverside limits are served by EMWD. A small area (1/4 square mile) in northeast Riverside is served by Riverside Highland Water Company (RHWC). Per the Riverside Public Utilities website, Riverside meets 98.4 percent of its water demand from groundwater pumped from wells in the Bunker Hill Basin in San Bernardino and the Riverside Basins, while receiving only 1.6 percent as imported water from Western.

Riverside and Gage Canal Company (Gage) jointly pump, deliver, and exchange water to meet their collective water demands as well as fulfill deliveries to other entities. Riverside's primary demand is for domestic water; while Gage's primary demand is for irrigation water. Both Riverside and Gage produce water from the Bunker Hill and Riverside (North and South) Basins for domestic and irrigation uses. In the past, Riverside also produced a small amount of water from the Colton and Arlington Basins for irrigation use. Riverside does not plan to produce potable water from the Arlington Basin in the future.

Gage delivers a large portion of the water it produces from the Bunker Hill and Riverside North Groundwater Basins to the City of Riverside. It uses the balance for irrigation use. Riverside delivers a large portion of the non-potable water it produces from the Riverside and Colton Basins to Gage Canal Company in exchange for domestic water from the Bunker Hill Basin. In the past several years, the City of Riverside also has been delivering domestic water to Western.

According to the October 2006 Riverside Public Utilities Recycled Water Program Draft Environmental Impact Report (EIR), 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 Western; and
- approximately 20,000 AFY of imported water from Gage.

Riverside is preparing an update to its 2005 Water Master Plan which should be completed in the summer of 2008.

2.1.5 Eagle Valley Mutual Water Company

The Eagle Valley Mutual Water Company (EVMWC) was established in the late 1950s as a privately owned mutual water company to serve non-potable irrigation water to an area of approximately 3,070 acres in Eagle Valley, west of Lake Mathews. The EVMWC obtains its water supply through Western's WR-12 connection on MWD's Lower Feeder. Raw water

supply is boosted from Western's connection into the EVMWC service area. From 1990 to 1995, EVMWC delivered an average of 2,400 AFY to its customers. It is anticipated that as long as its service area has agricultural lands, the water company will continue to be a viable operating agency. EVMWC has no groundwater pumping at this time. EVMWC purchased 4 AF of water from Western in 2005.

Currently, MWD has acquired title to 1,200 acres within Eagle Valley for construction of the proposed Central Pool Augmentation (CPA) Project's 775 MGD WTP. However, present plans indicate that the CPA is on hold indefinitely.

2.1.6 Elsinore Valley Municipal Water District

Based on EVMWD's draft Water Supply Assessment, in 2005 EVMWD was expected to serve approximately 90,000 customers in a 96-square-mile service area in two divisions, the Elsinore and Temescal Divisions. In 2006, EVMWD's water supply was a blend of 32 percent local groundwater, 2.5 percent surface water from Canyon Lake, and 65.5 percent imported water.

According to EVMWD's website, annual water production in the Elsinore Division is about 27,000 AF. In 2006, EVMWD had ten active municipal wells that provide high-quality drinking water from a deep aquifer in the Elsinore and Temescal Valley areas. Several additional wells are planned. Groundwater is disinfected with chloramines at the wellhead.

EVMWD's Temescal Division was acquired in 1989 when the EVMWD purchased the Temescal Water Company. Residential customers in this division are served from domestic wells in the Coldwater Basin. Domestic water supply is supplemented by imported water from Lee Lake Water District. Agricultural customers in the Temescal Valley receive water from several wells in the Bunker Hill, Colton, and Temescal Valley Basins, and from local surface water from Lee Lake which is fed by the Temescal Wash. According to EVMWD's website, annual water production for this division ranges from approximately 6,000 to 7,000 AF.

EVMWD owns Canyon Lake, which impounds local runoff from the 750-square-mile San Jacinto River watershed. Canyon Lake holds nearly 12,000 AF of water behind Railroad Canyon Dam.

EVMWD imports treated water from MWD's Skinner WTP and Mill WTP, located in Temecula and Riverside, respectively. The treatment facilities are operated by MWD. In 2005, Western delivered approximately 15,060 AF of water to EVMWD.

In January 2007, EVMWD began construction of its $110 million Capital Improvement Program (CIP), consisting of 30 water and wastewater projects designed to continue providing safe, reliable water to its customers. All projects are expected to be completed by early 2009. System upgrades and expansions include: replacement of old water main pipelines with new, larger sized pipelines; drilling new wells; new water pump stations; new water reservoirs; additional water treatment facilities; replacement and upgrades to service lines; replacement of large service water meters; replacement of old sewer pipelines with new, larger sized pipelines; new sewer lift stations; and new trunk sewers to expand system capacity to handle increased flows.

2.1.7 Elsinore Water District

EWD was formed in 1933 to provide potable water service to the Lake Elsinore area. The District spans 7 square miles and serves portions of Country Club Heights and Lakeland Village. The District has 1,801 connections, primarily residential with the exception of 70 commercial connections. Approximately 150 connections are inactive.

Currently, EWD has one local groundwater well that pumps from the Elsinore Basin and supplies 15 to 20 percent of demand. The rest of the demand is served by EVMWD from a blend of water produced from the Elsinore Groundwater Basin and by Western-imported water received through three EVMWD connections. EVMWD produces groundwater on behalf of EWD pursuant to a mitigation/settlement agreement. This water is supplied in-lieu of EWD producing groundwater from its own wells for purposes of avoiding pumping conflicts as between EVMWD's and EWD's wells. EWD delivers about 710 AFY.

2.1.8 Home Gardens County Water District

HGCWD was established in 1979 as a county water district. With its formation, it acquired the assets and facilities of the Home Gardens Mutual Water Company. HGCWD serves an area of more than 230 acres in the Riverside County area east of Temescal Street and South of Sampson Avenue, much of which is a disadvantaged community. It has approximately 800 metered services for a population of approximately 3,000 people. Initially, HGCWD served its customers with local groundwater from wells in the Arlington Basin. Because of the basin's poor water quality, HGCWD has discontinued much of its well supply, currently receiving approximately two-thirds of its water from the City of Riverside through an 8-inch meter connection at Andover Street and Harlow Avenue. The HGCWD has one 1 MG reservoir with a high water level (HWL) of 885 feet. The reservoir is connected to a 6-, 8-, and 12-inch distribution network by a 16-inch inlet/outlet pipeline.

2.1.9 Lee Lake Water District

Per the Lee Lake Water District (LLWD) website, LLWD provides water and wastewater service to 4,400 customers. This number includes a combination of residential and commercial customers. The District operates three (3) wastewater treatment plants (WWTPs): Butterfield Estates, California Meadows, and the District's Regional Wastewater Reclamation Plant that currently serves Sycamore Creek, The Retreat, Wildrose Ranch, Shea Homes-Trilogy, Citation Homes- Montecito Ranch, and KB Home-Painted Hills developments. This facility is currently capable of treating 1.57 MGD of raw sewage and producing reclaimed water suitable for landscape irrigation and other non-consumptive purposes. Although LLWD encompasses approximately 6,755 acres, the LLWD water distribution system only serves 450 acres.

At the present time LLWD has 5 water storage reservoirs, which serve Wildrose Ranch, Trilogy, Montecito Ranch, Sycamore Creek and the Retreat. In spring of 2007, LLWD starting serving reclaimed water through the pipeline running East to West from the Wastewater Reclamation Plant to the Retreat golf course. In the winter of 2007, LLWD began serving reclaimed water to the Wildrose East Business Park.

Imported water is supplied to LLWD from turnout connection WR-27 on Western's Mills Pipeline. The Mills Pipeline transports water from the MWD Mills WTP to the intersection of Temescal

Canyon Road and La Gloria Street, approximately 2 miles north of the LLWD boundary. The turnout has a rated capacity of 26 cubic feet per second (cfs). In 2003, the maximum contractual rate of supply for the Mills Pipeline to LLWD was increased from 5.958 cfs to 9.0 cfs. This rate of supply could be increased to a maximum of 14.66 cfs upon payment of additional connection fees by LLWD to Western. LLWD purchased about 3,190 AF from Western in 2005.

2.1.10 Rancho California Water District

Rancho California Water District (RCWD) serves approximately 109,000 customers and encompasses almost 100,000 acres. RCWD is divided into Rancho Division and the Santa Rosa Division. The Santa Rosa Division is the portion of RCWD within Western. RCWD delivers a combination of local groundwater and imported water from MWD to meet domestic, industrial, and agricultural demands. According to the 2007 Santa Margarita Watershed Integrated Regional Water Management Plan (IRWMP), RCWD produces approximately 39,607 AF from the Temescal and Pauba groundwater basins. RCWD also receives imported water from the MWD's Colorado River Aqueduct and the SWP.

RCWD engages in an artificial recharge/recovery project at the Valle de los Caballos (VDC) spreading grounds area below Vail Dam to increase the Temecula Creek underflow yield within the Pauba formation of the Murrieta-Temecula Groundwater Basin. RCWD artificially recharges the Basin with untreated imported water for enhanced groundwater production. RCWD purchases imported raw water from MWD and delivers it from MWD Pipeline No. 5 at the EM-19 turnout to the VDC recharge basins. RCWD has a surface water storage permit in Vail Lake for up to 40,000 AF from November 1 to April 30. During these months, RCWD releases available water from Vail Lake to the VDC spreading basins, about 1.5 miles downstream, for groundwater recharge. From May through October, existing State permits prohibit storage and require inflow to pass through Vail Lake to Temecula Creek.

The 2007 Santa Margarita Watershed IRWMP states that in the past, the VDC recharge basins have provided up to 16,000 AFY of artificial groundwater recharge. RCWD's 2005 Integrated Resources Plan (IRP) reports that a new untreated water turnout will be constructed by MWD, called EM-21. This will provide an additional 80 cfs of system capacity for untreated imported water supply.

Western and EMWD purchase water from MWD on behalf of RCWD. MWD operates a storage and treatment facility at Lake Skinner, just north of RCWD. Five aqueducts, including two for raw water (Nos. 3 and 5) and three for treated water (Nos. 1, 2, and 4), emanate from the Skinner facilities and cross the RCWD en route to San Diego County area users. The imported water is a seasonally varying blend of SWP and Colorado River water. The RCWD currently receives an allocated rated capacity of 220 cfs (142 MGD) of treated water from Aqueduct No. 4, imported from the following turnouts (see Table 2-1):

TABLE 2-1
RCSD'S TURNOUT CAPACITIES

Turnout	Capacity
WR-26	40 cfs
WR-28	40 cfs
EM-13	40 cfs
EM-20	100 cfs

The combined usable capacity of these four connections during peak day demands is 205 cfs, although the rated capacity of the four connections is 220 cfs.

The capacity is not expected to expand unless MWD builds the entire (northern and southern reaches) San Diego Pipeline No. 6 project (Pipeline No. 6) or a proposed pipeline between the Mills WTP and the Skinner Filtration Plant. Upon completion of Pipeline No. 6, San Diego Pipeline No. 3 will be converted from a raw (untreated) water pipeline to a treated water pipeline. Subsequent to this conversion, RCWD will activate to its existing service connection at turnout WR-25. MWD is working with the San Diego County Water Authority (SDCWA), EMWD and Western to determine the timing of that project. However, all indications are suggesting that the entire Pipeline No. 6 project would not be constructed until 2025 or beyond (RCWD 2005b). It should be noted that the northern reach of the Pipeline No. 6 project, which will add a new untreated connection for RCWD (EM-21), is expected to be completed by 2007 (RCWD 2005b).

Upon completion of proposed pipeline between the Mills WTP and the Skinner Filtration Plant, it is anticipated that a new service connection could be provided for RCWD near the California Oaks Road in the City of Murrieta. Upon activation of either the WR-25 service connection or a new service connection from the proposed pipeline between the Mills WTP and the Skinner Filtration Plant, it is anticipated that MWD will provide an additional 15 cfs of makeup capacity to correct the reduced service capacity at WR-26 and WR-28.

RCWD also provides customers with recycled water through the Santa Rosa Water Reclamation Facility (SRWRF) operated by RCWD, and the Temecula Valley Regional Water Reclamation Facility (TVRWRF) operated by EMWD. RCWD has a vast infrastructure network to serve its service area.

2.1.11 Western - Murrieta Division (Formerly Murrieta County Water District)

MCWD, which was taken over by Western in 2005, provides water and wastewater services to approximately 2,600 customers within the 6.5-square mile service area. The Murrieta Division's average annual water production requirement is estimated to increase from 1,900 AF in 2005 to approximately 7,400 AF at ultimate development (approximately 2025). The recommended water production requirement for existing conditions is 3,100 gpm (includes 700-gpm reserve capacity) and 10,700 gpm for ultimate development (includes 1,500-gpm reserve capacity). The Murrieta Division delivers primarily groundwater from the Murrieta-Temecula Groundwater Basin. Currently supplemental water to meet current peak demands is imported from MWD

through an interconnection with EMWD. Western also plans to construct interconnections with the EVMWD system for emergency and daily use.

Estimated water production for ultimate development is based on the following assumptions:

- Water from future imported supplies (4,400 AFY) will be delivered at a constant rate of 1,500 gpm in January, February, March, April, November, and December; 3,000 gpm in May; and 4,200 gpm in June, July, August, September, and October.

- The balance of the water production requirements (5,000 gpm, 3,000 AFY) will be provided by existing and future Murrieta Division wells.

The MCWD prepared a Groundwater Management Plan and applied for additional funding through DWR to evaluate the feasibility of aquifer injection for recharge. Additional study in the Murrieta-Temecula Groundwater basin has estimated that the safe yield of the aquifer is approximately 2,000 AF/Y.

2.1.12 Jurupa Community Services District

The Jurupa Community Services District (JCSD) serves approximately 86,000 customers and 26,000 connections in a 48-square-mile service area with water, wastewater collection, and recreational services in unincorporated Riverside County. JCSD surrounds the service area of the Santa Ana River Water Company on three sides, the fourth boundary is the Santa Ana River. Several areas of JCSD are disadvantaged communities. JCSD's available water supply for 2004 and 2005 includes supply from the Chino Basin Desalter Authority (CBDA) Chino I and Chino II groundwater desalters, some of which is delivered to the Santa Ana River Water Company**.** JCSD's well capacity in 2005 was 29,150 gpm out of a total water supply of 34,978 gpm. Assuming a use factor of 65 percent for the JCSD wells, the total annual water supply capacity of the wells is 30,562 AF. Groundwater is being withdrawn from the Chino Groundwater Basin from the CBDA and, according to the 2005 UWMP, water is being transferred to JCSD from Rubidoux Community Services District (RCSD). JCSD is in the planning stages of developing supply and conveyance to augment existing water supplies with other supplies such as MWD imported water or groundwater from nearby groundwater basins.

2.1.13 Santa Ana River Water Company

Santa Ana River Water Company (SARWC) was established in 1925 and is a privately held, independently operated mutual water company. SARWC serves an area surrounded by JCSD in unincorporated Riverside County and is an area which is a largely disadvantaged community. SARWC's 2,100 connections are served by approximately 1,200 AFY of water from the CBDA, which meets almost all of its water needs. The remaining 200 AFY is met through water leases with JCSD and local groundwater sources. SARWC maintains three interconnections with JCSD and two (2) pressure zones that have been designed to be hydraulically compatible with JCSD's adjacent system. Groundwater lying under SARWC is high in nitrates and salts and does not meet drinking water standards without treatment.

2.1.14 Riverside Highlands Water Company

Riverside Highlands Water Company (RHWC) is located north of the City of Riverside. It currently has approximately 3,900 service connections in a service area of approximately 5,500 acres. The total supply for the water company originates from groundwater wells located in the Riverside North and South Basins and the Bunker Hill Basin. The City of Riverside owns shares of this water company, and therefore it gets approximately 270 AFY of water for its use. RHWC anticipates that it can meet its needs with its existing supplies.No MWD water is imported via Western to RHWC at this time.

2.1.15 Rubidoux Community Services District

RCSD has been identified as serving a predominately disadvantaged community, and serves approximately 27,000 customers in its approximately 8-square mile service area. All of RCSD's potable water supply is obtained from groundwater wells located within RCSD boundaries, except for emergency water supplies delivered through RCSD's interconnections with JCSD and West Valley Water District (WVWD). RCSD's wells extract water from the portion of the Riverside Basin lying within Riverside County. RCSD's production increased from approximately 700AF in the early 1960s to 1,870 AF in 1970, and to a peak of 5,010 AF in 1990; increases in water use efficiency, and modernization and repair of the RCSD's water system, reduced demands and production requirements to 4,980 AF in 1995.

There are no facilities available to convey SWP water to RCSD. The closest source of SWP water is MWD's Mills WTP, which is located in the City of Riverside. In order to take deliveries from the Mills WTP, the RCSD would have to construct a 44,000-foot transmission pipeline to convey water from the Mills WTP to the RCSD boundary. In a September 1979 report prepared for Western entitled "Distribution of State Project Water from the Mills WTP," it was proposed that both the RCSD and JCSD participate in construction of transmission facilities to convey SWP from the MWD Mills WTP to each entity; however, because of the length of the required transmission facilities, costs associated with this proposal would be substantial and difficult to justify.

It may be possible for the RCSD to enter into an agreement with the City of Riverside to exchange treated water from the SWP purchased from Western for groundwater extracted by the City of Riverside; however, negotiations to enter such an agreement have never been initiated. To accomplish an exchange, the RCSD would have to construct facilities to convey this additional treated water from the SWP to the City of Riverside as well as the exchanged City of Riverside water to the RCSD.

Pursuant to an agreement with the City of Riverside, dated December 1, 1976, advanced treatment of RCSD wastewater is provided by Riverside. A subsequent agreement, dated May 4, 1978, with the City of Riverside resulted in Riverside providing primary and secondary wastewater treatment for RCWD wastewater. Therefore, RCSD has discontinued treatment of the wastewater it collects from within its service area. All wastewater collected by RCSD is conveyed through regional wastewater conveyance facilities to the City of Riverside's Regional WWTP. Since the City of Riverside's facility is located downstream of RCSD and on the opposite side of the SAR, it is not currently economically feasible to convey reclaimed water within RCSD's boundaries.

2.2 Region Description: Santa Ana River Watershed

Western's service area includes two watersheds: the SAR watershed (discussed in this section), and the Santa Margarita River watershed (discussed in Section 2.3). Much of the information contained in this section has been derived from three documents; (1) the "Total Inorganic Nitrogen (TIN)/Total Dissolved Solids (TDS) Study – Phase 2A Final Technical Memorandum" (TIN/TDS Study) prepared by Wildermuth Environmental, Inc., in July 2000, which resulted in the preparation of a Basin Plan Amendment (Resolution No. R8-2004–0001) by the Santa Ana Regional Water Quality Control Board (SARWQCB) in 2004; (2) SAWPA's One Water One Watershed (OWOW) Plan which was started in May of 2007; and (3) MWD's 2007 Groundwater Assessment Study, a Status Report on the Use of Groundwater in the Service Area of MWD.

2.2.1 Watershed Management Framework

Water management in the SAR watershed occurs through both regional coordination through the SAWPA's Integrated Watershed Plan currently being updated as the OWOW Plan (discussed in more detail in Section 3.3), and the adjudication of most of the groundwater basins, which are monitored by separate watermasters for the SAR, San Bernardino, Riverside North, Riverside South, Colton, Rialto, and Chino Groundwater Basins.

2.2.2 Watershed Areas and Management Plan

The SAR watershed is located in southern California, south and east of the city of Los Angeles. The watershed includes much of Orange County, the northwestern corner of Riverside County, the southwestern corner of San Bernardino County, and a small portion of Los Angeles County. The EPA identifies the San Jacinto watershed as a separate watershed; however, for SAWPA's purposes, the San Jacinto watershed is considered to be part of the SAR watershed. The watershed is bounded on the south by the Santa Margarita watershed, on the east by the Salton Sea and Southern Mojave watersheds, and on the northwest by the Mojave and San Gabriel watersheds. The watershed is approximately 2,800 square miles.

As articulated in the 2005 IRWMP, SAWPA's vision for the watershed is:

> *A sustainable Santa Ana River Watershed supporting economic and environmental vitality, and an enhanced quality of life.*

The OWOW will build upon previous water resource planning work within the SAR watershed. The OWOW will allow for the implementation of new solutions that address the water needs of all the watershed's constituents by expanding the collaborative stakeholder planning process to include all that are dependent on water. SAWPA's OWOW is described with identified goals in greater detail in Section 3.3.

2.2.3 Surface Geology and Hydrology

The SAR watershed is located in the Peninsular Ranges and Transverse Ranges Geomorphic Provinces of Southern California (California Geological Survey Note 36). The highest elevations (upper reaches) of the watershed occur in the San Bernardino (San Gorgonio Peak – 11,485 feet in elevation) and eastern San Gabriel Mountains (Transverse Ranges Province; Mt.

Baldy – 10,080 feet in elevation) and in the San Jacinto Mountains (Peninsular Ranges Province, Mt. San Jacinto – 10,804 feet). Further downstream, the Santa Ana Mountains and the Chino Hills form a topographic high before the river flows into the Coastal Plain (in Orange County) and into the Pacific Ocean. Primary slope direction is northeast to southwest, with secondary slopes controlled by local topography.

As is true for much of California, the geology of the SAR watershed is defined and created by seismic activity. The dominant structural feature is the San Andreas fault zone, which trends in a southeast-northwest direction at the base of the San Bernardino Mountains; motion along this fault has caused the uplift of the San Bernardino and San Gabriel mountain ranges. Additional major fault structures include the San Jacinto fault zone and the Elsinore fault zone; the San Jacinto mountains are caused by motion from both the San Andreas and San Jacinto zones.

The predominant geologic features in the SAR watershed are intrusive rocks of the southern California batholith (granitic and andesitic rocks) that have been uplifted/eroded to form the mountain ranges, alluvial/fluvial sediments (materials eroded from the mountains and deposited in the basins), and semi-consolidated sedimentary units. More detailed geologic information has been described in reports by Wildermuth Environmental, the California Department of Water Resources (DWR), MWD, and others.

2.2.4 Local Surface Water

2.2.4.1 Sources

The Santa Ana watershed is an arid region and therefore has little natural perennial surface water. The SAR is the largest stream system in southern California, beginning in the San Bernardino Mountains and flowing more than 100 miles to the Pacific Ocean near Huntington Beach. The San Jacinto River is a tributary of the SAR, but it normally terminates at Lake Elsinore. On rare occasions, Lake Elsinore overflows into Temescal Wash that is hydraulically connected to the Santa Ana River. However, waters that flow into Temescal wash often infiltrate into the groundwater basin rather than continuing as surface flows.

Surface waters start in the upper erosion zone of the watershed, primarily the San Bernardino and San Gabriel Mountains. This upper zone has the highest gradient, along with soils and geology that do not allow large quantities of percolation of surface water into the ground. Flows consist mainly of snowmelt and storm runoff from the lightly developed San Bernardino National Forest; the quality of the water at this point is generally excellent. In this upper zone, the SAR is generally confined in its lateral movement, contained by the slope in the mountainous regions.

From the City of San Bernardino to the City of Riverside, the river flows perennially, and it includes treated discharges from wastewater treatment plants. From the City of Riverside to the recharge basins below Imperial Highway (State Highway 90), river flow consists of highly treated wastewater discharges, urban runoff, irrigation runoff, and groundwater forced to the surface by shallow/rising bedrock. Near Corona, the river cuts through the Santa Ana Mountains and the Puente-Chino Hills.

Lake Elsinore is the only natural freshwater lake of any size in the watershed with a surface area of 5 square miles. In addition, the region has a variety of water storage reservoirs

(Diamond Valley Lake, Lake Perris, Lake Mathews, Lake Skinner, and Big Bear Lake) and Flood Control areas (Prado Dam area, Seven Oaks Dam area) that have been created to hold surface water.

2.2.4.2 Water-Quality Summary

The main stem of the SAR is divided into six reaches, with each reach generally considered a hydrologic and water-quality unit. The SAR provides water for recreation and for aquatic and wildlife habitat. River flows are a significant source of groundwater recharge (about 70 percent of total recharge) in the lower portion of the SAR watershed. The lower portion of the SAR watershed provides domestic supplies for more than two million people.

The SAR Stipulated Judgment (overseen by the SAR Watermaster), requires minimum average annual flows and guaranteed total dissolved solids (TDS) concentrations within the river from the San Bernardino area to and through the Riverside Narrows, located on the SAR approximately 2 miles east of Van Buren Avenue, as well as flows and TDS within the river from the upper basin to the lower basin. The division between the upper and lower portions of the SAR watershed is at the Orange County/Riverside county line, and flow and TDS are measured at Prado Dam. Water-quality data for the SAR is discussed in greater detail in Section 4.3.5.

The limitations on water-quality in the SAR pose significant constraints on discharges to the SAR as well as to uses of the groundwater.

2.2.5 Santa Ana River Watershed Groundwater Basins

Groundwater in the watershed is highly controlled by the area geology, including both the configuration of bedrock and the extensive faulting. In general, groundwater flows in the same direction as surface water – from the mountains in the east/north to the Pacific Ocean in the west.

The watershed contains about 40 groundwater basins (depending on how they are defined and how boundaries are drawn); many are interrelated. In some cases, a single basin may have multiple names depending on the agency (DWR or SARWQCB) that is naming the basin.

Some of the larger groundwater basins and their common names are; Chino Basin (Chino/Ontario/Fontana area), Cucamonga Basin, Bunker Hill Basin (San Bernardino), the Rialto Basin, Colton Basin, Riverside Basin (North and South), the San Timoteo Basin (Yucaipa/Banning/Beaumont area), Arlington Basin, Temescal Valley Basins, Elsinore Basin, and the San Jacinto/Hemet Basins.

The SAR watershed groundwater basins and management zones within Western's service area boundaries as defined for the SARWQCB's basin plan amendment for TDS/Nitrogen Management are discussed in the following sections. Table 2-2 (provided by Wildermuth Environmental) summarizes the groundwater basins, management zones, basin statistics, and basin management. The following discussion focuses on identifying the major groundwater basins in the SAR watershed then focusing in on those groundwater basins that are or particular importance to Western, primarily for their ability to store either local or imported water for dry season and drought use.

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Table 2-2
Upper Santa Ana Watershed Groundwater Basin Summary
Western MWD Integrated Regional Water Management Program

Basin	Management Structure				Storage Management Program	Storage Space Available for Use (acre-ft)	Stored Water Available for Purchase or Other Use (acre-ft)	Unused Yield Available for Purchase, Lease or Appropriation (acre-ft/yr)	Basin Statistics					Comments
	Stipulated Agreement	Management Body	Court Jurisdiction	Responsibilities					Volume in Storage (million acre-ft)	Note	Yield (acre-ft/yr)	Water Quality Problems		
Chino	Yes	Nine-member Watermaster Board and committee process	Yes	Water accounting, extensive planning and management	Highly developed, and operational	200,000 to 400,000	90,000	None	5.6		140,000	Ubiquitous nitrate, some TDS and VOC issues; all workable		Highly-developed, groundwater-management culture.
Rialto	Yes	Committee	No		No	None	None	None			Unknown, Probably less than 12,000	Substantial perchlorate and nitrate problems; resolution unclear		Parties to stipulated agreement have substantial equity and water quality
San Bernardino Area	Yes	Two-member Watermaster committee	Yes	Water accounting	No	None	None	None	>10.0	(a)	59,400	large-scale solvent and perchlorate problems, less significant nitrate problems		WMWD parties have significant interests in the basin (24% of existing and new yield). Basin lacks a reliable management structure to address regional problems and to develop solutions -- may take years to accomplish similar results as Chino Basin.
Yucaipa Area	No	None	No	None	No	None	None	None	1		8,000	Localized high nitrate, TDS, BTEX, MTBE, mostly excellent		Area is in low-level chronic overdraft
Beaumont Basin	Yes	Five-member Watermaster Board; Assisted by STWMA	Yes	Water accounting, extensive planning and management	Provided for in stipulated agreement but untried	200,000	144,000	None	2.4		8,600	No known problems, excellent water quality		Basin has significant potential as an emergency supply to WMWD, EMWD, MWDSC or others. East Branch of the SWP and CRA passes through Basin. 144,000 acre-ft available from temporary surplus provided in stipulated agreement.
San Timoteo	No	None	No	None	No	None	None	2,500 to 5,000			Unknown, Probably less than 10,000	Localized high nitrate and TDS, mostly excellent		Underused basin due to historically low yields from wells. Recent deep well drilling suggest that San Timoteo formation can yield appreciable amounts of water and thus this basin is worthy of consideration for a local emergency supply or a base load supply. Potential water rights issues with BCVWD, YVWD, Redlands and overliers.
Colton	Yes	Two-member Watermaster committee	Yes	Water accounting	No	None	None	None		(b)	3,300	Localized high nitrate, VOCs, mostly excellent		
Riverside N	Yes	Two-member Watermaster committee	Yes	Water accounting	No	None	None	None		(b)	20,200	Generally high nitrate, TDS with some VOCs, DBCP and perchlorate		City of Riverside is developing aggressive plans to use all the water provided for in WMWD vs ESBCWD, et. al. and is evaluating ways to increase yield; unsure as to their status.
Riverside S	Yes	Two-member Watermaster committee	Yes	Water accounting	No	None	None	None		(b)	30,000	Generally high nitrate, TDS with some VOCs, DBCP and perchlorate		City of Riverside is developing aggressive plans to use all the water provided for in WMWD vs ESBCWD, et. al. and is evaluating ways to increase yield; unsure as to their status.
Arlington	No	None	No	None	No	None	None	None			Unknown, Probably less than 7,000	Ubiquitous nitrate and TDS and localized VOC issues; all workable.		SAWPA desalter is only significant pumper. Desalter was design to overdraft basin and cutoff subsurface discharge to Temescal. Almost no data available to determine if desalter is accomplishing this goal.
Upper Temescal	No	None	No	None	No	None	None	None	<1		Unknown and small	Need to research		City of Corona, Lee Lake and other small producers. No significant storage or yield development opportunities
Temescal Proper	No	None	No	None	No	None	None	None			Unknown, Probably less than 20,000	Generally high nitrate, TDS with some VOCs;		City of Corona and a few small pumpers are starting to overdraft the basin. Significant recycled water recharge occurs in basin and makes up part of the supply to Corona
Totals						200,000	234,000	0						

Note (a) Yield available to WMWD parties per stipulated agreement in WMWD vs ESBCWD et. al. from San Bernardino area for use in WMWD are 49,500 acre-ft/yr for COR, 1,800 acre-ft/yr for RH, 7,500 acre-ft/yr for AMM&D, and 500acre-ftyr for UCR; five year running average.

Note (a) Yield available to WMWD parties per stipulated agreement in WMWD vs ESBCWD et. al. for use in WMWD area.

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2.2.5.1 Summary of Basin and Management Zone Boundaries

Groundwater basin boundaries included in the 1975, 1984, and 1995 Water Quality Control Plans (updated in February 2008) for the SAR Basin (Basin Plans), as prepared by the SARWQCB, were, for the most part, based on data and information collected in the 1950s and 1960s. Since these boundaries were first established in the 1975 Basin Plan, a considerable amount of new data on water levels, water quality, and geology have become available. As part of the 2004 update of the Basin Plan for the TDS/Nitrogen Management, these new data were used to review and revise the basin boundaries.

To accomplish this task, all available geologic studies of the Santa Ana Region, through 1995, were gathered and re-analyzed. A comprehensive database of water-level and water-quality data and well drilling logs was created, and it was utilized to delineate revised groundwater basin boundaries, now designated as groundwater "management zones." The groundwater management zones are shown on Figures 2-2 through 2-4.

The technical basis for delineating each groundwater management zone is provided in the TIN/ TDS Study. In general, the new groundwater management zone boundaries were defined using the following criteria and features:

1. Separation by impervious rock formations or other groundwater barriers, such as geologic faults.

2. Distinct flow systems defined by consistent hydraulic gradients that prevent widespread intermixing, even without a physical barrier.

3. Distinct differences in water quality.

While the criteria listed above were key considerations, the principal characteristic used to define the management zones was groundwater flow, whether or not determined by a physical barrier. Water-quality data were used to heighten understanding of the flow regime and to assure that zones of unusually high- or poor-quality waters were delineated for regulatory purposes.

The delineated five management zones within the San Bernardino Valley and Yucaipa/Beaumont Plains portions of the upper SAR watershed are listed below and shown on Figure 2-2:

- Bunker Hill-A
- Bunker Hill-B
- Lytle
- Yucaipa
- San Timoteo

The Bunker Hill management zones are of primary relevance to Western because of the opportunity to store water in these basins.

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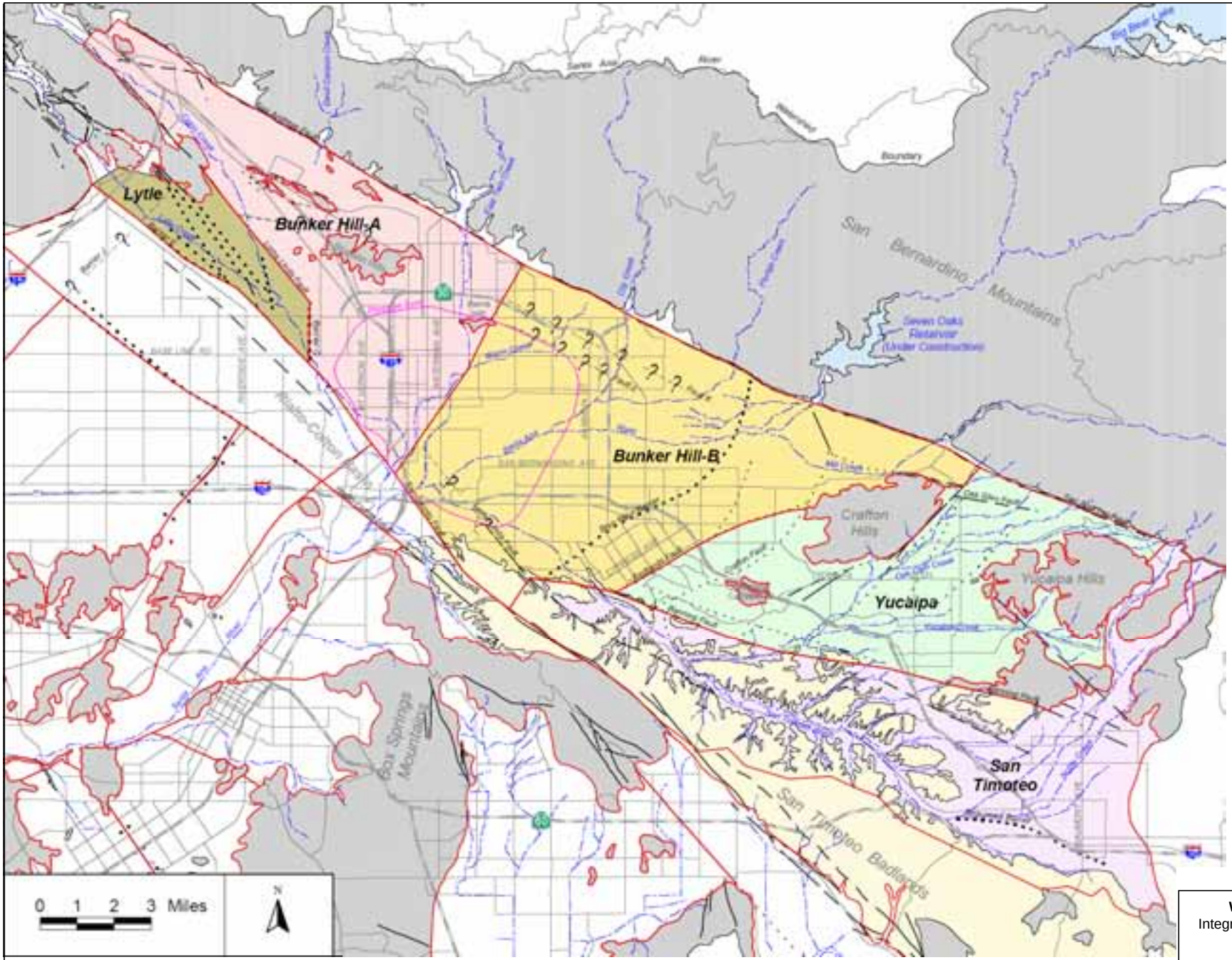

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Western Municipal Water District
Integrated Regional Water Management Plan 2008 Update

Preliminary Management Zone Boundaries, San Bernardino Valley and Yucaipa/Beaumont Plains Basins

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May 2008

Figure 2-2

Source: Wildermuth Environmental, Inc., TIN/TDS Study – Phase 2A Final Technical Memorandum.

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The 14 delineated management zones within the Chino, Rialto-Colton, and Riverside Basins are listed below and shown on Figure 2-3:

- Cucamonga
- Chino 1 through Chino 5
- Rialto
- Colton
- Riverside A through Riverside F

It should be noted that the Riverside B and Riverside F Basins and the northeastern portion of the Riverside A basin comprise an area that is also known as the Riverside North. The southwestern portion of the Riverside A, Riverside C, and Riverside D basins comprises an area that is also known as the Riverside South.

The delineated seven management zones within the Elsinore–Temescal Valleys are listed below and shown on Figure 2-4:

- Elsinore
- Warm Springs Valley
- Lee Lake
- Bedford
- Coldwater
- Temescal
- Arlington

2.2.5.2 Summary of Subsurface Geology by Management Zones

2.2.5.2.1 San Bernardino Valley and the Yucaipa/Beaumont Plains

The San Bernardino Valley and the Yucaipa/Beaumont Plains overlie a number of fault-separated groundwater basins located between the active San Andreas and San Jacinto Fault Zones. This region has been subdivided into many smaller groundwater basins in past studies, especially in the Lytle Creek and Yucaipa/Beaumont areas (Burnham & Dutcher, 1960; Dutcher & Garrett, 1963; Dutcher & Fenzel, 1972).

2.2.5.2.2 Chino, Rialto-Colton, and Riverside Basins

In general, the Chino, Rialto-Colton, and Riverside Basins are bounded by the San Gabriel Mountains in the north, the Chino/Puente Hills to the west, the elevated bedrock hills of the Perris Block to the south, and the San Jacinto Fault to the east. It should be noted that these groundwater basins are subdivided by numerous faults and bedrock protrusions and that each basin has unique bedrock configurations. The most prominent features at the base of the freshwater aquifer include the deep trough within the central region (Chino Basin) and the relatively shallow, irregular configuration in the present-day region of the SAR (Riverside Basins).

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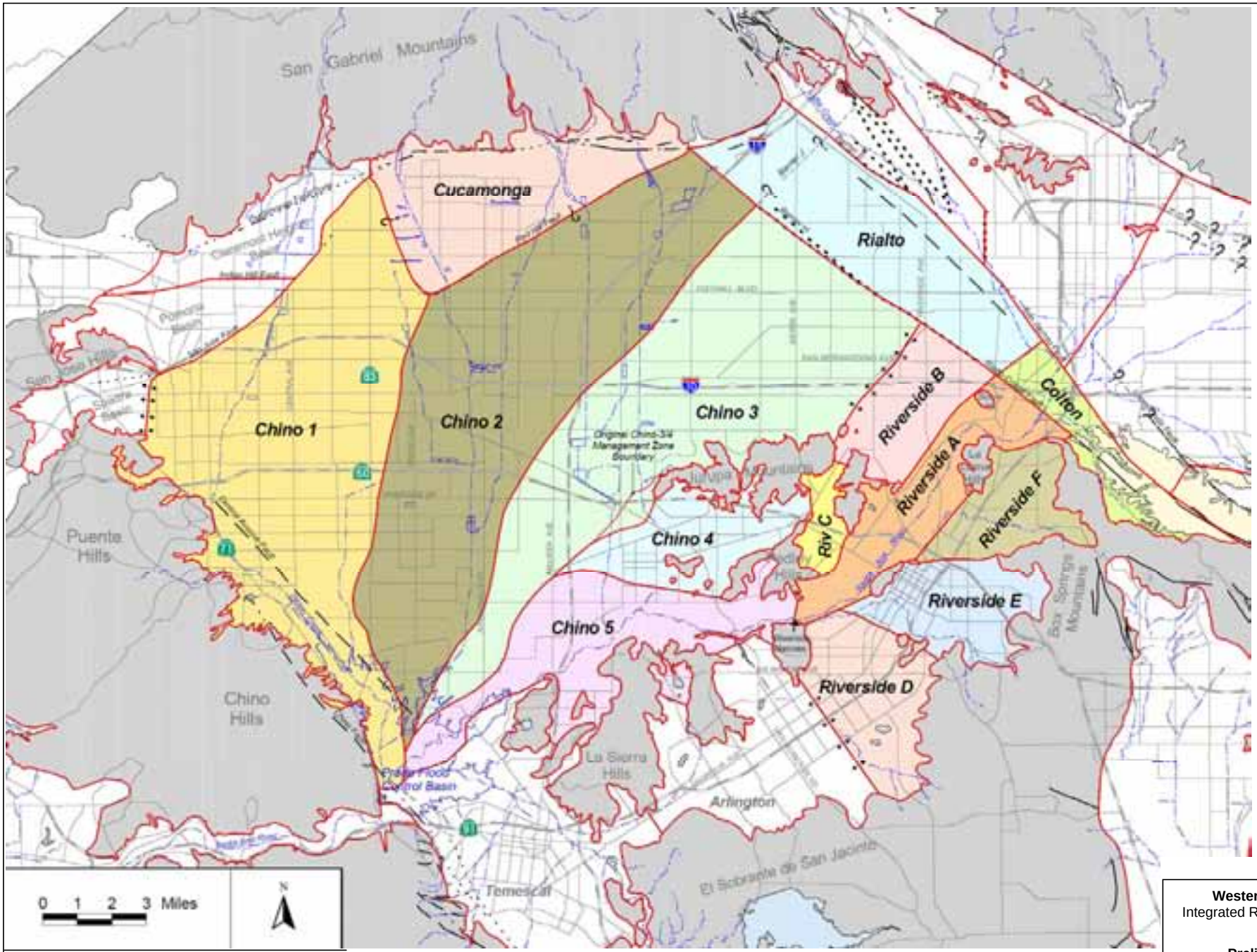

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Western Municipal Water District
Integrated Regional Water Management Plan 2008Update

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

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May 2008

Figure 2-3

Source: Wildermuth Environmental, Inc., TIN/TDS Study – Phase 2A Final Technical Memorandum.

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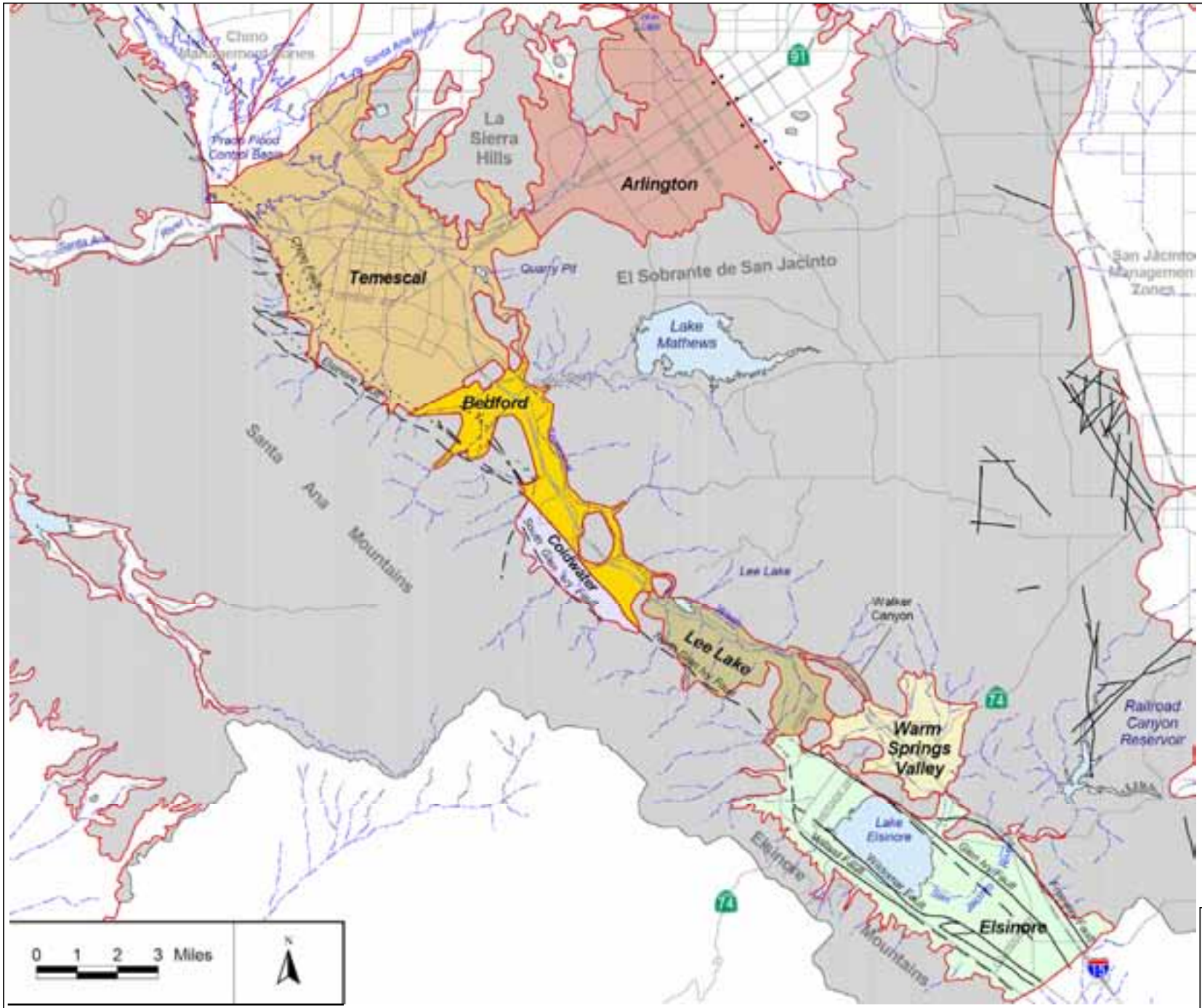

Source: Wildermuth Environmental, Inc., TIN/TDS Study – Phase 2A Final Technical Memorandum.

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Western Municipal Water District
Integrated Regional Water Management Plan 2008 Update

Preliminary Management Zone Boundaries, Elsinore-Temescal Valley Basins

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Figure 2-4

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2.2.5.2.3 Elsinore and Temescal Valleys

The Elsinore and Temescal Valleys are a northwest-trending faulted graben (commonly known as the Elsinore Trough) bounded by the elevated Perris Block on the northeast and the Santa Ana Mountains on the southwest. The Elsinore and Chino Fault Zones are the primary structural features in the valley; they are responsible for uplift of the Santa Ana Mountains and depression of the Elsinore Trough (Eckis, 1934). Temescal Wash is the main tributary draining these valleys. Sediments eroded from igneous and metamorphic rocks within the surrounding mountains have filled these valleys to provide reservoirs for groundwater. The groundwater basin underlying Arlington (Arlington Basin) is northeast of the Temescal Valley between the La Sierra Hills to the north and low bedrock hills of the Perris Block to the south. While the Arlington Basin is similar to the Riverside Basins in its physical configuration and structural origin, it should be considered along with the groundwater basins within the Elsinore and Temescal valleys because its groundwater is tributary to the Temescal Valley.

The base of the aquifer underlying the central portion of the Temescal Valley is unmapped; the literature review performed in the Wildermuth study did not locate any maps of it. The significant aquifers within this region are restricted to a narrow band of saturated alluvium along Temescal Wash. Analysis of driller's logs of wells located along this reach of Temescal Wash indicates consolidated, non-water-bearing bedrock at a depth of about 100 feet below ground surface.

The Elsinore Basin is shallow on its perimeter but is extremely deep at its center (more than 2,000 feet below ground surface) because of intense faulting and contemporaneous sedimentation (Geoscience, 1994). The Coldwater Basin, located northwest of the Elsinore Basin between the North Glen Ivy and South Glen Ivy Faults, is similar in structural origin and reaches a maximum depth of about 700 feet. The Temescal and Arlington Basins to the north are comparatively broad and shallow, but exhibit a channel-like bedrock feature parallel to the long axis of each basin (Eckis, 1934; DWR, 1970).

In addition, according to the EVMWD Groundwater Management Plan, the Elsinore Basin is bounded by the Glen Ivy and Freeway Faults to the east and the Wildomar, Willard, and Rome Hill Faults to the west. The Elsinore Basin is a down-dropped block or graben between these fault zones. The Pauba formation, a medium to coarse grain sandstones, siltstones, and clay underlies flood plain deposits of sands, silts, and clays and more recent alluvia. The Pauba formation and overlying alluvial deposits comprise the main water-bearing zones for the Elsinore Basin.

2.2.5.2.4 San Bernardino Valley and Yucaipa/Beaumont Plains

For the San Bernardino Valley and the Yucaipa/Beaumont Plains, the predominant recharge to the groundwater basins in this area occurs because of infiltration of stream flow out of the San Gabriel and San Bernardino Mountains. In general, groundwater flow mimics surface drainage patterns; it moves from the areas of recharge at the apexes of alluvial cones, along the mountain fronts, towards the area of discharge where groundwater leaks across San Jacinto Fault in the vicinity of the SAR.

2.2.5.2.5 Chino, Rialto-Colton, and Riverside Basins

For the Chino, Rialto-Colton, and Riverside groundwater basins, the predominant recharge to the groundwater basins in the area occurs because of percolation of direct precipitation and infiltration of stream flow within tributaries exiting the surrounding mountains and hills and within the SAR. In general, groundwater flow mimics surface drainage patterns: it moves from the areas of high elevation towards areas of discharge near the SAR and at Prado Flood Control Basin.

2.2.5.2.6 Elsinore and Temescal Valleys

For the Elsinore and Temescal Valleys, the groundwater flow generally mimics surface drainage patterns. The Elsinore Basin is practically surrounded by impermeable bedrock hills, and surface water drains internally to Lake Elsinore. Similarly, groundwater flows internally – from the flanks of the surrounding hills (areas of recharge) towards the main groundwater reservoirs underlying Lake Elsinore. Groundwater does not exit the Elsinore Basin except via groundwater production and evapotranspiration where and when groundwater is near the ground surface. In the Temescal Valley and the Arlington Basin, groundwater flows from the flanks of the surrounding hills (areas of recharge) toward surface drainage tributaries (e.g., Temescal Wash and the Arlington Drain) and, thence, toward Prado Basin (area of discharge).

2.2.5.3 Groundwater Quality

The presence of TIN and TDS have had a significant impact on the water resources in the Santa Ana Watershed. Increases in groundwater TDS concentrations are a function of the recharge of saline water originating from storm flows, urban runoff, imported water, and incidental recharge. They are also attributed in part to the legacy of salt accumulation from past agricultural and land uses as well as the disposal of wastewater that contains salts from home brine-regenerating water softeners.

The federal drinking water quality standard for nitrate-nitrogen is set at 10 milligrams per liter (mg/L). Water containing nitrate concentrations greater than 10 mg/L must be either treated or blended with another water source in order to reduce nitrate levels. Similar to areas with TDS concentrations, areas with significant irrigated land use or dairy waste disposal histories overlie groundwater with elevated nitrate concentrations. Groundwater quality in the SAR watershed basin is discussed in more detail in Section 5.

2.2.5.4 Adjudication Judgments

Several adjudication judgments have been made relating to the SAR watershed. They are summarized below and described in detailed in the following sections.

- Western – San Bernardino Groundwater Adjudication (*Western* Judgment 78426 or 1969 Judgment)
- SAR Adjudication (Stipulated Judgment)
- Chino Groundwater Basin Adjudication

2.2.5.4.1 Western - San Bernardino

The Judgment in Case No. 78426, Western Municipal Water District of Riverside County et al., vs. East San Bernardino County Water District et al., entered April 17, 1969 (the Western Judgment), established the entitlements and groundwater replenishment obligations of the two major water agencies, San Bernardino Valley Municipal Water District (SBVMWD) and Western relating to groundwater basins in their jurisdictions: the San Bernardino, Riverside, and Colton Groundwater Areas (Bunker Hill, Riverside North, Riverside South, and Rialto-Colton Groundwater Basins).

The adjudication resulted from concerns over the increasing withdrawals of groundwater upgradient of the Bunker Hill Dike (San Jacinto Fault) for use within San Bernardino and Redlands as well as for export to Riverside County. This case was initially linked to a broader case involving the Chino and San Bernardino basins, as well as the diversions of surface water and pumping of underflow from the SAR and its tributaries.

Toward this end, the Western Judgment generally provides for:

- A determination of safe yield of the San Bernardino Basin Area (SBBA);
- Establishment of specific amounts that can be extracted from the SBBA by plaintiff parties equal in aggregate to 27.95 percent of safe yield;
- An obligation of SBVMWD to replenish any extractions from SBBA by non-plaintiffs in aggregate in excess of 72.05 percent of safe yield;
- An obligation of Western to replenish the Colton and Riverside basins if extractions for use in Riverside County in aggregate exceed certain specific amounts; and
- An obligation of SBVMWD to replenish the Colton and Riverside basins if water levels are lower than certain specific water level elevations in specified wells.

The Western Judgment identifies regional representative agencies to be responsible, on behalf of the numerous parties bound thereby, for implementing the replenishment obligations and other requirements of the Judgment. The representative entities for the Western Judgment are Western and the SBVMWD. Western and SBVMWD are principally responsible for providing replenishment of the groundwater basins if extractions exceed amounts specified in the Judgment or as determined by the Watermaster. For the purposes of this replenishment obligation, SBVMWD acts on behalf of all defendants (Non-Plaintiffs) dismissed from the Western Judgment and, similarly, Western acts on behalf of the Plaintiffs and other dismissed parties within Western. Plaintiff parties with specific rights to produce 27.95 percent of the safe yield from the SBBA are the City of Riverside, Riverside Highland Water Company, Meeks & Daley Water Company, and the Regents of the University of California. The Western Judgment is administered by the two-person Western-San Bernardino Watermaster, one person nominated each by Western and SBVMWD, and both appointed by the court.

The Western Judgment distinguishes the portions of Riverside Basin in San Bernardino and Riverside counties and sets out the average annual extraction for each portion of the Riverside Basin. Extractions from that portion of the Riverside Basin within Riverside County for use within Riverside have exceeded the base right by between 1,300 to 5,900 AFY during the period 2001 to 2005. However, Western has also accumulated credits in this basin from under extractions in some years and from return flow from imported water. Discussions with the Western

Watermaster indicate that replenishment would not commence until the combined credits of the Colton Basin, Riverside North Basin, and Riverside South Basin are depleted. Given the combined credit of 420,839 AF as of 2005, it is the Western Watermaster staff's opinion that actual extractions from the Riverside Basin can exceed the allowable extractions without replenishment as long as water is available and credits associated with underextractions remain.

2.2.5.4.2 Santa Ana River

The adjudication of the SAR was initiated by the complaint filed by Orange County Water District (OCWD) on October 18, 1963, seeking an adjudication of water rights against substantially all water users in the area tributary to Prado Dam within the SAR watershed, but excluding the area tributary to Lake Elsinore. Thirteen cross-complaints were filed in 1968, extending the adjudication to include substantially all water users in the area downstream from Prado Dam. With some 4,000 parties involved in the case (2,500 from the Upper Area and 1,500 from the Lower Area), many believed that every effort should be made to arrive at a settlement and physical solution in order to avoid enormous and unwieldy litigation.

The result was adjudication of the Upper Area (Western-San Bernardino) and for the Lower Area under the Stipulated Judgment (Judgment) in the case of OCWD vs. City of Chino et al., as entered by the court on April 17, 1969 (Case No. 117628-County of Orange). The Stipulated Judgment became effective on October 1, 1970. It contains a declaration of rights of the water users and other entities in the Lower Area of the SAR Basin downstream of Prado Dam as against those in the Upper Area tributary to Prado Dam, and it provides a physical solution to satisfy those rights.

The physical solution accomplishes, in general, a regional intrabasin allocation of the surface flow of the SAR System. The Judgment leaves to each of the major hydrologic units within the basin the determination and regulation of individual rights therein and the development and implementation of its own water management plan subject only to compliance with the physical solution.

The Judgment designates four public agencies to represent the interests of the Upper and Lower Areas and gives them the responsibility to fulfill the obligations set forth in the Judgment, including the implementation of the physical solution. The Lower Area is represented by OCWD. The Upper Area is represented by SBVMWD, Western, and Inland Empire Utilities Agency (IEUA), formerly the Chino Basin Municipal Water District (CBMWD).

The court appoints a five-member Watermaster Committee to administer the provisions of the Judgment. The Watermaster's duty is to maintain a continuous accounting of each of the items listed in the letter of transmittal and to report annually for each water year to the court and the parties. The water year begins October 1 and ends the following September 30. The time for submission of the annual report is April 30, seven (7) months after the end of the water year.

Each year the Watermaster uses its long-established procedures to analyze the basic hydrologic and water quality data to determine, at Riverside Narrows and at Prado Dam (Prado), base flow, base flow TDS, adjusted base flow, cumulative credits or debits to upper area parties, and the minimum required base flow for the following water year. The procedures include determining, for both locations, the amounts of nontributary flow or other flow to be

excluded from base flow, the relative amounts of base flow and storm flow, and the relationships between electrical conductivity and TDS concentrations.

Watermaster determinations are made for Prado as follows:

1. The components of flow at Prado, which include nontributary flow, Arlington Desalter discharge, storm flow, and base flow; and

2. The adjusted base flow at Prado credited to IEUA and Western.

Watermaster determinations are made for Riverside Narrows as follows:

1. The components of flow at Riverside Narrows, which include Storm Flow, Base Flow, and Non-Tributary Flow; and

2. The adjusted base flow at Riverside Narrows credited to SBVMWD.

Western and IEUA have an obligation to assure an average annual Adjusted Base Flow of 42,000 AF at Prado Dam with adjustments for any accumulated past debits and water quality (TDS). For water year 2005-2006 the Watermaster reported 170,266 AF annual Adjusted Base Flow at Prado. Minimum required base flow at Prado in 2006-2007 will be 34,000 AF. SBVMWD has an obligation to assure an average annual Adjusted Base Flow of 15,250 AF at Riverside Narrows, with adjustments made for any accumulated debits and water quality (TDS). The Watermaster reported 67,161 AF of annual Adjusted Base Flow in 2005-2006. Minimum required base flow at Riverside Narrows in 2006-2007 will be 12,400 AF. For Water Year 2005-2006, the Watermaster concluded that there was full compliance with the Stipulated Judgment.

2.2.5.4.3 Chino Basin

On January 2, 1975, several Chino Basin producers filed suit in California State Superior Court for San Bernardino County (the Court) to settle the problem of allocating water rights in the Chino Basin. On January 27, 1978, the Court entered a judgment in Chino Basin Municipal Water District v. City of Chino et al. (the Judgment) adjudicating water rights in the Chino Basin and establishing the Watermaster. The Judgment adjudicated all groundwater rights in Chino Basin and presents a physical solution to meet the requirements of water users having rights in or dependent upon the Chino Basin. The judgment also appointed the Watermaster to account for and implement the management of the Chino Basin.

The Judgment declared that the initial operating safe yield of the Chino Basin is 145,000 AFY, which is allocated as 82,800 AFY to the agricultural pool, 7,366 AFY to the non-agricultural pool, and 54,834 AFY to the appropriative pool.

In 1998, the Court ordered the development of an Optimum Basin Management Program (OBMP), which led to the establishment, in 2000, of specific direction on how to develop the OBMP. The OBMP is described further in Section 4.4.

2.2.6 State Board Orders and Pending Water Rights Applications

In 1991, SBVMWD submitted an application on behalf of itself and Western to appropriate up to 100,000 AF annually from the SAR. At that time the SAR was categorized as "fully appropriated" by the SWRCB. However, in May 1995, the SWRCB adopted procedures for reviewing the fully appropriated stream status and SBVMWD and Western subsequently submitted a petition to revise the Declaration of Fully Appropriated Stream Status for the Santa Ana River, together with the 1991 application.

The petition to revise the Declaration of Fully Appropriated Stream Status for the SAR submitted in 1995 by SBVMWD and Western was followed in 1999 by a similar petition by OCWD. The SWRCB held hearings on the petitions in December 1999. Western provided evidence which demonstrated that flows in the SAR watershed had increased due to urbanization and the attendant increased runoff and increased releases of treated wastewater. Additionally, completion and subsequent operation of Seven Oaks Dam would increase availability of water during wet years. Based on evidence in the hearing record, the SWRCB amended the Declaration in Order WR 2000–12, to allow for the processing of the water right applications submitted by SBVMWD and Western and OCWD. Order WR 2000-12 did not determine the specific amount of water available for appropriation by petitioners.

In May 2001 SBVMWD and Western jointly submitted a second application to appropriate 100,000 AF of water annually ("Second Application") in addition to the 100,000 AFY previously requested under the First Application, along with a second petition to revise the Fully Appropriated Streams Declaration for the SAR ("Second Petition"). The Second Petition and Second Application were based on updated hydrologic analyses submitted during the 1999 hearings which indicated that, in certain years, there is in excess of 200,000 AF of water available for appropriation in the SAR. Based on the hydrologic evidence, in Order WR 2002-06 the SWRCB accepted the following applications for processing:

- SBVMWD and Western application requesting a right to collect a maximum of 100,000 AF annually in surface and underground storage (the "Second Application");
- Chino Basin Watermaster application requesting a right to divert 97,000 AFY to groundwater storage;
- San Bernardino Valley Water Conservation District (Conservation District) application proposing groundwater and surface storage of 174,545 AFY;
- City of Riverside application proposing direct diversion of 75 cfs throughout the year for a total maximum direct diversion of 41,400 AFY; and
- Four minor applications for diversion of up to 102 AFY from the West and East Forks of Cable Creek within the SAR watershed.

Order WR 2002-06 did not determine the specific amount of water available for appropriation or whether the amount of water available for appropriation is sufficient to approve the applications. As in Order WR 2000-12, prior to any potential approval of the applications, the SWRCB requires that applications meet all necessary obligations under CEQA. A hearing on the proposed applications was held in May 2007 and a decision is pending.

2.3 Region Description: Santa Margarita River Watershed

Although several documents exist for the Santa Margarita River watershed, the level of documentation is significantly less than in the SAR watershed. The following discussion is based primarily on information found in the January 2005 SMRW Redrafted Watershed Management Plan, the Santa Margarita River Watershed Annual Watermaster Report for Water Year 2005-2006, and the Murrieta County Water District 2005 AB3030 Groundwater Management Plan.

2.3.1 Watershed Management Framework

The southern portion of Western's service area is located in the Santa Margarita River watershed. Western's Murrieta Division and RCWD are located within the northern portion of the Santa Margarita River watershed. The Santa Margarita River is an adjudicated surface water under the oversight of a Watermaster that flows west to the Pacific Ocean. In addition, approximately 50 federal and state resource agencies and a number of private and nongovernmental interest groups have participated in past and present activities of the Santa Margarita River watershed and in the preparation of a Watershed Management Plan.

The Santa Margarita River watershed management workgroup was formed to assist with watershed planning efforts. Currently, its Technical Advisory Committee consists of representatives of the U.S. Bureau of Reclamation (USBR); U.S. Forest Service; U.S. Marine Corps Base Camp Pendleton; County of Riverside; County of San Diego; City of Temecula; MWD; Mission Resource Conservation District; Riverside County Flood Control and Water Conservation District; Fallbrook Land Conservancy; San Diego State University Field Station Programs; Boldt Consulting; and RB Riggen and Associates. In addition to the Technical Advisory Committee members, key stakeholders include the State Water Quality Control Board, San Diego, Region 9 (SDRWQCB); RCWD; EMWD; the Santa Margarita Ecological Reserve; the City of Murrieta; the Friends of Santa Margarita; and the U.S. Army Corps of Engineers.

2.3.2 Watershed Areas and Management Plan

The Santa Margarita River watershed encompasses approximately 750 square miles in northern San Diego and southwestern Riverside counties. The watershed contains a variety of nearly intact habitats, including chaparral-covered hillsides, riparian woodlands, and coastal marshes. Of the total watershed area, approximately 27 percent is within San Diego County.

The Santa Margarita River is formed near the City of Temecula in Riverside County at the confluence of the Temecula and Murrieta creek systems. Once formed, the majority of the Santa Margarita River main stem flows within San Diego County through unincorporated areas, the community of Fallbrook, and the Marine Corps Base Camp Pendleton. The lower river and estuary have largely escaped the development typical of other regions of coastal Southern California, and they are therefore able to support a relative abundance of functional habitats and wildlife.

The extensive development in southern and Western Riverside County has required the importation of water into the Santa Margarita River watershed. In 2003-2004, 94,528 AF of

water was imported and distributed in the Santa Margarita River watershed. In 2004–2005, the imported quantity was 89,589 AF, a decrease of 5.2 percent over the prior year.

As described in the January 2005 Santa Margarita River Redrafted Watershed Management Plan, the following goals have been agreed upon by the stakeholders.

> *"To protect, sustain, and restore the quality and beneficial uses of water, land, habitats, and other natural resources of the Santa Margarita River Watershed."*

A more detailed discussion on the goals of the Santa Margarita River Watershed Management Plan can be found in Section 3.6.2

2.3.3 Surface Geology and Hydrology

The portion of the Santa Margarita River watershed within Western's service area is located within the Elsinore Fault Zone, a northwest-southeast trending valley extending approximately 27 miles (44 kilometers [km]) within the Peninsular Ranges province of southern California, and extends from near Trabuco Peak in the north to Agua Tibia Mountain in the south. This fault zone is one of many such zones in southern California, resulting from the interaction between the North American and Pacific plates. Within the Elsinore-Temecula region, this fault zone forms the Elsinore Trough, with multiple interconnecting and local faults.

Gravity surveys (Hull, 1990) identified intrabasin faults, which cut the Elsinore Trough into a series of coalescing sub-basins, one of which is the Murrieta-Temecula Groundwater Basin described further below. This basin is delineated by sub-vertical fault-controlled boundaries to the southwest (known as the Willard Fault Zone) and more gently sloping, fault-controlled boundaries to the northeast (known as the Wildomar Fault Zone) (Group Delta, 1991). The Murrieta-Temecula Basin is approximately 2,000 feet (610 meters) deep and is separated from the Rancho California Basin to the Southeast by a fault-bounded bedrock ridge. The approximate surficial traces of faults located within the MCWD have been mapped according to Kennedy (1977).

The headwaters of the Santa Margarita River are in the Temecula/Murrieta area, which overlies the western boundaries. As discussed in the SMRW Plan, numerous studies document the Santa Margarita River as the single largest and finest example of a riparian system and estuary in Southern California. The watershed is the least disturbed along the Southern California coast, and the Santa Margarita River is the longest free-flowing, undammed river in this region. The Santa Margarita River and its estuary have largely escaped typical development and channelization of its lower 27 miles, and as such it supports the largest populations of seven federal-or state-listed endangered species. The relatively intact functioning physical features of the river's floodplain and estuary make this diversity of habitats and abundance of wildlife possible.

2.3.4 Local Surface Water

The local surface waters and underground water to be subsurface flow of streams or creeks of the Santa Margarita River watershed are adjudicated as described in Section 2.3.4.3 that

follows. Agencies party to the adjudication monitor and report surface water flows and quality to the Watermaster for reporting in the Watermaster Report.

2.3.4.1 Sources

Under the adjudication described in Section 2.3.4.3 that follows, the Court has retained jurisdiction over all local surface water flows of the Santa Margarita River watershed and all underground waters determined by the Court to be subsurface flow of streams or creeks, or determined by the Court to add to, support, or contribute to the Santa Margarita River stream system.

The majority of local water delivered in the western boundary of the Santa Margarita River watershed is groundwater.

There are 19 stream gaging stations in the Santa Margarita River watershed that are used to account for surface water flows within the river system. The main surface water features within the western boundary within the Santa Margarita River watershed are:

- Murrieta Creek
- Temecula Creek
- Warm Springs Creek
- Santa Gertrudis Creek

A variety of water rights govern Santa Margarita River surface water, including riparian, overlying, and surface water appropriative rights. It should be noted that the SWRCB considers the Santa Margarita River System to be fully appropriated. RCWD's activity as a groundwater pumper and appropriator is discussed in greater detail below. The Watermaster report documents a number of appropriative water rights in the Santa Margarita River watershed, including those for RCWD and for USBR on behalf of the Fallbrook Public Utility District and Camp Pendleton.

There is no surface water storage within Western's service area in the Santa Margarita River watershed. Surface water is diverted to surface storage at RCWD's Vail Lake (to the east of Western) and Lake O'Neill (downstream and west of Western). RCWD has the ability to impound up to 40,000 AFY between November 1 and April 30 in Vail Lake. Vail Lake storage can be released and recharged to the groundwater in the Valle de los Caballos spreading basin through Temecula Creek.

MWD owns and operates Lake Skinner, a 44,000-AF reservoir on Tucalota Creek also within the Santa Margarita River watershed, but outside of Western's boundaries. Lake Skinner provides regulatory and emergency storage capacity for water imported to southern California. A Memorandum of Understanding (MOU) and Agreement on Operation of Lake Skinner approved by the Court on January 16, 1975 contains provisions to require MWD to release water from Lake Skinner into Tucalota Creek if groundwater levels in Well AV-28B fall below an elevation of 1,356.64 feet. In addition, all local surface inflow into Lake Skinner must be released to Tucalota Creek.

MWD also owns and operates the 810,000-AF Diamond Valley Lake, which is located in the Diamond and Domenigoni Valleys in the Santa Margarita River watershed, outside of Western's boundaries. Like Lake Skinner, Diamond Valley Lake is used for local regulatory and emergency storage. A MOU similar to that for Lake Skinner requires MWD to release water from Diamond Valley Lake or San Diego Canal into Warm Springs Creek.

2.3.4.2 Water Quality

RCWD and the United States Geological Survey (USGS), along with Camp Pendleton, have conducted surface water sampling in the Santa Margarita River watershed. TDS ranges from about 660 to 690 mg/L in surface water samples. Water quality is discussed in more detail in Section 4.

2.3.4.3 Adjudication Judgments

The Santa Margarita River watershed is an adjudicated surface water basin under the Modified Final Judgment and Decree entered into on April 6, 1966. In March 1989, the U.S. District Court for the Southern District of California appointed Mr. James Jenks as Watermaster to administer and enforce the provisions of the Modified Final Judgment and subsequent orders of the Court. In addition a Steering Committee comprising representatives from the United States (Camp Pendleton Marine Corps Base), EMWD, Fallbrook Public Utility District, MWD, the Pechanga Tribe, and RCWD was formed to assist the Court, to facilitate litigation, and to assist the Watermaster.

In addition to monitoring surface water flows, the Watermaster monitors groundwater pumping and prepares an annual groundwater balance to evaluate changes in groundwater levels that could impact surface water discharge. The information received by the Watermaster is published in an annual Watermaster report. The majority of information contained in this section is derived from the Annual Watermaster Report for 2005 – 2006 published in August 2007.

2.3.5 Santa Margarita River Watershed Groundwater Basins

Much of the water from the Santa Margarita River system is obtained by pumping of subsurface water. Based on the adjudication, there are two types of water. The first type is "vagrant, local, percolating waters that do not add to, support, or contribute to the Santa Margarita River or its tributaries" (2007 Watermaster Report). These waters are not under the adjudication and are typically found in the lowermost basement complex. The second type, which falls under the adjudication, are waters within aquifers in the younger alluvium and older alluvium.

RCWD has developed Agency Agreements with most of the landowners within the RCWD boundaries. These agreements designate the RCWD as the exclusive agent for the development and management of water supply. RCWD then pumps groundwater and delivers it within the RCWD area on behalf of the landowners.

The Santa Margarita River watershed consists of nine hydrologic basins and 33 subbasins delineated by the SDRWQCB primarily based on surface drainage boundaries. For purposes of the Watershed Plan, the hydrologic basins and subbasins delineated by the SWRCB were organized into seven major subbasins, or management zones based on similarity in hydrology,

geography, receiving waters, topography, groundwater resources, climate, land use, jurisdiction, and biological resources. The major water purveyors and the hydrologic boundary of the watershed are presented on Figure 2-5.

2.3.5.1 Summary of Basin Boundaries

The Santa Margarita River watershed consists of nine hydrologic basins and 33 sub-basins delineated primarily based on surface drainage boundaries by the SDRWQCB.

DWR's Bulletin 118, 2003 Update describes three groundwater basins in the Santa Margarita River watershed, shown on Figures 2-6 and 2-7, and described below.

1. Santa Margarita Valley (or Santa Margarita Groundwater Basin), to the west near the Pacific Ocean, outside Western's service area (DWR Basin 9-2),

2. Temecula Valley (or the Murrieta-Temecula Groundwater Basin), to the north and east (DWR Basin 9-5) under the southern portion of Western's service area,

3. Coahuila Valley (or Anza Groundwater Basin) in the upper portions of the watershed (DWR Basin 9-6), to the east, outside Western's service area,

The Murrieta-Temecula Groundwater Basin is further divided into 22 hydrologic subareas as shown on Figure 2-6 and is most pertinent to Western as this portion of the basin underlies Western. Three principle aquifers are found in this groundwater basin: the younger alluvium, the Pauba aquifer, and the Temecula aquifer. The total groundwater storage in the uppermost 500 feet as of September 30, 2001, was estimated to be 1,340,556 AF (2007 Watermaster Report). The Murrieta-Temecula Groundwater Basin is described as the Temecula –Murrieta Management Area in the Santa Margarita River watershed Plan.

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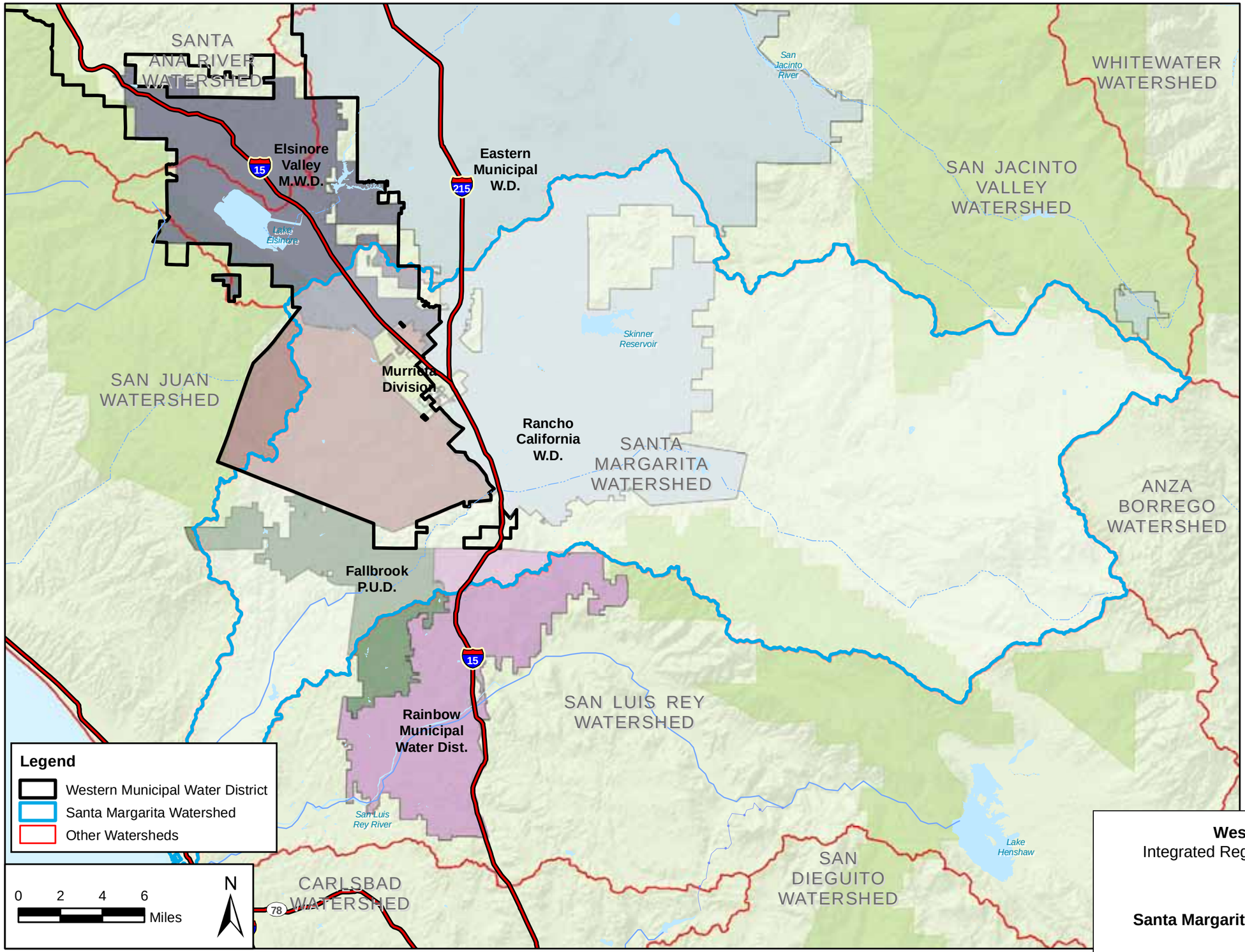

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Western Municipal Water District
Integrated Regional Water Management Plan
2008 Update

Santa Margarita River Watershed Boundary

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Figure 2-5

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2.3.5.2 Summary of Subsurface Geology

As described in the Watershed Plan, the Pauba Aquifer extends over an area of approximately 18 square miles and consists of younger alluvium deposited within the principal valleys of the Murrieta-Temecula Basin. The upstream portions of the Pauba Valley, Santa Gertrudis Valley, Murrieta Valley, and Wolf Valley act as forebays to recharge the unconfined Pauba Aquifer.

The Temecula Aquifer extends over an area of approximately 100 square miles, and covers a significant portion of the Murrieta-Temecula Basin. The Temecula Aquifer is comprised of consolidated sediments that underlie and extend beyond the boundaries of the Pauba Aquifer. Sediment depths within the Temecula Aquifer are typically 1,000 feet or more. Except for upstream forebay areas, confining layers separate the Pauba and Temecula Aquifers. Recharge to the Temecula Aquifer occurs primarily from streamflow infiltration within unconfined alluvial forebays in the upstream portions of the Pauba Valley, Wolf Valley, Murrieta Valley, and Santa Gertrudis Valley. Additionally, portions of the Temecula Aquifer are exposed in the upland mesa portion of eastern Temecula, allowing for recharge through streamflow infiltration, applied water infiltration, and precipitation infiltration. Given the approximate 100-square-mile area extent of the 1,000-foot-thick Temecula Aquifer, a specific yield of 0.5 percent would result in a Temecula Aquifer storage capacity of approximately 300,000 AF. TDS concentrations in the Temecula Aquifer are typically less than 500 mg/L, but a significant portion of the overall TDS is comprised of sodium.

2.3.5.3 Groundwater Production

As described in the Watershed Plan, public water supplies are developed within the Murrieta-Temecula Basin by RCWD, EMWD, Western-Murrieta Division (formerly MCWD), and the Pechanga Indian Reservation. A portion of RCWD and Western-Murrieta Division overlie the Murrieta-Temecula Basin and are within Western's boundaries. RCWD typically derives approximately 40 to 50 percent of its total water supply from local groundwater of the Pauba and Temecula Aquifers. Since 1980, RCWD has prepared a Groundwater Audit and a Recommended Groundwater Production Report (RGPR). During the past 25 years, annual RCWD groundwater pumping from the Murrieta-Temecula Basin has ranged from approximately 12,600 AFY to over 33,700 AFY. Through implementation of a number of measures including recycled water and additional groundwater wells, the RCWD 2005 UWMP projects annual future groundwater production to be 56,000 AFY by 2020..

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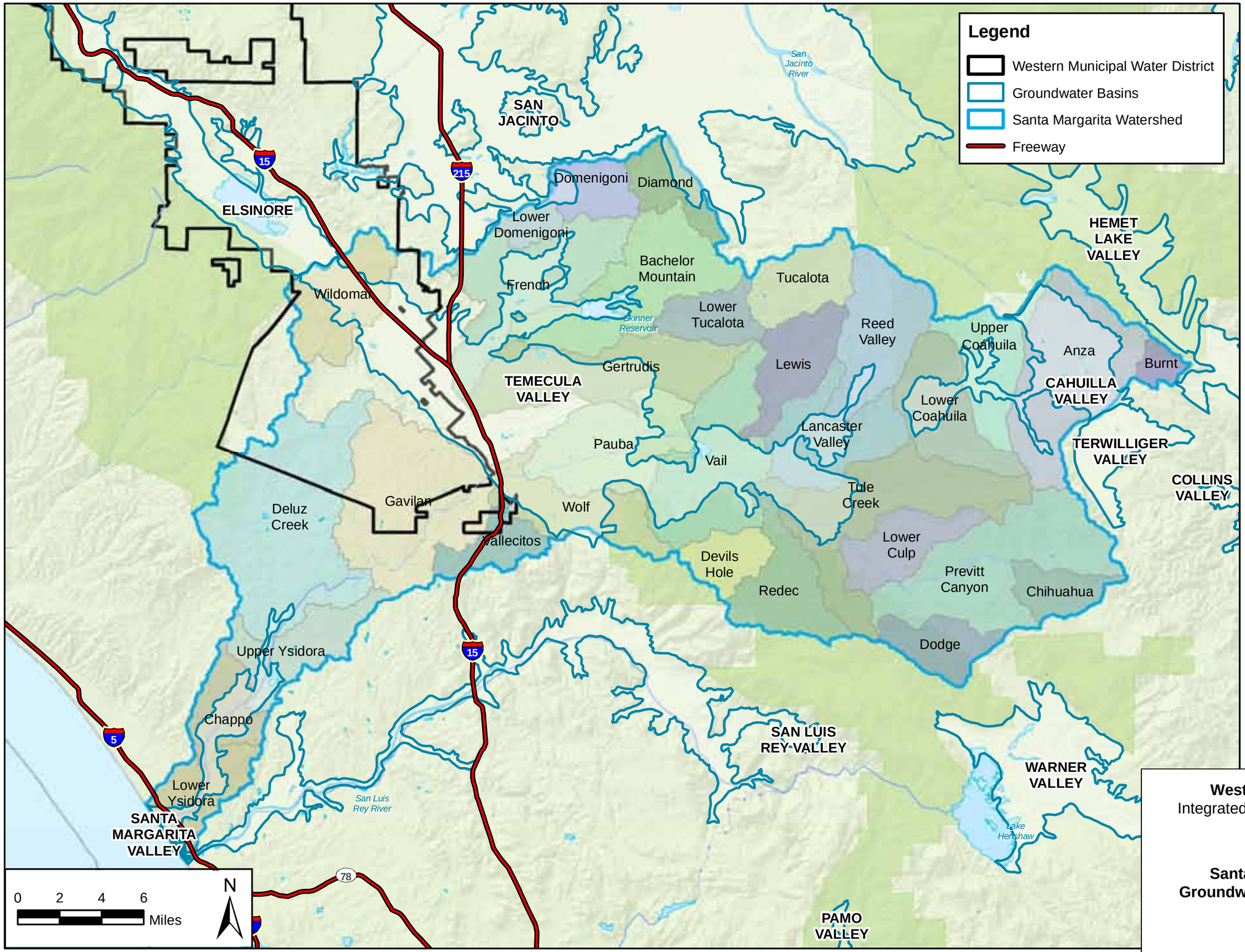

Kennedy/Jenks Consultants

Western Municipal Water District
Integrated Regional Water Management
Plan 2008 Update

Santa Margarita River Watershed
Groundwater Basins and Sub-Basins

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Figure 2-6

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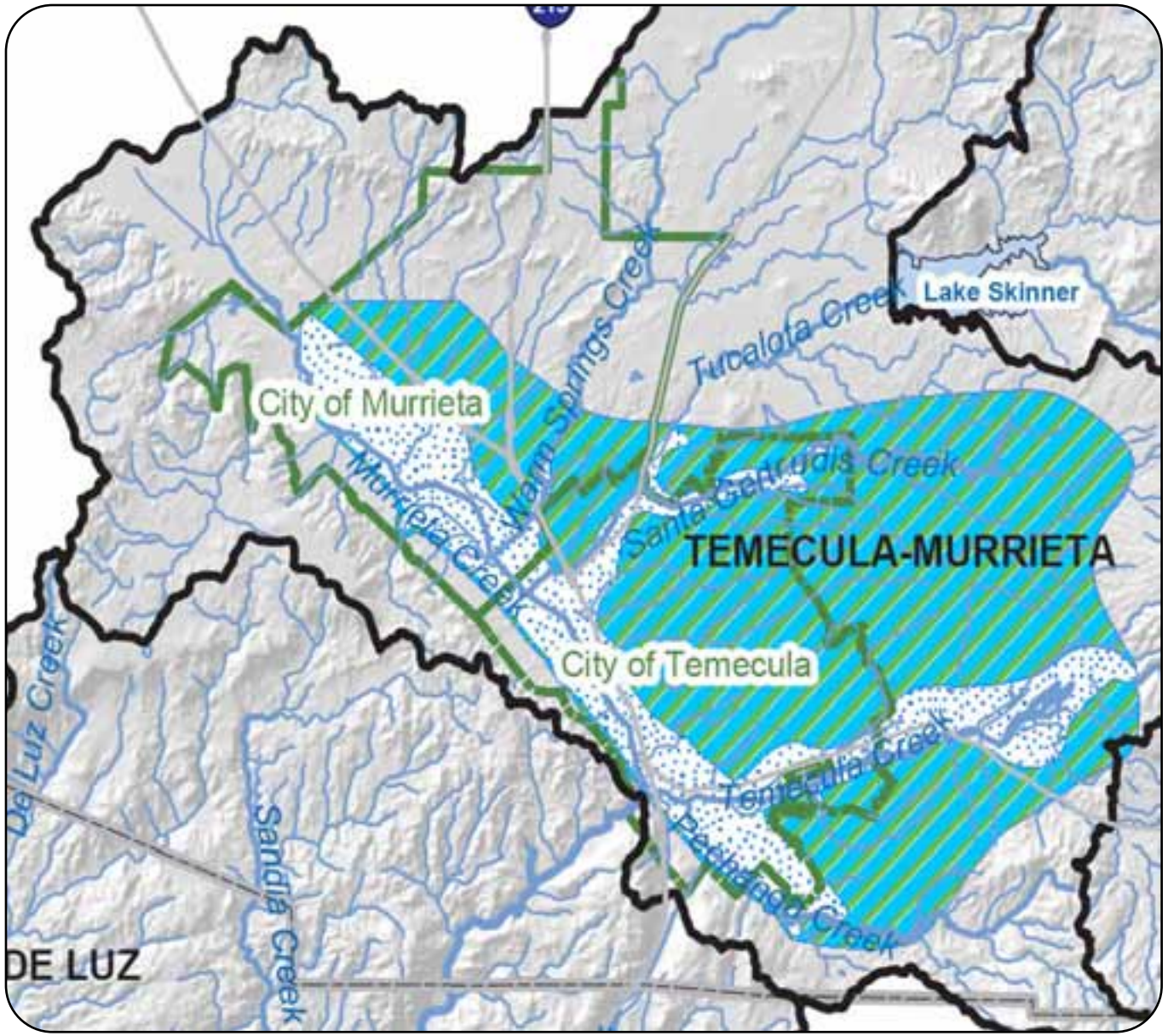

Source: Santa Margarita Watershed Mgmt Plan, 2004

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Western Municipal Water District
Integrated Regional Water Management Plan 2008 Update

Santa Margarita River Groundwater Basins

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Figure 2-7

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Groundwater also serves as the primary source of water supply for Western-Murrieta Division. Western-Murrieta Division operates five water supply wells within the north end of the Murrieta-Temecula Valley that typically develop approximately 2,233 AFY of supply. Increased demand since 2003 have resulted in Western-Murrieta's importing of water to meet peak and annual demands. Prior to combining with Western, the MCWD developed and adopted a Groundwater Management Plan.

EMWD typically derives a small percentage of its domestic water supply from wells within the Murrieta-Temecula Basin, with 0 AFY production in 2005-2006 water year. Since 1980, annual EMWD groundwater pumping from the Basin has ranged from 0 AFY to 685 AFY. Pechanga Indian Reservation develops roughly 750 AFY of supply from potable and irrigation wells within its boundaries.

Virtually no private groundwater wells exist in the portion of the Murrieta-Temecula Basin that receives RCWD water service. In the upstream portion of the Murrieta Valley, however, more than 30 private well owners are known to pump groundwater within the basin. The SMRW Watermaster identifies a total of eight private water users within the basin as being "substantial users." Approximately 2,007 AFY of groundwater was pumped from the Murrieta-Temecula Basin during water year 2005-2006 by these private "substantial users" (Watermaster, 2007).

2.3.5.4 Groundwater Quality

RCWD, Western-Murrieta Division, the USGS, and Camp Pendleton collected groundwater samples in the Santa Margarita River Watershed, and the results of their analyses are summarized in the 2007 Watermaster Report. TDS for RCWD and Western-Murrieta Division wells ranges from about 310 to 1,000 mg/L. Nitrates are below the drinking water standard but are monitored carefully because of the potential for agricultural and leachfield contamination. For a more detailed discussion on water quality, see Section 4.

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Section 3: Relation to Other Planning Efforts

This section summarizes the many related water planning and management activities that occur within the District's service area which should be considered during the conduct of this IRWMP.

3.1 Southern California Association of Governments

3.1.1 2008 Regional Comprehensive Plan

The 2008 Regional Comprehensive Plan (RCP) was prepared in response to the Southern California Association of Governments (SCAG's) Regional Council directive in the 2002 Strategic Plan to develop a holistic, strategic plan for defining and solving inter-related housing, traffic, water, air quality, and other regional challenges. The RCP was specifically developed to:

- Respond to the SCAG Regional Council's direction to develop a comprehensive plan that addresses the region's economic, social and environmental future and emphasizes the interdependence of nine resource areas.
- Inform local, subregional, and county economic and resource plans that are often limited by geography or scope. For example, a county-wide resource plan for open space may fail to recognize the habitat value of linking to adjacent county open space plans.
- Help meet federal transportation planning requirements that call for more integrated resource planning, particularly more integration of environmental concerns into transportation plans through expanded consultation.
- Offer recommendations to local governments from a regional, comprehensive perspective for consideration into the development of local General Plans and the design and review of major development through the region's Intergovernmental Review process.
- Provide a regional response and strategy for meeting climate change mandates that call for reductions in greenhouse gases.
- Offer a comprehensive, integrated policy plan that helps position Southern California to get its fair share of revenue from federal and state funding programs, such as the traffic, housing, water, and park infrastructure bonds approved in 2006.
- Help stakeholders make the most of their limited resources by highlighting priority policies for future implementation that maximize benefits both locally and regionally.

The RCP is divided into nine resource chapters that identify the regional challenges, plan, goals and outcomes that are envisioned to help communities and decision-makers achieve a sustainable future:

- Land Use and Housing

- Open Space and Habitat
- Water
- Energy
- Air Quality
- Solid Waste
- Transportation
- Security and Emergency Preparedness
- Economy

3.1.1.1 Applicability to Western

The RCP identifies the regional challenges, with respect to water resources, as follows:

> "Recent projections indicate that nearly half of the state's population will reside within the SCAG region by 2030. This underscores the importance of questions about Southern California's future water supply, and of reliably meeting our urban water demands in a way that is sensitive to both ecological imperatives and the evolving emphasis on sustainable development. We also face challenges in how we assure a high quality water supply for consumption, recreational, habitat, and other needs.
>
> Eliminating water quality impairments throughout the region's urban watersheds is a major challenge. These impairments (usually caused by "non-point" source pollutants) are largely caused by urban and stormwater runoff and must be cleaned up under the Clean Water Act. As a result, water quality regulators are imposing significant and costly pollution control measures on local agencies with compliance deadlines."

The RCP focuses on three strategies and goals for addressing these water supply and water quality issues.

First, is the development of sufficient water supplies to meet the water demands created by continuing regional growth through promoting policies that encourage environmentally sustainable imports, local conservation and conjunctive use, and reclamation and reuse.

Second, is to improve water quality by implementing land use and transportation policies and programs that promote water stewardship and eliminate water impairments and waste through more concentrated and clustered developments.

Third, the region needs to improve comprehensive and collaborative watershed planning that yields waterwise programs and projects.

Western's Integrated Regional Water Management Plan (IRWMP) directly helps to meet the first and third strategies.

3.2 Metropolitan Water District of Southern California

3.2.1 Integrated Water Resources Plan

Metropolitan Water District of Southern California's (MWD's) primary goal is to provide reliable water supplies to meet the supplemental water needs of its service area. In the past, the delivery of water to MWD's member agencies has been nearly 100 percent reliable; however, as existing imported water supplies from the Colorado River and State Water Project (SWP) face increasing challenges, the reliability of deliveries from these sources continues to decline.

To address these challenges, MWD and its member agencies developed an Integrated Water Resources Plan (IWRP) in 1996 and completed the 2002 IWRP Update in July 2004. The overall objective of the IWRP process is to provide "Metropolitan and its member agencies with the full capability to meet full-service demands at the retail level at all times."

3.2.1.1 IWRP Goals

The original IWRP was collaboratively developed by MWD and its member agencies in 1996. The goal of the IWRP was to establish regional targets for developing water resources, including conservation, local supplies, SWP supplies, Colorado Aqueduct supplies, water from regional storage, and supplies purchased through water transfers.

The update to the IWRP had three main goals:

1. To review the goals and achievements of the 1996 IWRP.

2. To identify changed conditions for water resource development.

3. To update resource targets through 2025.

3.2.1.2 Summary of Conclusions

The main conclusions of the 2002 MWD IWRP Update are as follows:

1. Changed Conditions: The most significant change in conditions are the higher conservation savings and more plans by MWD's member agencies to increase local supply development. Taken together, these changes have caused a drop in projected MWD demands for imported water in 2020 by as much as 500,000 AF in a dry year, compared to the 1996 IWRP.

2. Reliability: The results of the IWRP Update analysis demonstrate that the resource targets of the 1996 IWRP, factored in with the changed conditions discussed in this report, provide for 100 percent reliability in 2020 and up to 2025.

3. Buffer Supply: Although current resource targets do not need to be modified, the IWRP Update identified two new areas of concern:

   (a) increasingly stringent water quality regulations, and

(b) increased resource implementation risk surrounding the development of planned projects.

The IWRP Update recommends a supply buffer of up to 10 percent of regional demands to manage the two concerns identified above and other uncertainties. The planning buffer calls for MWD to develop 500,000 AF of supplies in addition to the resource targets by 2025. Development of the buffer will be equally split between local and imported sources. The supply buffer is consistent with MWD's practice of developing supplies that are available at least 10 years in advance of need. As such, the buffer serves as a contingency measure to help ensure regional reliability and to mitigate against implementation risk. Partial or full implementation of the supply buffer depends on the progress in developing planned projects, and ongoing decisions by the Board of Directors.

4. Updated Resource Targets: By recognizing changed conditions and adding the proposed buffer, the Region has changed its resource targets. Collectively, these updated resource targets provide the supply buffer of 500,000 AF.

3.2.1.3 Applicability to Western

As stated in conclusion 1, in the previous section, the changed conditions for Western have been incorporated into the IWRP Update as they have been by other MWD member agencies. Specifically the changes include conservation savings and increasing local supply development. By increasing conservation and local supply, Western has reduced its demands from the original IWRP. Table 3-1 taken from Appendix 2 of MWD's 2002 IWRP Update, shows the total local supply including groundwater recovery for Western.

TABLE 3-1
WESTERN'S TOTAL LOCAL SUPPLY FOR CONSUMPTIVE USES – DRY YEAR (AF)

2003	2010	2020	2025	2003-2025
204,336	233,220	265,520	265,520	61,184

Currently Western is participating in several programs to increase local supplies. The MWD IWRP assumed development of local supplies in Western's service area that include:

- the Arlington Desalter project
- the Chino Basin Desalter No. 1 project (by Chino Basin Desalter Authority [CBDA])
- the Elsinore Valley/Horse Thief Reclamation project (by EVMWD)
- the Elsinore Valley/Railroad Canyon Reclamation project (by EVMWD)
- Indian Hills Reclamation Project (by JCSD)
- March Air Resources Board Reclamation Project (by Western)

- the Santa Rosa Water Reclamation Facility (by RCWD)
- the Temescal Basin Desalting Facility (by City of Corona)
- Consider alternative approaches to meeting future demands (e.g., integrating local and regional plans for facilities and operations); and
- Identify areas within the service area that will need additional study

The MWD IWRP Update states that Western will be provided with 100 percent reliability though 2025. The 1996 IWRP stated 100 percent reliability through 2020. Also included in the IWRP update are the plans for MWD to supply a buffer consisting of up to 10 percent of the total regional demands to be split equally among member agencies. Although 100 percent reliability is likely for the range of hydrologic conditions, Western and individual agencies within Western should continue to research other supply sources to improve reliability for non-hydrologic shortages (e.g. seismic events, system failures, etc.).

3.2.2 MWD Integrated Area Study

MWD, together with its Member Agencies, developed the 2007 Integrated Area Study (IAS) process covering the region's four primary load areas: (1) the Central Pool Area, (2) Riverside and San Diego Area, (3) West Valley Area, and (4) San Bernardino Area. The IAS is an exemplar demonstrating the commitment of MWD and its Members to collaboration and integrated planning in the development of the infrastructure required to reliably deliver those supplies using current infrastructure improvement policies as a guide to facility planning.

The agencies proceeded with the IAS to:

- Enhance collaboration between Metropolitan and member agencies;
- Promote a common understanding of key concerns of all agencies;
- Achieve consensus on demand projections and facility timing assessments;
- Clarify policy issues related to facility planning; and
- Consider alternative approaches to meeting future demands (e.g., integrating local and regional plans for facilities and operations).

3.2.2.1 IAS Process

The IAS was developed over a two-year period to determine how existing facilities would be utilized and new facilities developed to meet projected demands. In many ways, the IAS applied many of the same principles used to develop the IWRP. These principles include:

- Clearly defined regional objectives
- Collaborative planning between Metropolitan and its member agencies
- Increased understanding of local and regional water distribution systems and operations
- Identification of system needs by service area

- Identification of local and regional projects to fill the system needs
- Evaluation of alternatives from a regional perspective
- Discussion and clarification of relevant Metropolitan policy issues

Information was gathered on demographics, local projects, and peaking factors. Data were evaluated and experts were brought in to examine the methodologies used to determine the demand on MWD. The evaluation process included presentations by MWD and its member agencies on system operations with each agency analyzing how it might optimize operations to minimize peak demands on MWD.

The IAS process had three distinct elements: technical, level of service, and finance. The technical element provided an analysis of facility needs. The level of service element provided an analysis of the policy governing the development of the facilities. The finance element was moved from the IAS process to the formal discussions on rates being facilitated by the Chief Financial Officer.

Under the IAS, MWD and the member agencies developed a database of local and regional projects that could be used to meet future service area demands. These projects were evaluated against the following identified objectives:

- Manage Cost
- Water Quality: Improve
- Salinity Balance
- Reliability: Increase System Flexibility
- Increase Adaptability and Sustainability
- Reduce Implementation Risk

The objectives also included performance measures to provide for gauging success of the plan's implementation. The objectives were weighted, and assessed to help demonstrate how various water management approaches could impact overall performance.

The following six (6) portfolios of projects were developed and evaluated for the IAS:

- Under $500/AF Local Projects Portfolio - An economical portfolio of local and regional projects aimed at using the lowest cost local projects.
- Maximum Local Projects Portfolio - This portfolio was aimed at maximizing local participation, adaptability, and water TDS improvements.
- MWD Option A Portfolio - This regional portfolio was aimed at minimizing costs and implementation risks by expanding existing Metropolitan facilities.
- MWD Option B Portfolio - This regional portfolio was aimed at minimizing costs and also improving reliability by constructing a new centralized facility located near multiple raw water sources (Inland Feeder and Colorado River Aqueduct [CRA]).

- MWD Option C Portfolio - This regional portfolio was a variation of Option B that included additional treated water conveyance capabilities to maximize the reliability benefits.

- Balanced Mix Portfolio - This portfolio of local and regional projects was aimed at achieving low overall TDS levels and a high adaptability score.

The six project portfolios developed under the IAS process were then evaluated using the objectives and performance measures.

3.2.2.2 Summary of Conclusions

The IAS process was successful in achieving the following:

- **Enhance collaboration between Metropolitan and member agencies.** The IAS led to increased cooperation between agencies and sharing of data and ideas that were beneficial in moving the planning process forward and achieving consensus on technical and policy issues.

- **Promote a common understanding of key concerns of all agencies.** The technical presentations made by staff from member agencies and Metropolitan helped achieve a common understanding of important planning drivers and operational issues.

- **Achieve consensus on demand projections and facility timing assessments.** The open discussions, internal coordination, and IAS Technical Panel and Expert Panel review process yielded valuable results. Participants reached a consensus on demands, method for determining peak demands, the gap analyses, and facility timing results for each of the independent IAS efforts.

- **Clarify policy issues related to facility planning.** The policy discussions were productive in clarifying the eight historical policies and three of the four emerging policies. A consensus was reached on clarifications in the following areas for MWD's Board to consider:

  - Reliability
  - Facility implementation
  - Service connections on conveyance facilities.

  Discussions on the policy issue of potential introduction of local water into MWD's treated water system will continue through the existing IAS committee.

- **Consider alternative approaches to meeting future demands** (e.g. integrating local and regional plans for facilities and operations). The IAS project portfolio development and evaluation process was effective in identifying alternative approaches to meeting future demands. For the Riverside and San Diego area, a portfolio containing a mix of local and regional projects scored highest and the implementation of the highest performing local projects could defer construction of a regional treatment facility.

The IAS also identified some opportunities to improve the integration of local and regional facility operations that could help defer investments in new regional facilities. These options included balancing the operation of the Mills and Skinner facilities, reducing peak treated water demands on MWD through implementing a recycled/raw water project in southern Riverside County, and optimizing the West Valley load area. MWD will continue to coordinate with member agencies to seek similar opportunities.

- **Identify areas within the service area that will need additional study.** For the Riverside and San Diego area, the IAS teams assumed that the region could balance flows between the Mills and Skinner plants in order to defer regional investments by up to 6 years. The local and regional conveyance systems must be studied in greater detail to validate this assumption. In addition, potential raw water conveyance constraints for the delivery of water to San Diego County Water Authority (SDCWA) will be investigated further.

One of the main objectives of the IAS was to determine what actions are needed to ensure that MWD will continue to be able to reliably deliver water supplies to its member agencies. Table 3-2 shows the major findings of the study.

TABLE 3-2
NEEDED FUTURE TREATMENT CAPACITIES

Central Pool	Year 2045 in Weymouth Exclusive area	Treatment capacity
	Year 2049 in Common Pool area	Treatment capacity
West Valley	Year 2037	Conveyance capacity
San Bernardino	Year 2041	Conveyance capacity
Riverside and San Diego	Year 2026 (assuming balance operation)	Treatment capacity

3.2.2.3 Applicability to Western

Results from the IAS indicate that additional treatment capacity will be needed within the planning horizon for Western's, Eastern Municipal Water District's (EMWD's), and SDCWA's service areas. MWD worked closely with Western, EMWD, and SDCWA during the development of the IAS to determine the future affects of local treatment capacity on supplemental water demands. To a limited extent, Western, and the EMWD can utilize either the Mills plant or Skinner plant to meet demands that occur within a portion of their service areas. Based on internal conveyance capabilities and a completed Perris Valley Pipeline, Western, and EMWD provided MWD with projections on how they anticipate using available treatment capacity between the Mills and Skinner plants.

Using the current operation pattern, the Mills exclusive service area and the Skinner exclusive service area will require additional treatment capacity by 2020 and 2038, respectively. Assuming Western and EMWD are capable of balancing their demands between the Mills and Skinner plants, the additional treatment would not occur until 2026.

3.2.3 Drought Shortage Allocation

In February of 2008, MWD adopted a Drought Shortage Allocation Plan (Allocation Plan). MWD developed the Allocation Plan in response to recent drought conditions and the Court's ruling early in the year restricting the amount of water imported from Northern California, and thus potentially impacting the amount of water MWD has available to its member agencies. The Plan would be implemented if current water shortages necessitate rationing. The overall guiding principle of the Plan is to alleviate disparate impacts at the retail level for its 26 member agencies. The plan incorporates considerations for impact on retail customers and the economy, changes and losses in local supplies, the investment in and development of local resources, and conservation achievements. The plan also serves as the final piece of Metropolitan's 1999 Water Surplus and Drought Management Plan, which originally did not include an allocation plan.

Under the plan, MWD's member agencies and their retailers would be allocated supplies partly based on their dependency on MWD, while taking into account other local sources of supply.

The plan relies on tiered pricing to encourage agencies to reach their targeted allocated supplies. These "penalty rates" are similar to drought pricing used in many cities during the 1987-92 drought, calling for agencies to pay up to four times MWD's highest priced water, depending how far they exceed their allocation. Any funds collected through penalty rates will be applied toward investments in conservation and local resources development.

3.2.3.1 Applicability to Western

Should the Allocation Plan be implemented, Western would have to conform to the tiered rate pricing structure in concert with managing its supplies. Under the proposed formula, cities heavily dependent on MWD water and growing cities would receive preference, while cities that have a significant local water supply would both receive less water and pay more.

3.3 One Water-One Watershed

The Santa Ana Watershed Project Authority's (SAWPA) One Water-One Watershed (OWOW) Program began in 2007 and is a collaborative effort between SAWPA, its member agencies, and other organizations in the Santa Ana watershed. The goal of the OWOW is to develop a sustainable Santa Ana watershed that is drought-proof, salt balanced, and supports economic and environmental vitality through the year 2030. OWOW will specifically address water supply concerns in California such as climate change, Colorado River's continuing drought, vulnerability of the San Joaquin Delta, and the effects of increasing population growth and development.

The product of the OWOW program is an IRWMP for the watershed that will meet all Department of Water Resources (DWR) requirements for funding from State Bonds. The IRWMP incorporates regional plans within SAWPA's area, including Western's. The OWOW process is dependant on the cooperation and participation of all the sister cities, counties, and water agencies (including Western) throughout the watershed to work in unison as one group to address the problems facing the watershed. Western can benefit from the OWOW process of

integration of scarce resources which can be leveraged and can lead to more cost effective solutions to its problems.

Ten Pillars of Water Resource Management

The core of the OWOW Program is a set of ten components, or pillars that must be considered in integrated water management. The OWOW Program utilizes a working committee, which is comprised of ten working groups each with a chair and 4 to 7 committee members with technical expertise in the field, to develop the plans and projects necessary to address each pillar. The pillars are:

- Water Supply Reliability – including groundwater management, water storage, water conveyance
- Water Quality Improvement – including desalination
- Flood Control and Stormwater Runoff - including TMDL and NPS pollution control
- Water Recycling - including wastewater treatment & collection
- Environmental Enhancement and Habitat- wetlands and forest and wildlife conservation
- Water Conservation including rainwater capture and recharge
- Climate Change – including carbon footprinting and energy benefits
- Land Use – including smart growth, low impact development
- Environmental Justice – including perchlorate cleanup, disadvantaged communities
- Parks, Recreation, Open Space - including trails

Each group works to define problems, needs, and solutions for their category. The groups also conducts public outreach to educate others about the OWOW Program, conducts integration meetings with other working groups, gathers planning and project data, defines and develop multi-beneficial projects, analyzes projects, and contributes to development of the IRWMP.

Nearing completion are the following tasks: data collection, describing current conditions, and region-wide problem identification. What is next includes identification of objective and sub-objectives to the Steering Committee, identifying opportunities for collaboration, as well as identifying what the barriers and constraints to achieving the OWOW's goals. In the spring of 2008, the goals will be to complete the integration of pillars and strategies, and assessment of "normal science" vs. "paradigm shift," and a call for projects and project selection for Proposition 84 will be conducted.

3.3.1 Applicability to Western

3.3.1.1 OWOW Goals

The goals of the OWOW in implementing an IRWMP for the Santa Ana Region are the following:

1. **Action:**
   a) To prepare plans and project descriptions that address regional resource needs.
   b) To secure funding to implement proposed projects in the Santa Ana watershed.

2. **Product:**
   a) An Integrated Plan.
   An Integrated Regional Water Management Plan that unites the watershed, and coordinates expertise, efforts and resources to accomplish our vision. Produces:
   - Executive Summary.
   - A detailed report which addresses all the plan requirements of DWR to secure funding from recent State Bonds, pulls together existing and near completion regional plans consistent with State plans and provides an integrated approach to achieving the vision for the Santa Ana Region.
   - A CD of the detailed report.

   b) To Obtain Funding:
   - Trained ambassadors to communicate the vision and implement the planning.
   - Completed DWR and other grant applications for funding.

3. **Target Audience:**
   Place the Santa Ana integrated regional water management plan in the hands of all policy makers and State officials to help guide long range planning and decision making and address the funding needs of water resources in the Santa Ana region. The plan will be distributed to State as well as local policy makers, staff and interested parties to inspire local funding matching support to State bond funds.

4. **Desired Outcomes:**
   - State allocates funding at least $200 million for projects identified in Santa Ana IRWMP.
   - Local agencies provide matching funding to proposed projects defined in the Santa Ana IRWMP.
   - NGOs and private entities assist in staffing support and possible matching funding.

3.3.1.2 Planned Water Management Activities Relevant to Western

A number of water management activities were identified in SAWPA's IWP, relevant to Western. These activities would carryover to the OWOW process and could become potential activities to be evaluated in the IRWMP. The projects involving Western are listed below, discussed in greater detail in the Water Management Activities portion of the IWP, and potential projects in the OWOW IRWMP. These projects, or ones similar to them as modified in the Western IRWMP Update, are discussed in Section 5 that follows and reflect current thinking by the agencies on these project concepts.

- **Coldwater Basin Conjunctive Use Project** – This project would transport water from Bunker Hill to the City of Corona through a 23 mile pipeline.

- **City of Corona - Temescal Basin Recharge** - This project would construct facilities to convey recycled water from the City's WWTP No. 1 and No. 2 to groundwater recharge basins.

- **EVMWD Elsinore Basin Conjunctive Use Study** - This project would be a Study and Pilot Project to evaluate the viability of groundwater recharge in the Elsinore Basin. EVMWD completed this study and has begun implementation of conjunctive use in the Elsinore Basin.

- **Jurupa Community Services District Water Import Facilities** –The purpose of this project is to import excess groundwater from the Riverside Groundwater Basin into the Chino Basin.

- **Riverside South Basin Agricultural Water Conveyance** – This project involves the construction of pipelines and three pump stations to convey non-potable groundwater via existing canals to Western's pipelines and reservoirs. Western completed this non – potable system in 2005, and it is currently in use.

- **Riverside - Corona Feeder** – This project consists of groundwater production wells and a major feeder pipeline capable of delivering groundwater from the Bunker Hill Basin in San Bernardino to Western's service area.

- **Riverside Groundwater Basin Improvements** – This project consists of implementing the results of a study focused on increasing production in the Riverside South Basin from 18,000 AFY to a total of 45,000 AFY./yr.

- **Temescal Desalter Expansion** - This City of Corona project consists of the construction of a 5-MGD expansion of Corona's desalter and support facilities.

- **City of Corona Recycled Water Distribution System, Phases 1 - 5** – The construction of this system would consist of pumping stations, transmission and distribution pipelines, regulating reservoirs, upgrade of WWTP Plant No. 1 and No. 2, and retrofits of onsite irrigation systems.

- **City of Norco Recycled Water Piping** – This project would allow the City of Norco to maintain the level of Lake Norconian.

- **City of Riverside Recycled System** – This project would consist of construction of 3 miles of new pipeline and additional pumping capacity to supply recycled water to new users.

- **EVMWD Recycled Water System** – This project would construct a distribution system to serve the Central Portion of the District's service area with recycled water.

- **March Air Reserve Base (MARB) Tertiary Treatment** – This project would construct a 1-MGD tertiary treatment filter at the existing March Air Reserve Base secondary treatment plant, as well as recycled water storage and distribution facilities.

3.4 Riverside County Integrated Plan

The Riverside County Integrated Plan (RCIP) has many elements that are relevant to water resources and water supply. Many of the policies, described in greater detail below, are consistent with and should be used to further support Western's regional water planning efforts.

3.4.1 Applicability to Western

The County of Riverside's General Plan was updated in 2003. To bring a broader, more integrated vision of this important planning document for the County, the County incorporated the seven mandatory elements of the traditional general plan into a document entitled the RCIP. Chapter 5 of the RCIP addresses the Multipurpose Open Space Element. The vision statement for the RCIP, with respect to open space, states:

> *"The open space system and methods for its acquisition, maintenance and operation are calibrated to its many functions: visual relief, natural resource protection, habitat preservation, passive and active recreation, protection from natural hazards, and various combinations of these purposes. This is what is meant by a multi-purpose open space system."*

Furthermore, the Open Space Element of the RCIP is divided into a Conservation section that includes Renewable Resources as a subsection. This subsection addresses water supply and water resource issues. The more detailed policies within the policy framework are described below:

> *"Policies in this section seek to protect and enhance the water resources in the county. These policies address broad water planning issues and the relationship of land use decisions to water issues."*

3.4.1.1 Water Supply

The RCIP identifies the linkage between the economy of the developed portions of Western Riverside County, the inland valley, and water imported from both northern California and the Colorado River, and the production of local groundwater.

The RCIP acknowledges that the uncertainties in Riverside County's water supply are the result of two factors: recent reduction of water apportionments from northern California as part of the CALFED Bay-Delta Program, as well as decreased supplies to California from the Colorado River. The RCIP further acknowledges that most of the County's sources of water are currently at capacity. Water storage to meet peak demand, or a two-day to one-day supply, is provided by many local water agencies within Riverside County. However, long-term surface storage of large quantities of water is provided only in the MWD and California Department of Water Resources (DWR) facilities. Total storage capacity in the existing reservoir system is 871,000 AF.

Three of the storage facilities, MWD's Lake Mathews, MWD's Lake Skinner, and DWR's Lake Perris, are located in Riverside County and provide a total of 342,300 AF of storage capacity. MWD's Diamond Valley Lake triples this capacity with an additional 800,000 AF of storage, bringing the total storage capacity available within Riverside County to 1,142,300 AF. The RCIP

states that, despite the creation of Diamond Valley Lake to allow for three times the current storage of water, there is no identifiable increase in the total amount of water available to the County. However, the increase in water storage will benefit the whole South Coast region, which includes other significant jurisdictional water users such as San Diego County Water Authority as well as Riverside County. Currently, approximately 428,000 AF or 3/8ths of existing storage capacity may be used to meet seasonal demand. The remaining 714,000 AF or 5/8ths of capacity is kept in reserve for emergency needs such as severe droughts and/or for use when a natural disaster, such as an earthquake, makes it impossible to meet demand through usual supply facilities.

Other reservoirs including EVMWD's Canyon Lake and RCWD's Vail Lake provide additional storage in the RCIP. The following policies have been adopted to address the County's water supply issues:

Policies:

OS 1.1 Balance consideration of water supply requirements between urban, agricultural, and environmental needs so that sufficient supply is available to meet each of these different demands. (AI 3)

OS 1.2 Develop a repository of County water resource information. (AI 11, 55)

OS 1.3 Provide active leadership in the regional coordination of water resource management and sustainability efforts affecting Riverside County and continue, as appropriate, to monitor and participate in regional activities, addressing water resources, groundwater, and water quality, such as a Groundwater Management Plan, to prevent overdraft caused by population growth. (AI 4, 55, 58)

3.4.1.2 Water Conservation

Water conservation must be a priority to help bridge the projected gap between water supply and demand in Riverside County in 2020. The following water conservation policies seek to manage existing supplies by promoting the efficient use of water to the maximum extent possible, so that supplies can be maintained for future use.

Policies:

OS 2.1 Encourage the installation of water-conserving systems such as dry wells and gray water systems, where feasible, especially in new developments. Also encourage the installation of cisterns or infiltrators to capture rainwater from roofs for irrigation in the dry season and flood control during heavy storms. (AI 57, 62)

OS 2.2 Where feasible, decrease stormwater runoff by reducing paving in development areas, and by using design practices such as permeable parking bays and porous parking lots with bermed storage areas for rainwater detention. (AI 57, 62)

OS 2.3 Encourage native, drought-resistant landscape planting. (AI 3, 57, 62)

OS 2.4 Support and engage in educational outreach programs with other agencies that promote water conservation and wide-spread use of water-saving technologies. (AI 58)

OS 2.5 Encourage continued agricultural water conservation and recommend the following practices where appropriate and feasible: lining canals, recovering tail water at the end of irrigated fields, and appropriate scheduling of water deliveries. (AI 57)

3.4.1.3 The Watershed Approach

The RCIP acknowledges the need to adopt a more systematic, watershed management approach to focus on priority problems; build a community to encourage stakeholders to collaborate to seek local solutions. United States Environmental Protection Agency (USEPA) indicates that the watershed approach results in both cost savings for regulators, and predictability for those regulated.

3.4.1.4 Water Quality

The following policies in the RCIP are intended to provide local guidance to protect and maintain water quality in Riverside County.

Policies:

OS 3.1 Encourage innovative and creative techniques for wastewater treatment, including the use of local water treatment plants.

OS 3.2 Encourage use of wastewater treatment innovations in rural areas.

OS 3.3 Minimize pollutant discharge into storm drainage systems, natural drainage, and aquifers. (AI 3)

3.4.1.5 Groundwater Recharge

The RCIP points out that groundwater resources in the County are defined by their quality as well as quantity. Many groundwater basins within Riverside County store local and imported water for later use to meet seasonal and drought-year demands. Under these groundwater recharge programs; groundwater is artificially replenished in wet years with surplus imported water. Water is then extracted during drought years or during emergency situations. Groundwater recharge that may also involve recharge of reclaimed water enhances the region's ability to meet water demand during years of short supply, and increases overall local supply reliability. To facilitate groundwater recharge, the following policies may apply:

Policies:

OS 4.1 Support efforts to create additional water storage where needed, in cooperation with federal, state, and local water authorities. In addition, support and/or engage in water banking in conjunction with these agencies where appropriate, as needed. (AI 56, 57)

OS 4.2 Participate in developing, implementing, and maintaining a program to recharge the aquifers underlying the County. The program shall make use of flood and other waters to offset existing and future groundwater pumping, except where:

a. groundwater quality would be reduced;

b. available groundwater aquifers are full; or

c. rising water tables threaten the stability of existing structures. (AI 56, 57)

OS 4.3 Ensure that adequate aquifer water recharge areas are preserved and protected. (AI 3, 56, 57)

OS 4.4 Incorporate natural drainage systems into developments where appropriate and feasible. (AI 3)

OS 4.5 Retain storm water at or near the site of generation and percolate it into the groundwater to conserve it for future uses and to mitigate adjacent flooding. (AI 57)

OS 4.6 Use natural approaches to manage streams, to the maximum extent possible, where groundwater recharge is likely to occur. (AI 57)

OS 4.7 Offer incentives to landowners when they are prohibited from developing their property due to its retention as a natural ground water recharge area. These incentives shall be provided to encourage the preservation of natural water courses without creating undue hardship on the owner of properties, and might include density transfer mechanisms. (AI 9)

3.4.1.6 Agricultural Resources

RCIP provides the following vision statement regarding agricultural resources in the County:

"Long a major foundation of our economy and our culture, agriculture remains a thriving part of Riverside County. While we have lost some agriculture to other forms of development, other lands have been converted to agriculture. We remain a major agricultural force in California and in the global agricultural market."

3.4.1.7 Multi-Species Habitat Conservation Plan

To address the issues of wildlife health and sustainability, the County has participated in or directed the development of two Multiple Species Habitat Conservation Plans (MSHCPs). These proposed MSHCPs are stakeholder driven, comprehensive, and multi-jurisdictional, and focus on the conservation of both species and associated habitats, to address biological and ecological diversity conservation needs and mitigate the impacts of development in Riverside County. These plans are two of several large multi-jurisdictional habitat planning efforts within southern California that have been developed with the overall goal of maintaining biological diversity within a rapidly urbanizing region. The Western Riverside County MSHCP was adopted by the County on June 17, 2003, with approval granted by other participating jurisdictions and issuance of permits by U.S. Fish and Wildlife Service and California Department of Fish and Game provided in 2004. The Coachella Valley Association of Governments (CVAG) MSHCP

was approved by the CVAG Executive Committee on September 10, 2007, and approvals were made by other Plan Permittees in October 2007. Issuance of permits by the U.S. Fish and Wildlife Service and California Department of Fish and Game is expected by early 2008.

3.5 Riverside County Flood Control and Water Conservation District

The Riverside County Flood Control and Water Conservation District (RCFCWCD) was created by an act of State Legislature on July 7, 1945, and serves approximately 2,700 square miles in the western portion of Riverside County. The RCFCWCD is governed by a Board of Supervisors comprised of the same individuals as the Riverside County Board of Supervisors, and is tasked with the following:

- Identification of flood hazards and problems
- Regulation of floodplains and development
- Regulation of drainage and development
- County Watercourse and Drainage Planning
- Education for Flood Prevention & Safety
- Construction of Flood Control Structures and Facilities
- Flood Warning and Early Detection
- Maintenance and operation of completed structures.

The RCFCWCD administers the NPDES program for stormwater quality management in the County, and manages flood control through development and implementation of master drainage plans (on a regional level), as well as through site-specific area drainage plans. A master drainage plan addresses the current and future drainage needs of a given community. The boundary of the plan usually follows regional watershed limits. The proposed facilities may include channels, storm drains, levees, basins, dams, wetlands or any other conveyance capable of economically relieving flooding problems within the plan area. The plan includes an estimate of facility capacity, sizes and costs.

An area drainage plan is a financing mechanism used to offset taxpayer costs for proposed drainage facilities. The fees are imposed on new development within the plan area. The Subdivision Map Act requires that agencies imposing fees have a general drainage plan for the fee area, a special fund for the fees and an equitable distribution of the fees prior to implementation. The area drainage plan is essentially the master drainage plan with additional language supporting the costs and distribution of the fee within the plan area.

3.5.1 Applicability to Western

The RCFCWCD is divided into seven (7) geographical Flood Control District Zones, of which Western MWD's service area is included in portions of Zones 3, 4 and 7. Within these Zones, the following master drainage plans have been prepared that are directly applicable to any new development with the potential to affect flood control and drainage within Western MWD's service area. In addition, the following area drainage plans further refine these master drainage plans through assessment of specific fees that would be applicable to new developments occurring within their boundaries, some of which may be envisioned as part of this IRWMP (see Table 3-3).

TABLE 3-3
MASTER AND AREA DRAINAGE PLANS WITHIN WESTERN'S SERVICE AREA

MASTER DRAINAGE PLANS	AREA DRAINAGE PLANS
Murrieta Creek	- Murrieta Creek/Temecula Valley - Murrieta Creek/Warm Springs Valley - Murrieta Creek/Murrieta Valley - Murrieta Creek/Wildomar Valley
Wildomar	
Sedco	
West Elsinore	- West Elsinore
Good Hope	
Perris Valley Channel	- Perris Valley
Mead Valley	
Lake Matthews	- Lake Matthews
East Corona	
West Corona	
Norco	
Home Gardens	
Southwest Riverside	- Southwest Riverside
Mockingbird Canyon	- Mockingbird Canyon Flood Hazard Mitigation Area Fee Area
La Sierra	
Monroe	
Central	
Box Springs	

As described in Sections 5 and 6, RCFCWCD has been an engaged and active partner in the preparation of this IRWMP update and has also provided valuable insight to opportunities to use flood control facilities for recharge and water quality improvement.

3.6 Upper Santa Ana River Watershed Integrated Regional Water Management Plan

The Upper Santa Ana River Watershed IRWMP was adopted in November 2007 by an association of agencies (called the Upper Santa Ana Water Resources Association) located

within the Upper Santa Ana River watershed that share a common concern for the region's water resources. The effort was led by the San Bernardino Valley Municipal Water District.

The 824-square-mile Plan area encompasses Big Bear Lake and the headwaters of the Santa Ana River until it reaches the Riverside Narrows and includes the cities and communities of San Bernardino, Yucaipa, Redlands, Beaumont, Cherry Valley, Calimesa, Highland, Rialto, Colton, Fontana, Grand Terrace and Loma Linda.

Implementation of the Upper Santa Ana River Watershed IRWMP will help the growing region, which is dependent on the San Bernardino Basin and imported water from the SWP to reduce its dependence on imported water, while providing reliable, good quality water for economic growth.

3.6.1 Applicability to Western

Western is a Stakeholder in the Upper Santa Ana River Watershed IRWMP process as both a member agency of SAWPA, as well as from its share in managing the water resources of the Bunker Hill Basin. The information from the Upper Santa Ana River Watershed IRWMP is also intended to be incorporated into SAWPA's regional plan for the watershed.

3.6.1.1 Upper Santa Ana River Watershed IRWM Plan Objectives and Water Management Strategies

Water management in the area is currently governed by a complex set of constraints, court decisions, judgments, and agreements. Accordingly, the objectives, water management strategies, and associated programs and projects identified as part of the Upper Santa Ana River Watershed IRWMP are intended to be as follows:

- Consistent with the governing laws, judgments, and agreements that govern the water management in the region.
- In harmony with the vision of water leaders for management of the region's water resources.
- Consistent with local agencies' water management objectives.
- Fulfilling the planning standards of the California Water Code.

Three primary objectives were put forth to meet these broader plan objectives. They are described as follows.

3.6.1.2 Improve Water Supply Reliability

Improving water supply reliability is the primary objective of the IRWMP, and was formulated to ensure that a reliable water supply is available for the region through 2030. An important subset of this objective is surface water and groundwater management.

To meet this objective, a range of water strategies and projects were proposed, including: water conservation and water demand management efforts; water recycling; management of

groundwater resources through conjunctive use of surface water and groundwater, as well as management of groundwater levels and water quality; improved surface and storm water management efforts; and full utilization of SWP supplies through storage or groundwater banking to build reserves for drought periods.

To evaluate the performance of these water management strategies, as they are implemented, the plan proponents will consider the following "performance criteria":

- Reliable water supply for a minimum of a 25-year period
- Meeting average year water demands through 2030
- Meeting single-year drought demands
- Meeting multi-year drought demands
- Preparing a water shortage (up to 50 percent loss) contingency plan
- Preparing for catastrophic interruption in ater supplies

3.6.1.3 Protect and Enhance Water Quality

The goal of this objective is to protect the quality of the region's surface water and groundwater resources. Groundwater management is currently influenced by the presence of contamination plumes, most of which resulted from historic military and industrial operations in the region. The management strategies were developed to not only avoid any adverse impacts that could cause these plumes to spread further but also to develop projects that will accelerate the cleanup of these plumes. These strategies will be evaluated using computer models.

The ability to protect water quality has a direct bearing on the viability of many IRWMP objectives and strategies. Therefore, projects were proposed to address: TDS and nitrogen management; remediation of groundwater contamination; water supply; surface water quality improvement; and groundwater and surface water quality monitoring.

3.6.1.4 Ecosystem Restoration and Environmental Improvement

The third objective for the region is for protecting and restoring, where possible, the ecological functions of the watershed. Restoration is defined as the reestablishment of structure and function to the Santa Ana River watershed ecosystems. As this is accomplished, the natural biological attributes of the system return, such as native plants, fish, birds and other wildlife, which enriches the quality of life for everyone. The foundation of this objective is in collaboration amongst stakeholders to effectively integrate and coordinate their resources.

The strategies for ecosystem restoration and environment improvement include: habitat protections, restoration and enhancement; land use planning; and recreation and public access. Taken together, these strategies will enable stakeholders to advance the objective, as well as provide other benefits to the watershed, such as improved water quality, increased water supply, increased dry-year water supply reliability, increased groundwater storage, improved flood control and storm water management, and greater public education and awareness that is critical for the long-term stewardship of the watershed.

3.6.1.5 Upper Santa Ana River Watershed IRWMP Benefits

Full implementation of the IRWMP will result in multiple benefits associated with meeting the above objectives, which is directly applicable to the Western IRWMP from both a stakeholder perspective and form a collaborative planning and policy-making document, resulting in:

- Significant improvement in water supply reliability during drought periods while reducing reliance on imported water.
- Improved and coordinated management of the region's surface water and groundwater resources, including conjunctive management of groundwater and surface water resources and recharge of groundwater basins.
- Improved water quality through effective management of groundwater resources, expediting clean up process of contaminant plumes in the region, and improving storm water management.
- Enhancement of water-dependent environmental assets.
- Improved water-related education, recreation, and public access opportunities in the region.
- Improved understanding of the region's water resources, including focused regional monitoring to ensure groundwater is used in a sustainable manner.
- Improved coordination of water management activities of the region through sharing of ideas and mutually beneficial management of project opportunities.
- Coordinated development of water management strategies and associated projects.

3.7 Other Regional Planning Efforts

3.7.1 Chino Basin Planning

3.7.1.1 Chino Basin Optimum Basin Management Plan

Part of the adjudication of the Chino Basin, described in Section 2.2.5.4.3, included development of the Chino Basin Optimum Basin Management Plan (OBMP) that is described in greater detail below.

The Watermaster Advisory Committee was established as the policy setting body, charged with oversight of the Watermaster discretionary activities including decisions affecting more than one of the three pool committees. A fundamental premise of the court judgment is that all Chino Basin water users will be allowed to pump sufficient water from the Basin to meet their requirements. If a user's pumping exceeds their share of the safe yield, assessments will be levied by the Watermaster to replace the overproduction.

The Watermaster developed the Chino Basin OBMP and, upon completion, specific tasks and activities were assigned to the Watermaster to provide legal and engineering services that

support the Watermaster in the implementation of the OBMP. The OBMP consists of nine key elements covering a wide-range of water activity in the Basin. These elements are:

- **Program Element 1 - Comprehensive Monitoring:** A groundwater monitoring program that consists of an initial survey and a long-term monitoring effort to collect water quality data and water quality samples from production wells in the Basin under the supervision of the Regional Water Quality Control Board (RWQCB). This multi-task program involves groundwater level monitoring, groundwater quality monitoring, production monitoring, surface water discharge and quality monitoring, and well construction, abandonment, and destruction monitoring.

- **Program Element 2 - Comprehensive Recharge:** Various recharge facilities that develop a physical recharge capacity to balance long-term production and recharge to provide for both quantity and quality water supply needs for producers.

- **Program Element 3 - Water Supply Plan for Impaired Areas:** This plan would develop a combined urban water usage to increase water demands and maintain safe yield in the Basin.

- **Program Element 4 - Management Zone Strategies:** This element would develop an interim management plan to minimize subsidence and fissuring while developing a more effective long-term management plan to balance the production and recharge in the management zones.

- **Program Element 5 - Regional Supplemental Water Program:** This element would complete a water facilities plan to expand the Chino I Desalter and to construct the Chino II Desalter to maintain groundwater production with more efficient treatment as water supply increases.

- **Program Element 6 - Cooperative Program:** This program element would develop and implement cooperative programs that involve the Regional Board and other agencies to improve basin management.

- **Program Element 7 - Salt Management Program:** These programs were established to eliminate some of the water quality management problems encountered in the Basin. Following the formation of an ad hoc committee that reviewed the cooperative strategies set forth by the Regional Water Board, monitoring of the nitrogen salt management activities demonstrated water quality improvement have been initiated.

- **Program Element 8 - Groundwater Storage Management:** The Groundwater Storage Management Program is intended to accommodate substantial increases in groundwater storage by local and outside agencies. The Dry Year Yield (DYY) program involves development of up to 100,000 acre-feet of storage in cooperation with the MWD, and is the first program leading to the ultimate development of a half-million acre-feet of Basin storage. Elements of the DYY program include design improvements in wellheads; initiation of engineering and environmental design; and completion of a grant-funded monitoring program that provided data needed for design. Treatment facilities and up to eight new wells are expected to be constructed for the DYY. The groundwater storage

management program is linked closely to the Storage and Recovery Program detailed below.

- **Program Element 9 - Storage and Recovery Program:** These programs are anticipated to develop storage and recovery to ensure water and storage capacity for maximum beneficial use without having any major effect on producers and the Basin. This program is meant to establish an operational storage requirement, with safe storage, safe storage capacity, and a local storage agreement to protect all parties of their rights in accordance with the Judgment as it applies to the implementation of the OBMP. This program explores development of storage beyond the DYY program consisting of up to 350,000 AF of in-lieu storage, and 500,000 AF in a Conjunctive Use program. Elements of this program include conducting an Inventory of Facilities required for groundwater production, transmission, and treatment, along with developing a Storage and Recovery Model to accurately evaluate storage and recovery alternatives.

As the Watermaster continues to develop the OBMP, it is imperative to complete the recharge element, which is one of the main components of the OBMP. The development and implementation of the recharge plan and applicable projects is required to increase the recharge capacity of the Basin and to accumulate greater quantities of water. The final element, of course, is to make that water readily accessible to water consumers.

3.7.1.2 Chino Basin Desalter Authority

After SAWPA completed construction of the Chino I Desalter in 2000, ownership and operation of the Chino I Desalter was transferred to the Chino Basin Desalter Authority (CBDA), a Joint Powers Authority made up of the water purchasers and the Inland Empire Utilities Agency, in February 2002. A subsequent project by CBDA was initiated to expand the Chino I desalter by 5 MGD by April 2005 and to construct a new 10-MGD Chino II Desalter by early 2005. This expansion of the Chino groundwater desalting program is proceeding under the CDBA, financed in part with $48M in funds from the Southern California Integrated Watershed Program, to increase the salt removal and cleanup of the basin. An expansion of the Chino II Desalter from 10 to 20.5 MGD is under planning and design as of Spring 2008; this expansion is partially funded by grants applied for and received by Western, City of Ontario, and other agencies. One of the critical benefits to the Chino Basin of the desalters is providing the ability to maintain hydraulic control by reducing the discharge of lower quality groundwater into the Santa Ana River.

3.7.2 Santa Margarita Watershed Management Plan

As described in the January 2005 Santa Margarita River watershed Redrafted Watershed Management Plan, the stakeholders agreed to the following goals, which reflect the modifications made during stakeholder meetings and workshops (Anchor et al. 2004).

General Goals

Goal 1. Promote interagency coordination, organizational efficiency and consistency by coordinating research, planning, and monitoring efforts, sharing information, and identifying mandated, priority, and time-sensitive issues.

Goal 2. Promote community awareness of, and interest and participation in, stewardship of the natural, cultural, recreational, agricultural, water, and open space resources of the watershed.

Goal 3. Balance public and individual landowner interests with resource protection goals.

Water Supply Goals

Goal 4. Reduce dependence on imported water without damaging local water resources.

Land Use and Flood Control Goals

Goal 5. Minimize the risk of loss of life and property from flooding while protecting floodplain values.

Goal 6. Promote land use practices that reduce excess erosion, minimize negative water quality impacts, and conserve water and natural resources.

Goal 7. Manage stream corridors and floodplains for multiple uses including wildlife habitat, recreation, flood attenuation, water quality improvement, groundwater recharge, aesthetics and open space.

Recreation, Open Space and Habitat Goals

Goal 8. Maintain, sustain, and restore the key natural and cultural resources of the watershed.

Goal 9. Provide compatible recreational and public access opportunities.

Goal 10. Ensure the viability of critical ecosystems.

3.7.3 Southern California Comprehensive Water Reclamation and Reuse Study

The Southern California Comprehensive Water Reclamation and Reuse Study (SCCWRRS) Study was initiated by the U.S. Bureau of Reclamation (USBR) in partnership with the California DWR, Central Basin and West Basin Municipal Water Districts, City of Los Angeles, City of San Diego, MWD, SDCWA, SAWPA, and South Orange County Reclamation Authority. The goal of the SCCWRRS was to identify regional water recycling opportunities and was completed in 2002. Four regions identified in the process included the LA Basin (Los Angeles and eastern Ventura Counties), Orange County, San Diego, and the Inland Empire, which are the western

portions of Riverside and San Bernardino Counties. This summary focuses on the opportunities within the Inland Empire region identified in Western's service area.

Western, Corona, Riverside, and EVMWD participated in the Project Advisory Committees for the Inland Empire region. The SCCWRRS considered basin plan objectives, as well as salinity management issues that led to consideration of desalters and brine lines to improve recycled water quality. Short-term implementation projects, scheduled to be implemented in the 2010 timeframe for Western's service area, were identified for:

- Regional recycled water projects:
  - Western Riverside County Wastewater Treatment Plant,
  - EVMWD Regional Wastewater Reclamation Facility (WWRF)
  - EVMWD Railroad Canyon WWRF
  - RCWD Santa Rosa Water Reclamation Facility

- Individual agency projects:
  - Corona Wastewater Treatment Plants (WWTP) Nos. 1, 2, and 3
  - Riverside Regional Water Quality Control Plant
  - March Air Reserve Base recycled water projects

Long-term (i.e., 2040) plans include expansion of the short-term implementation projects and further interconnection of the regional projects.

3.7.4 San Jacinto River Integrated Regional Watershed Management Plan

The San Jacinto River Basin is 770 square miles in area and is located mainly within Riverside County approximately 80 miles east of Los Angeles. The southwestern tip of the watershed is located in Orange County. The San Jacinto River is a tributary to the Santa Ana River via Lake Elsinore and the Temescal Wash. The San Jacinto River watershed is served by two major water suppliers, EMWD and Western.

SAWPA has developed an Integrated Watershed Plan (IWP) that covers the greater Santa Ana watershed and addresses watershed management issues in an integrated fashion within the larger Santa Ana watershed. In addition, the San Jacinto Integrated Regional Watershed Management Plan (San Jacinto IRWMP) was completed by the San Jacinto River Watershed Council in December 2007 to specifically address the San Jacinto River Watershed and the watershed related needs of its stakeholders consisting of agriculture, dairy, city, county, water agency, environmental, and tribal interests, among others. The San Jacinto IRWMP is a complementary planning process that will build upon the work already completed by watershed stakeholders participating in the SAWPA planning process. The San Jacinto IRWMP provides additional in-depth planning that will further enhance the SAWPA planning process and focus on issues unique to the San Jacinto Watershed.

Objectives in the San Jacinto IRWMP were developed through a stakeholder process whereby the group evaluated a set of previous objectives identified by the San Jacinto River Watershed Council in 2001 and updated and augmented them to reflect current watershed challenges and priorities. The objectives were organized within the framework of the 10 Resource Management

Strategies that are based on SAWPA's 10 Planning Pillars from its OWOW IRWMP planning effort. The identified 10 Resource Management Strategies are the following:

1. Improve surface and ground water quality
2. Ensure the long-term viability of water supplies
3. Provide adequate stormwater and flood control
4. Protect, enhance, and create habitat for wildlife
5. Manage land use to protect natural resources and watershed character
6. Promote water recycling
7. Expand water conservation programs
8. Enhance opportunities for parks, recreation, and open space
9. Weigh environmental justice concerns in watershed decision-making
10. Explore opportunities to address climate change issues with watershed projects

Section 4: Water Supply, Demand, Quality, and Environmental Issues in Western Riverside County

This section summarizes the water supply, demand, and quality within Western's service area as well as some of the key environmental issues occurring within Western Riverside County that may apply to water supply and water resource issues.

4.1 Water Supply

A brief summary of the potable and recycled water supplies is necessary to evaluate whether water reliability projects are needed. This section describes the existing and projected potable water supplies within Western's service area.

4.1.1 Existing Water Supply and Reliability

Water demands in Western's service area are currently met by four sources: groundwater, imported water, recycled water, and surface water. For the wholesale and retail agencies within Western's service area, the total available water supply for the year 2005, including MWD imported water, groundwater, recycled water, and surface water sources, is approximately 267,700 AFY.

4.1.2 Water Supply Projections

Projected supply source quantities for each water agency within Western are listed in Table 4-1. All water supply source information, obtained from Western's wholesale agencies, is listed on an average annual basis and in AFY. Note that while the water demand totals included only direct use demands, the water supply values reflect both direct use and additional water accepted for recharge or storage, unless the latter quantity is expected to be used to serve a consumptive demand in the agency the same year.

The four primary water supply sources for Western's water agencies are groundwater, imported water, recycled water, and surface water, each of which is discussed in greater detail below.

4.1.2.1 Local Groundwater

Groundwater continues to be the primary water supply source available to Western and its agencies accounting for approximately 54 percent of the total water supply, or 252,000 AFY for the year 2025. By the year 2050, groundwater is estimated to comprise approximately 52 percent of total water demands, or 263,000 AFY.

This critical supply source, however, has been threatened by degraded groundwater quality, mostly due to high TDS and nitrates. Western, SAWPA, and other agencies are currently implementing projects and programs to treat the groundwater supplies for drinking water quality and to help protect existing groundwater supply to meet future demands.

Groundwater production is supported by incidental and artificial recharge of recycled water, desalted water, raw imported water, and storm water supplies. Groundwater production levels are expected to gradually increase by modification of operational rules of existing facilities, providing new facilities, salvaging presently impaired groundwater by installing well head and regional treatment systems, and new sources of water for replenishment (e.g., recycled water). In the future, groundwater production, particularly from desalters may be limited by capacity in brine disposal facilities. Therefore, future water management may require additional brine concentration or disposal facilities.

Groundwater replenishment occurs both naturally and within constructed groundwater recharge and replenishment facilities within the basin. Replenishment facilities percolate or inject storm water, recycled water, and/or raw imported water. Currently, no agencies (having adjudicated groundwater basins) except for RCWD, have used available replenishment water from MWD for their groundwater basins, storing the groundwater for times when imported water is not available. RCWD has used raw imported MWD water in combination with local surface water to recharge their percolation ponds at VDC and replenish the groundwater basin.

The groundwater basins are discussed in detail in Sections 2.2.5 and 2.3.5, but generally, there are nine groundwater basins that are within Western's wholesale agency boundaries. These are the Chino Basin, San Bernardino Basin Area, Colton, Arlington, Riverside North, Riverside South, Elsinore, Temescal, and Santa Margarita. These nine basins are also grouped together into the following management zones:

- San Bernardino Valley and Yucaipa/Beaumont Plains (includes San Bernardino Basin Area groundwater basin)
- Chino, Rialto-Colton, and Riverside Basins (includes Chino, Rialto, Colton, Riverside North, and Riverside South groundwater basins)
- Elsinore and Temescal Valleys (includes the Elsinore and Temescal groundwater basins)
- Santa Margarita Basin (includes the Murrieta-Temecula basin)

As discussed in Section 2, most of the groundwater basins are either adjudicated and therefore, each agency has a known quantity of supply they can expect each year, or the basin is being managed to avoid litigation and overdraft of the basin.

Replenishment facilities percolate or inject storm water, recycled water, and/or raw imported water. For example, in the City of Corona, desalted water is included in the groundwater supply quantity because it is obtained from the treatment of the Temescal basin groundwater. RCWD recharges the Pauba aquifer at the VDC spreading basins with a combination of imported water from MWD and local surface water from Vail Lake as discussed in Section 2.

In all the water quantities listed in Table 4-1, desalted water is included as part of the groundwater supply. This is done to avoid the potential double counting of desalted water that is not a new water supply but rather a form of advanced water treatment.

The JCSD and the City of Norco have access to water from the Chino I and Chino II Desalters. This supply is included in each of the agency's groundwater supply. Also, the City of Norco obtains supply from the Arlington Desalter. The City of Corona's supply includes the Temescal Desalter.

Groundwater Yield

As indicated earlier, many of the groundwater basins are adjudicated and already have yield estimates as well as monitoring and management activities in place. However, there are studies underway for some of the nonadjudicated basins as follows:

- San Bernardino Basin Area (Bunker Hill) – Although the SBBA is an adjudicated basin, the SBVMWD prepared the Upper Santa Ana River Watershed IRWMP to provide a regional groundwater management plan in an effort to increase the yield of the basin through conjunctive management of the basin.

- Riverside Basins – The City of Riverside is embarking on a groundwater study of the Riverside Basins to better understand the characteristics of the aquifer as well as to estimate yields and management opportunities.

- Arlington Basin – Western has initiated a study of the Arlington Basin to assess the potential to pump and desalt more water in the future, after the Arlington Desalter has been expanded. The pumping would have to occur within the yield of the Arlington Basin.

- Temescal Basin – The City of Corona has recently started preparation of an AB3030 Groundwater Management Plan which will estimate groundwater aquifer yield as well as propose management options including conjunctive use. A Notice of Intent to prepare an AB3030 plan was adopted in June 2006. Plan preparation is estimated to be complete in late 2008.

4.1.2.2 Imported Water

Western purchases MWD water and is a wholesale provider to ten domestic water purveyors. About one-quarter of the water Western purchases from the MWD comes from the Colorado River Aqueduct and about three-quarters from the State Water Project, which transports water from Northern California via the California Aqueduct.

For Western's wholesale customers, treated imported water is delivered through MWD's Mills WTP and Skinner WTP. Imported raw water is delivered through MWD's Lower Feeder. Treated water from the Mills WTP is either pumped into the 1837 pressure zone or gravity fed into the Mills Gravity Line for distribution to wholesale customers. Western also delivers water treated at the Skinner WTP to RCWD, EVMWD and the Murrieta Division. When available, Western can purchase water from the City of Riverside at the Mockingbird Pump Station (Mockingbird). Quantities from Mockingbird have been limited in the past based on available supplies, the capacity of the City of Riverside's distribution system, and water quality considerations.

All imported water meets primary drinking water standards, but certain supplies are higher in salinity and some other secondary drinking water standards. MWD indicates that there are no water quality risks from the imported supplies that cannot be mitigated through treatment or blending.

MWD's Board approved a Salinity Management Policy on April 13, 1999. The policy set a goal of achieving salinity concentrations in delivered water of less than 500 mg/L TDS. At the same time, the Board adopted an Action Plan consisting of the following four components:

1. Imported water source control and salinity reduction actions;
2. Distribution system salinity management actions;
3. Collaborative actions with other agencies; and
4. Local salinity management actions to protect groundwater and recycled water supplies.

Within Metropolitan's service area, local water sources account for approximately half of the salt loading, and imported water accounts for the remainder. All of these sources must be managed appropriately to sustain water quality and supply reliability goals. The following sections discuss the current salinity situation for each of Metropolitan's major imported supply sources.

It should be noted that based on Resolution R8-2004-0001, in some areas of the Santa Ana River Watershed, within Western's boundaries, the 500 mg/L TDS is not sufficiently restrictive to meet wastewater discharge requirements for TDS.

Imported water is the second largest water supply source to Western, accounting for approximately 33 percent of the total water demands, or 89,400 AFY for the year 2005. By 2030, imported water will comprise approximately 35 percent of total water demands, or 173,400 AFY, and in 2050, 35 percent or 177,200 AFY, respectively. MWD's CRA and the Department of Water Resources' (DWR) California Aqueduct provide imported water to Western. Western has historically relied solely on MWD for imported water. According to MWD, Western imported approximately 33 percent of total water consumption, in recent years. MWD's IWRP update emphasizes the goals of reducing dry-year dependence on supplies from the California Aqueduct and increasing reliance on groundwater storage. These goals are consistent with those of Western.

MWD's primary goal is to provide reliable water supplies to meet the water needs of its service area. In the past, the delivery of water to the MWD's member agencies has been nearly 100 percent reliable; however, as existing imported water supplies from the Colorado River and State Water Project face increasing challenges, the reliability of deliveries from these sources continues to decline. MWD has improved the reliability of these sources by incorporating both groundwater and surface water storage into their facilities. MWD's IWRP indicates that MWD intends to provide for 100 percent supply reliability through 2025.

4.1.2.2.1 SWP

As discussed in MWD's 2005 Regional Urban Water Management Plan (RUWMP), the SWP provides a high quality water supply. The key water quality issues found in water from the State Water Project are total organic carbon, bromides, and salinity. Water supplies from the SWP

have significantly lower TDS concentrations than water from the Colorado River, averaging 250 mg/L in water supplied through the East Branch which supplies Western's service area.

However, the TDS concentrations in SWP water can also vary, reflecting seasonal and tidal flow patterns. For example, in the 1977 drought, the salinity of SWP water reaching MWD increased to 430 mg/L, and supplies became limited. During this same event, salinity at the SWP's Banks pumping plant exceeded 700 mg/L. Under similar circumstances, Metropolitan's 500 mg/L salinity objective could only be achieved by reducing imported water from the CRA. Thus, it may not always be possible to maintain both the salinity objective and water supply reliability unless salinity concentrations in source supplies can be reduced.

TDS objectives in Article 19 of the SWP Water Service Contract specify a ten-year average of 220 mg/L and a maximum monthly average of 440 mg/L. These objectives have not been met, and MWD is working with DWR and other agencies on programs aimed at reducing salinity in Delta supplies. These programs are intended to improve salinity in the San Joaquin River by modifying agricultural drainage and developing comprehensive basin plans. In addition, studies are underway to evaluate the benefits to salinity reduction of modifying levees in Franks Tract and other flooded islands in the Delta.

As discussed earlier, because of the lower salinity, MWD blends SWP water with high salinity Colorado River Aqueduct (CRA) water to reduce the salinity concentrations of delivered water. MWD is working to protect the water quality of the SWP source, but it has needed to upgrade its water treatment plants to deal adequately with disinfection byproducts (DBPs). The DBPs are the result of total organic carbon and bromide levels in the source water which may place some near term restrictions on Metropolitan's ability to use State Water Project water.

MWD expects this treatment restriction to be overcome in the next few years, and other than this, MWD does not expect any water quality restrictions on available water supplies from this source over the study period.

The SWP supplies two-thirds of the State's population with a portion of its water supply and provides water to irrigate, in part, 600,000 acres of agriculture. In 2007, DWR issued a Draft of the State Water Project Delivery Reliability Report which presents DWR's current information regarding the annual water delivery reliability of the SWP. This analysis assumes the percentages from DWR's 2005 Reliability Report, and will be updated to the 2007 percentages when that report is finalized. The draft report discussed what water supply delivery reliability is, how it can be modeled and evaluated, as well as how individual water contractors can use this information. It also considers the Delta Smelt ruling and climate change in its analysis. Using the CALSIM model for the SWP, DWR concluded in draft report that the average Table A delivery value is projected to increase by only 3 to 6 percentage points, from 63 percent to 66 to 69 percent over the next 20 years. Table A summarizes the amount of water contracted by each SWP contractor. During maximum hydrologic years, Table A deliveries are likely to be 100 percent while in drought years they could be as low as 6 to 7 percent for single dry years. For longer drought periods (4-years), deliveries range between 32 and 37 percent.

TABLE 4-1
CURRENT AND PROJECTED WATER SOURCES DURING NORMAL YEAR CONDITIONS
2005-2050 FOR AGENCIES WITHIN WESTERN (AFY)

Agency	2005	2010	2015	2020	2025	2030
Box Springs MWC[a]						
Groundwater	451	515	579	643	707	800 (est)
Recycled Water	0	0	0	0	0	0
Imported Water	120	120	120	120	120	120
Total Normal Year Water Supply	571	635	699	763	827	920
City of Corona[b]						
Groundwater (including desalters)	23,622	23,650	23,650	23,650	23,650	23,650
Recycled Water	1,120	7,910	13,560	18,645	18,645	18,645
Imported Water	19,742	24,850	27,250	28,700	31,000	33,850
Total Normal Year Water Supply	44,484	56,410	64,460	70,995	73,295	76,145
City of Norco[c]						
Groundwater (including desalters)	8,700	9,000	9,275	9,550	9,825	10,100
Recycled Water	0	800	800	800	800	800
Imported Water (via Corona)	0	0	0	0	0	0
Total Normal Year Water Supply	8,700	9,800	10,075	10,350	10,625	10,900
City of Riverside[d]						
Groundwater[d]	72,033	87,421	87,421	94,421	94,421	94,421
Recycled Water	1,680	4,520	7,360	10,200	10,200	10,200
Imported Water	2,300	3,800	5,300	6,800	8,300	9,800
Local Surface Water	0	2,000	2,000	2,000	2,000	2,000
Total Normal Year Water Supply	76,013	97,741	102,081	113,421	114,921	116,421
Eagle Valley MWC[e]						
Groundwater	0	0	0	0	0	0
Recycled Water	0	0	0	0	0	0
Imported Water	1,025	1,025	1,025	1,025	1,025	1,025
Total Normal Year Water Supply	1,025	1,025	1,025	1,025	1,025	1,025
EVMWD[f]						
Surface Water (Canyon Lake)	2,700	2,700	2,700	2,700	2,700	2,700
Groundwater	5,500	5,500	5,500	5,500	5,500	5,500
Recycled Water	2,468	5,379	8,289	11,200	11,200	11,200
Imported Water	17,725	23,587	28,042	32,272	39,398	45,000 (est)
Total Normal Year Water Supply	28,393	37,166	44,531	51,672	58,798	64,400
EWD[g]						
Groundwater	200	200	200	200	200	200
Recycled Water	0	0	0	0	0	0
Imported Water	528	573	618	664	709	800
Total Normal Year Water Supply	728	773	818	864	909	1,000
Home Gardens CWD[h]						
Groundwater	134	134	134	134	134	134
Recycled Water	0	0	0	0	0	0
Imported Water	366	491	491	491	491	491
Total Normal Year Water Supply	500	625	625	625	625	625

Agency	2005	2010	2015	2020	2025	2030
Lee Lake Water District[i]						
Groundwater	0	0	0	0	0	0
Recycled Water	0	0	0	0	0	0
Imported Water	3,474	6,275	6,501	6,727	6,953	8,082
Total Normal Year Water Supply	3,474	6,275	6,501	6,727	6,953	8,082
RCWD[j]						
Groundwater & Recharge	19,000	19,000	19,000	28,000	28,000	28,000
Recycled Water	3,350	3,945	4,545	4,945	12,150	12,600
Imported Water	16,500	19,655	16,205	10,005	7,005	10,350
Total Normal Year Water Supply	38,850	42,600	39,750	42,950	47,155	50,950
Western North and South Retail[k]						
Groundwater (from SBBA)	0	0	10,000	40,000	40,000	40,000
Recycled Water	450	2,680	3,850	4,430	5,210	6,130
Imported Water	26,688	31,007	35,726	41,278	47,809	55,491
Total Normal Year Water Supply	27,138	33,867	49,576	85,708	93,019	101,621
Western - Murrieta Division[l]						
Groundwater	2,500	3,000	3,000	2,600	3,000	3,000
Recycled Water	0	0	0	0	0	0
Imported Water	0	1,000	2,500	4,400	4,400	4,400
Total Normal Year Water Supply	2,500	4,000	5,500	7,000	7,400	7,400
Jurupa CSD[m]						
Groundwater (including desalters)	21,337	22,229	25,029	27,229	29,229	35,000
Recycled Water	0	0	0	0	0	0
Imported Water	2,000	2,500	5,000	5,000	5,000	5,000
Transfer from Rubidoux/Other	1,000	1,000	1,000	1,000	1,000	1,000
Total Normal Year Water Supply	24,337	25,729	31,029	33,229	35,229	41,000
Riverside Highlands WC[n]						
Groundwater	4,500	6,500	7,000	7,000	7,000	7,000
Recycled Water	0	0	0	0	0	0
Imported Water	0	0	0	0	0	0
Total Normal Year Water Supply	4,500	6,500	7,000	7,000	7,000	7,000
Rubidoux CSD[o]						
Groundwater	7,520	9,120	9,820	10,520	10,600	10,600
Recycled Water	0	0	0	0	0	0
Imported Water	0	0	0	0	0	0
Total Normal Year Water Supply	7,520	9,120	9,820	10,520	10,600	10,600
Total	**267,708**	**331,061**	**372,465**	**441,824**	**467,356**	**497,064**
Groundwater Total	165,497	186,269	200,608	249,447	252,266	258,405
Imported Water Total	89,443	113,858	127,753	136,457	151,185	173,384
Recycled Water Total	9,068	25,234	38,404	50,220	58,205	59,575
Local Surface Water/Transfers/Other Total	3,700	5,700	5,700	5,700	5,700	5,700

Notes:

(a) Source: "Box Springs Mutual Water Company History and Master Plan," prepared by Western, April 2001.

(b) Source: Personal communication with City's consulting engineer. Projections based on upcoming Groundwater Management Plan.

(c) Source: "City of Norco Water Facilities Master Plan", 2001 and personal communication with City staff.

(d) Source: "City of Riverside Water Supply Plan", 2004 and Riverside 2005 UWMP. Recycled water projections may be revised to match projections provided in Table 4-2. Groundwater includes 52,000 AFY of allocation from the San Bernardino Basin Area outside of the Western Service Area.
(e) Source: Webb Associates and "City of Corona Water Master Plan", 1995.
(f) Source: "EVMWD District-wide Water Supply Assessment", 2002?, "EVMWD Distribution System Master Plan," 2002, prepared by MWH; EVMWD "Urban Water Management Plan", 2000; "John Laing Homes Development Water Supply Assessment" prepared by MWH, October 2003. Please note, these projections will be updated with EVMWD 2005 UWMP before completion of the Final IRWMP Update.
(g) Source: Letter from Webb Associates, 2004. Phone call to EWD.
(h) Source: Phone call to General Manager.
(i) Source: "LLWD Water System Master Plan Update", 2004. Waiting response from Jeff Pape, may be revised before Final IRWMP update.
(j) Source: "RCWD Urban Water Management Plan", 2005.
(k) Source: "Western North Added Facilities Area Master Plan" 2004, "Western South Added Facilities Area Master Plan" 2004, "Western Urban Water Management Plan" 2005
(l) Source: Murrieta County Water District "Water System Facilities Master Plan" 2004, Murrieta County Water District "Urban Water Management Plan" 2002.
(m) Source: "Jurupa Community Services District Existing and Projected Water Demand and Supply" supplied by Webb Associates, "JCSD Urban Water Management Plan" 2005. Currently, planning to add recycled water as source beyond 2010, however, at this time no estimates of recycled water supply or demand are available.
(n) Source: Phone call to General Manager.
(o) Source: "Rubidoux CSD Urban Water Management Plan" 2002.

Water supply reliability in California is being affected by both by the 2007 ruling regarding the protection of delta smelt, and the effects of climate change. On August 31, 2007, a U.S. District Judge ruled that the SWP was in violation of the federal Endangered Species Act because it is threatening the existence of the Delta smelt, a fish species living in the Sacramento Delta. To help protect the species, the Judge ordered water imports from the north to be cut by up to 35 percent from the SWP and the Central Valley Project, until the Biological Opinion for the species can be prepared. SWP allocations for 2008 are anticipated to be lower than average, and could foreseeably be as low as the Judge's initial ruling.

In July 2006, DWR issued "Progress on Incorporating Climate Change into Management of California's Water Resources," as required by Executive Order S-3-05, which instituted biennial reports on potential climate change effects on several areas, including water resources. The report, whose purpose is to demonstrate how various analytical tools currently used by DWR could be used to address issues related to climate change, focuses on assessment methodologies and preliminary study results from four climate change scenarios.

Potential impacts of climate change are presented for the SWP and for the Sacramento-San Joaquin Delta, both of which are related to the Western service area's imported water supplies. Since much of Western's service area relies on imported SWP supplies as part of its overall supply mix, any reduction or change in the timing of availability of those supplies could have negative impacts on the water supply of the region. Reductions in the quantity of SWP water available would force Western to rely more heavily on local groundwater and local surface flows, or other sources of imported water. It is possible that local surface flows could also be reduced by changes in snow pack altitude levels and/or quantity of snow pack in the mountains from global warming, which would reduce natural recharge, thus exacerbating groundwater availability problems.

The SWP analysis presents potential impacts on SWP operations, including reservoir inflows, delivery reliability, and average annual carryover storage, as well as many other operational parameters. The analysis assumes forecast levels of climate change in year 2050, with 2020 land use levels. Some of the main impacts include changes to south of Delta Table A Amount deliveries (from an increase of about 1 percent in a wetter scenario to about a 10 percent reduction for a drier climate change scenario), increased winter runoff and lower Table A allocations in the three driest climate change scenarios, lower carryover storage in drier scenarios, and higher carryover storage in a wetter scenario.

4.1.2.2.2 Assembly Bill 32: Global Warming Solutions Act

A recent legislative development in California is the passing of Assembly Bill (AB) 32, Global Warming Solutions Act. The Global Warming Solutions Act of 2006 has committed California to reducing the state's greenhouse gas emissions to 2000 levels by 2010 (approximately 11 percent below business as usual), to 1990 levels by 2020 (approximately 25 percent below business as usual), and to 80 percent below 1990 levels by 2050. The California Air Resources Board (CARB) is charged with developing the appropriate regulations and reporting system to effectively implement the caps on emissions. AB 32 requires that CARB use the following principles to implement the caps: distribute benefits and costs equitably; ensure that there are no direct, indirect, or cumulative increases in air pollution in local communities; protect entities that have reduced their emissions through actions prior to this mandate; and allow for coordination with other states and countries to reduce emissions. Counties, cities, water

agencies, water purveyors, and water consumers can all expect to be affected by this legislation.

As heavily documented by the media in recent months, climate change has large consequences for California's water supply and environment, including reduced snow pack in the Sierra Nevada Mountains, sea level rise, flash floods, drought, reduced supply from the Colorado River, etc. To curb these devastating effects, actions ranging from assessments of one's carbon footprint and carbon trading, to use of alternative energies, to reduction of emissions through direct conservation of both water and energy, for example, will likely be expected of many organizations and even individuals dealing directly and indirectly with water throughout the state.

4.1.2.2.3 Colorado River

MWD's 2005 RUWMP notes that high salinity levels represent the most serious current problem associated with Colorado River supplies. Water imported via the CRA has the highest level of salinity of all of MWD's sources of supply, averaging around 630 mg/L since 1976. During the high water flows of 1983-1986, salinity levels in the CRA dropped to a historic low of 525 mg/L. However, during the 1987-1992 drought, higher salinity levels of 600 to 650 mg/L returned. Once again, the current drought in the Colorado River Watershed has seen a return to higher levels, with TDS in Lake Havasu measured at 674 mg/L in June 2005. In addition, MWD is working to protect against threats from uranium, perchlorate and hexavalent chromium.

High salinity levels on the Colorado could require membrane treatment, particularly for delivery to areas where water quality (salinity) is paramount. MWD fully expects its source protection efforts to be successful, so the only foreseeable water quality constraint to the use of Colorado River water will be the need to blend (mix) it with State Water Project supplies to meet the adopted salinity standards.

The salts in the Colorado River System are indigenous and pervasive, mostly resulting from saline sediments in the Basin that were deposited in prehistoric marine environments. The saline sediments are easily eroded, dissolved, and transported into the river system. The Colorado River Basin Salinity Control Program is designed to prevent a portion of this abundant salt supply from moving into the river system. The program targets the interception and control of non-point sources, such as surface runoff, as well as wastewater and saline hot springs.

Western receives imported water from the Colorado River and delivers it to the City of Corona, Rancho California Water District, Western – Murrieta Division, and EVMWD. The higher TDS (approximately 550 to 700 mg/L) of the Colorado River water supply is problematic from a wastewater discharge perspective as discussed earlier in the water quality section.

The Colorado River Compact was signed in 1922 states that are traversed by the Colorado River or its tributaries based on an annual flow estimate of the Colorado River. The flows were split between the Upper and Lower Basin states. California is a Lower Basin state along with Arizona, Nevada, New Mexico and Utah.

California agencies using Colorado River water include large agricultural water users that use a large portion of the water and have a higher priority to the water over urban users. Agricultural users are Palo Verde Irrigation District, the Yuma Project, Imperial Irrigation District, and the

Coachella Valley Water District as well as urban water users such as MWD and San Diego County and the City of San Diego.

Prior to 2001 and for many years, all California Colorado River users have depended on surplus water to meet its water needs—and to supplement its basic apportionment of 4.4 million AFY which were thought to be solidified in the 1930s when a number of agencies signed water delivery contracts with the Secretary of the Interior. Increased development and recent drought conditions in the Upper Basin States has increased the conflict over the Colorado River water and has limited California's ability to take surplus water. It appears that the Colorado River Compact was based on a wetter hydrology than the current one.

On January 16, 2001, outgoing Secretary of the Interior Bruce Babbitt signed a document establishing interim guidelines for determining when surplus Colorado River water would be available for California, Nevada, and Arizona. The criteria will be in effect for 15 years, giving California a greater certainty of supply and a transitional period in which to further develop water conservation, recycling, storage, and transfer programs that will wean the state from an over reliance on the Colorado River.

The agricultural entities described above hold the first three priorities to the use of no more than 3.85 million AF under the water delivery contracts. MWD was allotted 550,000 AFY under a fourth priority right and 662,000 AFY under a fifth priority right. (The City of San Diego and San Diego County conveyed their water rights to MWD.) MWD holds a contract to divert additional 180,000 AF of surplus water on an annual basis.

Water from the Colorado River is delivered into MWD's service area via the Colorado River Aqueduct (CRA). Between 1986 and 1999, the amount of water unused by agriculture and available to MWD has varied from zero to more than 500,000 AF. Because of increased use in the Upper Basin States, MWD's total diversions could eventually decline to its fourth priority right of 550,000 AFY plus water available from a conservation program with Imperial Irrigation District and a groundwater storage program with the Central Arizona Water Conservation District. Any water left unused by other California contractors with a higher priority than MWD would also be available.

In addition to the potential supply available to MWD from the unused portion of California's normal apportionment, the Secretary of the Interior can allow MWD to divert water that is unused by Arizona and Nevada, as well as surplus water. In years in which surplus water is available, MWD would have the highest priority of any California contractor to divert that water by virtue of its fifth priority right.

Significant effort is now underway in Southern California to reduce demands on Colorado River water through water recycling, conservation, and development of local supplies.

4.1.3 Water Supply Reliability

Western, as a member agency of the Metropolitan Water District of Southern California, receives imported water from both the SWP and the Colorado River. The following paragraphs provide information on the reliability of these supplies.

The primary factors affecting SWP supply availability include hydrology, the amount of water in SWP storage at the beginning of the year, regulatory and operational constraints, and the total amount of water requested by SWP contractors. Urban SWP contractors' requests for SWP water, which were low in the early years of the SWP, have been steadily increasing over time, which increases the competition for limited SWP dry-year supplies.

As discussed earlier in Section 4.1.2.2.1, the "*State Water Project Delivery Reliability Report,"* prepared by DWR assists SWP contractors in assessing the reliability of the SWP component of their overall supplies. In the 2005 update, DWR provided a recommended set of analyses for SWP contractors to use in preparing their 2005 Urban Water Management Plans. These analyses indicate that the SWP, using existing facilities operated under then current regulatory and operational constraints could deliver 77 percent of contract supplies on a long term average basis. These analyses also project that SWP deliveries during multiple-year dry periods could average about 25 to 40 percent of total SWP contract amounts and could possibly be as low as 5 percent during an unusually dry single year. During wetter years, or more than 25 percent of the time, 100 percent of full contract amounts is projected to be available. A draft update of the *State Water Project Delivery Reliability Report* was released for public review in late January 2008. A final report is anticipated after April 2008.

In addition to climate variability, imported water is also subject to regulatory and legal challenges. The Sacramento-San Joaquin Delta (Delta) is the focal point for water management, ecosystem restoration, land use planning, and other major initiatives in California and is the "hub" for SWP water (SWP water is the primary source of imported water in the Region). Because this IRWMP region receives imported water coming from the Delta, it is very important to the IRWMP process that stakeholders and the general public have an understanding of the key issues affecting the Delta. These issues include: water supply reliability, water quality, ecosystem restoration, levee system integrity, and recreation.

Water quality in the Delta is negatively affected by multiple constituents such as salinity, mercury, dissolved oxygen, organic carbon, selenium, pesticides, and toxicity of unknown origin. Further complications are apparent when considering the declining health of the Delta ecosystem and the reduction of aquatic and terrestrial habitat. Water diversions, toxic pollutants, and the introduction of exotic species continue to degrade the quality of the habitat that remains. Some solutions, such as conversion of agricultural land to accommodate ecosystem improvements and programs that provide water flow and timing requirements, place constraints upon farmers who rely upon the land for economic survival, as well as on the contractors who must meet the water demand of the southern part of the state.

The need to balance multiple competing uses is apparent when evaluating this issue. The integrity and maintenance of the complex levee system in the Delta is another major concern. Levee failures lead to inundation and destruction of agricultural lands and result in increased salinity necessitating the shut down of export pumps. Finally, the use of the Delta for recreational purposes has increased in popularity coincident with the growing state population. The estimates of recreation use (over 12 million recreational user days per year) indicate that this factor is a key component in the management of Delta resources. There are a number of processes underway intended to arrive at solutions to balance these competing needs for the Delta.

As discussed earlier in Section 4.1.2.2.1, a December 2007 federal court decision requires that DWR curtail pumping from the Delta to protect the endangered Delta smelt. DWR estimates that, depending on Delta smelt migration patterns and precipitation, pumping could be reduced by 25 to 30 percent until new federal biological permits are obtained. Future water deliveries out of the Delta will depend on conditions in those new federal permits.

The Colorado River, another source of imported water, is experiencing a protracted multi-year drought which began in October 1999. Inflow to Lake Powell provides a useful barometer of drought conditions in the Colorado River Basin. In the late 1990's, inflow to Lake Powell was above average and the lake stayed full from 1995 through 1999. Between 2000 and 2007 inflow to Lake Powell was below average in all but one year (2005). Year 2002 inflow was the lowest ever recorded since Lake Powell began filling in 1963. Total unregulated inflow to Lake Powell as of February 2008 is 84 percent of average. However, because California has the senior water right priority on the Colorado River, if there is a shortage declaration and cutback, the shortages are first applied to Arizona and Nevada. Only in the event of a severe shortage (~24 percent or greater) is California subject to cutbacks in Colorado River supplies. While such as cutback is possible, modeling suggests a less than 1 percent chance of that level of cutback over the next 20 years. In its water planning, Metropolitan has assumed its Colorado River supplies are not at risk from shortage for the next 20 years.

4.1.3.1 Recycled Water

Recycled water currently, accounts for approximately 3 percent of the total water demands, or 9,100 AFY for the year 2005. By the year 2030, recycled water is estimated to increase to approximately 12 percent of total water demands, or 59,600 AFY.

Recycled water as a source of water for the Santa Ana Watershed was evaluated in the 2008 Draft SAWPA One Water, One Watershed Water Recycling Pillar. Currently, approximately 11,900 AFY of recycled water are utilized within Western, although there is the capacity to treat over 81,646 AFY. Uses of recycled water include: groundwater recharge, municipal, agricultural irrigation, habitat and environmental, industrial, and lake stabilization.

Sources of recycled water for the Region and their capacities for 2005 are presented in Table 4-2.

TABLE 4-2
SUMMARY OF RECYCLED WATER

Agency/Facility	2005 Plant Capacity (AFY)	2005 Plant Flows (AFY)	2005 Recycled Water Used (AFY)	2030 Plant Capacity (AFY)	2030 Plant Flows (AFY)	2030 Recycled Water Used (AFY)
City of Corona						
City of Corona WWTP No. 1	12,876	10,237	2,066	16,235	12,992	11,312
City of Corona WWTP No. 3	1,120	455	455	1,120	896	896
Total Recycled Water	13,996	10,692	2,521	17,355	13,888	12,208
City of Riverside						
City of Riverside Regional Water Quality Control Plant	44,840	38,100	1,680	67,400	67,400	10,200
Total Recycled Water	44,840	38,100	1,680	67,400	67,400	10,200
EVMWD						
EVMWD- Regional Wastewater Reclamation Plant	8,964	5,782	5,782	17,929	16,808	16,808
EVMWD- Railroad Canyon WWRP	1,457	872	872	2,241	2,241	2,241
EVMWD- Horsethief Canyon WWRP	560	468	468	---	---	---
EVMWD- Alberhill Regional Wastewater Facility	---	---	---	5,603	5,042	5,042
Total Recycled Water	10,981	7,122	7,122	25,773	24,091	24,091
Lee Lake Water District						
Lee Lake Water District	1,759	667	40	2,520	1,568	1,180
Total Recycled Water	1,759	667	40	2,520	1,568	1,180
WMWD North and South Retail						
WMWD March Wastewater Reclamation Facility	1,120	560	560	5,600	4,000	4,000
Western Riverside County Regional Wastewater Authority WWTP	8,950	6,000	---	18,000	16,800	6,000
Total Recycled Water	10,070	6,560	560	23,600	20,800	10,000
Grand Total	**81,646**	**63,141**	**11,923**	**136,648**	**127,747**	**57,679**

Notes: Source: 2008 Draft SAWPA "One Valley, One Watershed Recycled Water Pillar."
(a) Includes combined use from all EMWD plants.

City of Corona: The City of Corona owns and operates three WWTPs: WWTP 1A, WWTP 1B, and WWTP 3 for a total capacity of 15 MGD. Corona currently uses recycled water for irrigation at parks, local golf courses and landscape maintenance. Treated effluent not reclaimed is discharged to Temescal Creek or sent to percolation ponds for groundwater recharge. To date, Corona has constructed $44 million worth of pumping and distribution facilities to serve recycled water to a major portion of the City. Future recycled water facilities would provide flexibility in the distribution system and additional groundwater recharge opportunities.

City of Norco: The City of Norco does not operate its own WWTP, however, they are served recycled water through the Western Riverside County Regional Wastewater Authority (WRCRWA) WWTP. Currently, Norco has constructed over seven miles of recycled water pipeline, a small reservoir, and pump station with capacity to deliver up to 895 AFY of recycled water. As of Spring 2008, recycled water deliveries are limited by the completion of a segment of pipeline to connect the WRCRWA WWTP to the remainder of the distribution system. The design of this segment of pipeline over the Santa Ana River in a planned bridge is under way.

City of Riverside: The City of Riverside is served by the Regional Water Quality Control Plant (RWQCP), which consists of two secondary treatment, one tertiary treatment, and sludge handling facilities. This WWTP also serves Edgemont, Jurupa, and Rubidoux. Discharges from this WWTP (approximately 11,500 AFY) also are delivered to Hidden Valley Wetlands Enhancement Project for nutrient removal and environmental enhancement. JCSD plans to deliver recycled water from the RWQCP for non potable uses in the future.

EVMWD: EVMWD's Regional WWTP discharges tertiary treated effluent into Lake Elsinore and Temescal Creek. In 2005 the facilities secondary biological process was upgraded to achieve a TIN of less than 10 mg/L. The Horsethief Canyon WWTP will be replaced by the Alberhill WWTP in 2015. Effluent will be used for irrigation at parks, green belts, and median strips. EVMWD also has prepared final design for Phase 1 of the Wildomar recycled water project that uses recycled water conveyed in the Temecula Valley Regional Recycled Water pipeline through EVMWD. Additional phases of the Wildomar project are planned for the near future.

Lee Lake WD: Lee Lake Water District owns and operates three WWTPs, only one of which has reclamation facilities. The tertiary treated effluent is used for landscape irrigation and other non-consumptive purposes.

Western Retail: The WMWD retail area is served by two WWTPs. The March WWTP is planned for expansion to 3 MGD by 2009 and will provide tertiary treated recycled water for landscape irrigation. Currently the facility provides secondary treated effluent to the Riverside National Cemetery and General Archie J. Old Golf Course. The Western Riverside County Regional Authority WWTP currently produces 8 MGD of tertiary treated effluent to the Santa Ana River. However, future expansions could include provided recycled water to the City of Norco and JCSD.

4.1.3.2 Local Surface Water, Transfers and Other Supplies

Surface water is the smallest water supply source to Western, accounting for approximately 1 percent of the total water demands, or 3,700 AFY for the year 2005. This demand will increase by 2,000 AFY in 2010 and then remain constant throughout the planning horizon. The source of this local surface water is the San Jacinto River and surrounding streams, which flows

to EVMWD's Canyon Lake. EVMWD is the only wholesale agency with local surface water. The water is stored in Canyon Lake and is being supplied by the San Jacinto River. 2,700 AFY is the average annual flow supplied to the lake over the last ten (10) years.

RCWD has surface water potentially available from Vail Lake, but the surface water and ground water which supports surface water" have been under some form of court jurisdiction since 1928. The Santa Margarita River Watershed is under the jurisdiction of the United States District Court, Southern Division. (RCWD 2005 UWMP) as discussed in Section 2.3.4.3 . JCSD noted some transfers from other agencies as well as other unnamed supplies.

4.1.4 Ability to Meet Projected Demands Under Normal Conditions

As shown at the bottom of Table 4-1, the total supply for Western exceeds the total projected demand as shown in Table 4-3. Therefore, under normal supply conditions shortages are not expected to occur now or in the future.

Western Retail Supply is assumed to come entirely from MWD's Mills WTP. When available, Western can purchase available water (2,000 AFY is projected) from the City of Riverside at the Mockingbird PS. Quantities have been limited in the past based on available supplies, the capacity of the City's distribution system, and water quality considerations. (North, 2004)

The 2005 UWMP for the Western Retail service area estimated up to 40,000 AFY supplied from the SBBA via the Riverside-Corona Feeder Project, starting in 2015, and 450 AFY of recycled water from MARB, also in 2005. The remaining supply would be met by MWD.

Implementation of the water management strategies described in Section 5 of this IRWMP are intended to meet project demands in the future and under dry year conditions.

4.1.5 Water Supply and Infrastructure Vulnerability

One of the main areas of vulnerability that Western and its member agencies have is water supply infrastructure vulnerability. This vulnerability is particularly high for portions of Western that rely on a single source of imported water such as Western's retail service area and Lee Lake WD. Although MWD has committed to providing water supply for its customers for the next 20 years, this reliability is based on total annual supply, not necessarily on daily peak delivery. MWD acknowledges that delivering peak period water is challenging for its water treatment and treated water conveyance infrastructure. Therefore, should there be a routing or emergency shutdown of MWD's treatment or treated water conveyance infrastructure, there are areas within Western that are significantly challenged to meet the demands.

This vulnerability is increased when a broader view of the regional and statewide infrastructure is reviewed. MWD's SWP water supply comes from the Sacramento San Joaquin Bay Delta (Bay Delta). MWD acknowledges the potential for salt water intrusion to occur in the Bay Delta. Recent evaluation of the Bay Delta levee system has indicated that it is also extremely vulnerable to major seismic events. Although the probability of a levee failure is quite low, the consequence is extremely high. Recent estimates by DWR indicate that levee failures and the resultant salt water intrusion into the Bay –Delta could result in either reduction or shutdown of water exports from the Delta for months, if not years. (Southwest Hydrology, March/April 2006)

As has been discussed in Section 4.1.2.2.1, restricted deliveries from the Delta are already resulting from the need to meet environmental water demands such as for the delta smelt.

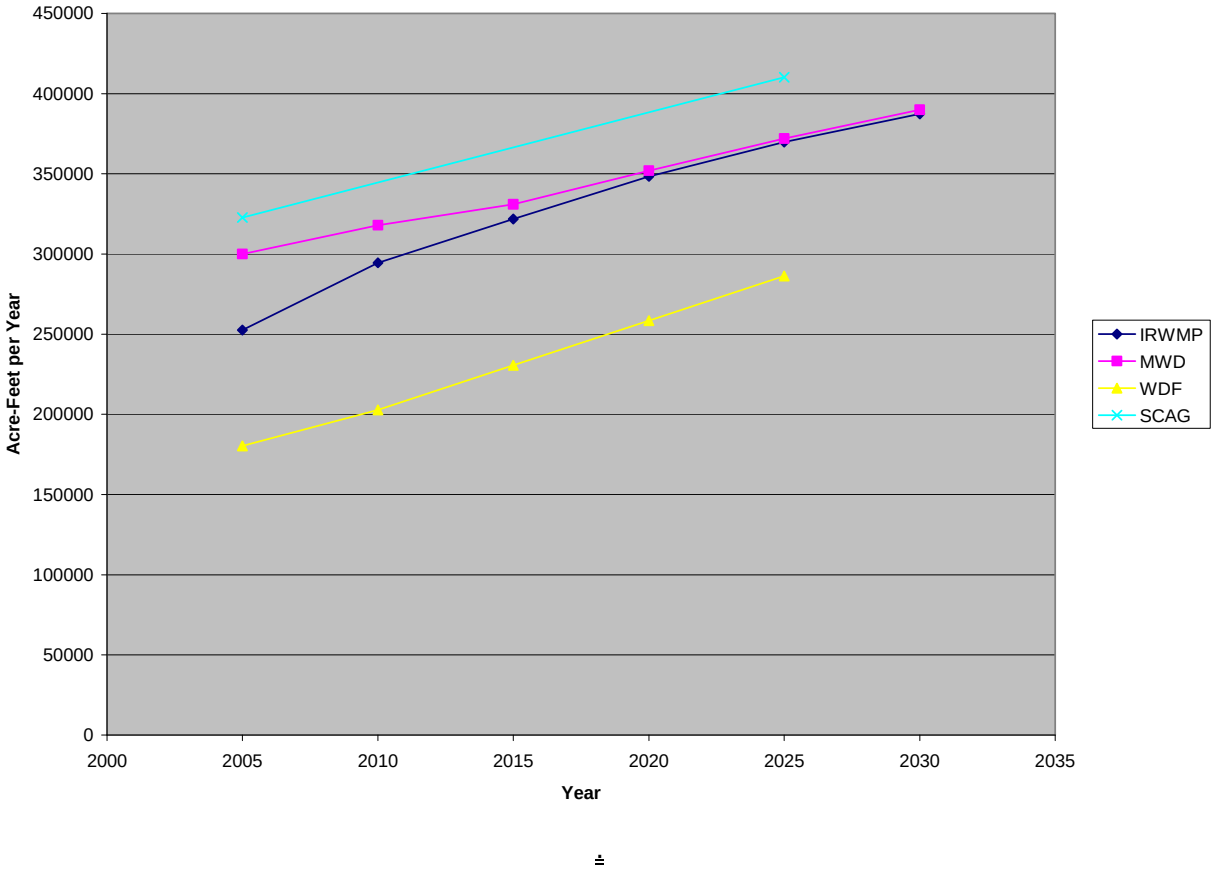
More regional vulnerabilities include seismic outages in some MWD and DWR's main raw water conveyances such as DWR's East Branch of the SWP or MWD's Inland Feeder or Santa Ana Valley Pipeline, all of which cross the San Jacinto Fault Zone, one of the major branches of the San Andreas Fault Zone.

Implementation of Integrated Regional Water Management Planning concepts and development of local storage and supply sources can help reduce the risks associated with the infrastructure vulnerabilities described above as well as address supply vulnerabilities.

4.2 Water Demand

This section briefly summarizes potable water demand projections to evaluate the need for water reliability projects. The most recent information provided by the agency is used to describe the existing and projected potable water demands within Western's service area. It also provides a comparison among other projections conducted for the region such as the geographic information system (GIS) based projections based on General Plan land use and water duty factors for land uses prepared by Western. Figure 4-1 provides a comparison of the existing projection to other projections (including the preliminary GIS ultimate water demand projections) developed for the region as discussed in sections that follow.

FIGURE 4-1
DEMAND PROJECTION COMPARISON



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4.2.1 Existing Projection

Western serves ten wholesale customers as well as Western's retail service areas with Colorado River and State Water Project water. In addition, Western serves imported water directly to more than approximately 24,000 domestic and 130 irrigation connections that are located in the unincorporated and non-water bearing areas around Lake Mathews and portions of the City of Riverside and Murrieta. The ten wholesale customers served by Western with Colorado River and State Water Project water via MWD are as follows:

- Box Springs Mutual Water Company
- City of Corona
- City of Norco
- City of Riverside
- Eagle Valley Mutual Water Company
- Elsinore Valley Municipal Water District
- Elsinore Water District (water from Western is supplied via EVMWD's connection)
- Home Gardens County Water District
- Lee Lake Water District
- Rancho California Water District
- Jurupa Community Services District (includes Santa Ana River Water Company)[(a)]

Note: (a) JCSD receives water through Corona and Norco and does not purchase water directly from Western.

In addition, Western operates and maintains domestic and industrial wastewater collection and conveyance systems for retail and contract service customers in Lake Hills, March Air Reserve Base (MARB), Home Gardens, and Norco.

Western also has a retail service area that includes the North and South Retail areas. The North area includes a portion of the City of Riverside and unincorporated portions of Riverside County, including the areas known as Woodcrest, Orange Crest, Mission Grove, Victoria Grove, and Lake Hills. Water demand from MARB, March Joint Powers Authority (MJPA), and Box Springs Mutual Water Company (BSMWC), has been included to the North area. The South Area, includes unincorporated portions of Riverside County, incorporating Western's Improvement Districts 2, 4 and U-3 and areas known as Lake Mathews and Gavilan Hills. In addition, in 2005, Western took ownership of the Murrieta County Water District as a separate retail service area, now called the Murrieta Division.

The following water agencies are within Western boundaries but are generally self-sufficient for water supply and currently do not rely on Western for supply.

- Riverside Highlands Water Company
- Rubidoux Community Services District

Existing gross water demands, based on production rather than consumption, were gathered from each Western agency receiving imported water and Western's retail areas. These demands represent only the areas within Western's boundary; portions served by other wholesale agencies, such as the RCWD's Rancho Division (located in Eastern Municipal Water District's boundary), were not included.

The total demand for Western's wholesale and retail area for 2005 was 252,600 AF, as shown in Table 4-3. About 240,555 AF was for agencies receiving imported water. The majority of the agencies receiving imported water also pump groundwater, use recycled water and local surface water to diversify their water supply portfolio as previously described.

Ultimate total water demands (normal year), including wholesale and retail areas, is projected to be 422,705 AFY. Overall Western gross water demands including wholesale and retail areas, show a 17 percent, 46 percent, and 67 percent increase (from the base year 2005) for 2010, 2025, and 2050 respectively.

Total projected normal year water demand for Western's from 2005 to the assumed buildout year of 2050 is summarized in Table 4-3. The portion of demand served by groundwater is based on historic production data. The gross water demand projections were obtained from each agency's own internal planning departments and from the local retail water agencies within Western's boundaries, rather than from MWD's water demand projections for Western's member agencies.

Many factors affect future demands such as population growth, economic conditions, and hydrologic conditions, to name just a few. By estimating water demands over the next 50 years, Western agencies are ensuring that reliable and economic sources of water will be available to their customers in the future. It is important to note that demand refers to direct use water demands within each wholesale agency and are based on production, rather than consumption. These direct demands are used to meet residential, municipal, commercial, agricultural needs, and unaccounted-for water. Water demand forecasts were based largely upon planning tools, such as urban water management plans, water facility master plans, water master plans, as well as planning staff input from each of the individual Western wholesale agencies.

For some agencies, conclusive data was not available to complete the demand table. In this case, the following assumptions were used to calculate the projected demands:

- Ultimate buildout was defined to occur at 2050, unless the date was defined by the agency in its planning documents.
- The population was projected from 2025 to 2050 using the population projections from the California Department of Finance, County of Riverside.
- Demands were projected linearly according to population growth from the final demand projection provided in the agency's planning documents.

TABLE 4-3
CURRENT AND PROJECTED GROSS WATER DEMANDS FOR WESTERN SERVICE AREA DURING NORMAL YEAR CONDITIONS 2005-2050 (AFY)

Agency	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050 – Ultimate[p]
Box Springs MWC[a]	571	635	699	763	827	890	954	1,018	1,082	1,146
City of Corona[b]	45,000	49,320	54,585	54,585	54,585	54,585	54,585	54,585	54,585	54,585
City of Norco[c]	8,700	9,000	9,275	9,550	9,825	10,100	10,100	10,100	10,100	10,100
City of Riverside[d]	77,529	85,231	91,048	95,858	99,835	104,374	105,172	106,224	107,286	108,359
Eagle Valley MWC[e]	1,025	1,025	1,025	1,025	1,025	1,025	1,025	1,025	1,025	1,025
EVMWD[f]	28,393	37,166	44,531	51,672	58,798	60,680	62,561	64,443	66,324	68,206
EWD[g]	728	773	818	864	909	955	1,000	1,000	1,000	1,000
Home Gardens CWD[h]	500	625	625	625	625	625	625	625	625	625
Lee Lake Water District[i]	3,474	6,275	6,501	6,727	6,953	7,178	7,404	7,630	7,856	8,082
RCWD[j]	22,793	25,600	28,350	31,075	33,950	36,800	39,600	42,400	45,178	47,958
Western North and South Retail Areas[k]	26,688	31,007	35,726	41,278	47,809	55,491	58,000	61,000	64,000	67,000
Western - Murrieta Division[l]	2,500	4,000	5,500	7,000	7,400	7,400	7,400	7,400	7,400	7,400
Jurupa CSD[m]	22,654	28,287	26,323	29,816	29,619	29,619	29,619	29,619	29,619	29,619
Riverside Highlands WC[n]	4,500	6,500	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000
Rubidoux CSD[o]	7,520	9,120	9,820	10,520	10,600	10,600	10,600	10,600	10,600	10,600
Total	252,575	294,564	321,826	348,358	369,760	387,322	395,645	404,669	413,680	422,705

Notes:

(a) Source: "Box Springs Mutual Water Company History and Master Plan," prepared by Western, April 2001.
(b) Source: faxed sheets from the City of Corona's "2005 Draft Updated Water Master Plan" and the City of Corona "Urban Water Management Plan," 2005.
(c) Source: "City of Norco Water Facilities Master Plan," 2001.
(d) Source: "City of Riverside Urban Water Management Plan," 2005. Does not include Gage irrigation demands of 17,700 AFY
(e) Source: Webb Associates and "City of Corona Water Master Plan Update," 2005.
(f) Source: "EVMWD District-wide Water Supply Assessment," 2002, "EVMWD Distribution System Master Plan," 2002, prepared by MWH; EVMWD "Urban Water Management Plan," 2000; "John Laing Homes Development Water Supply Assessment" prepared by MWH, October 2003.
(g) Source: Letter from Webb Associates, 2004. Phone call to EWD.
(h) Source: Phone call to General Manager.

(i) Source: “LLWD Water System Master Plan Update,” 2004.
(j) Source: “RCWD Urban Water Management Plan,” 2005 assumed that 50 percent of all M&I demand is in Santa Rosa Division within Western. Also15 percent of ag/ag-domestic is M&I.
(k) Source: “Western North Added Facilities Area Master Plan” 2004, “Western South Added Facilities Area Master Plan” 2004, “Western Urban Water Management Plan” 2005 – Table 12. For ultimate demands, it was assumed that all agricultural or raw water demands have been converted to M&I usage.
(l) Source: Murrieta County Water District “Water System Facilities Master Plan” 2004, Murrieta County Water District “Urban Water Management Plan” 2002.
(m) Source: “Jurupa Community Services District Existing and Projected Water Demand and Supply” supplied by Webb Associates, “JCSD Urban Water Management Plan” 2005. Personal Communication with District Staff 2008.
(n) Source: Phone call to General Manager.
(o) Source: “Rubidoux CSD Urban Water Management Plan” 2002.
(p) Population projected from 2025 to 2050 using California Department of Finance County of Riverside projections and demands projected linearly according to population growth.

As described in the 2005 UWMP (Western, 2005), dry year weather may increase water demands between 2 and 4 percent (see demand Tables 44, 46, etc. in 2005 UWMP) above normal yearly demands. Accordingly, dry year water supply planning will be based on water demands that are 2 to 4 percent above the normal year demands presented in Table 4-3.

With regard to the raw data provided by Western's wholesale agencies, only the City of Riverside and EVMWD incorporated water conservation as an inherent part of their projected water demands, while the remaining water agencies did not include conservation as part of their projected water demands (Table 4-3).

4.2.1.1 Water Conservation Summary

This section summarizes the water conservation activities that have been implemented within Western's service area by Western and its member agencies. Most of the smaller retail agencies have no formal indoor or outdoor rebate programs presently in operation. Individually, their small size limits the resources available to implement such programs. Collectively the seven smallest districts constitute 12 percent of Western service connections which indicates that targeting these districts collectively could yield significant potable water savings for the Western wholesale service area.

Western is presently completing an in-depth Water Use Efficiency Master Plan (Appendix A) to better understand current practices and to develop future water conservation program strategies. Key objectives of this study are to quantify the potential for outdoor water conservation for both residential and large landscape areas, identify feasible CII account conservation programs, conduct cost-benefit analyses of selected conservation programs, and to explore financing avenues such as grants and existing rebates, that will enable Western MWD's smaller retailers to launch their own water conservation programs.

Single Family Residential (SFR) demands account for approximately 75 percent of the total potable water demand within Western MWD's wholesale service area. Further, almost 60 percent of the water used in this sector is for landscape irrigation. High irrigation water use is not uncommon in warm, dry climates, and accordingly water use per capita is very high in the region. On average, the SFR sector in Western MWD's service area uses 180 gallons per capita per day (gpcd), which is significantly greater than the typically seen planning values of 80 to 120 gpcd. This would indicate that landscape water use in the SFR sector would be an appropriate, key target for Western MWD's water use efficiency strategy. Water use within the Commercial, Industrial, and Institutional (CII) sector also comprises a significant component of Western MWD's overall water consumption (approximately 20 percent). Similar to the SFR sector, outdoor water use within the CII sector appears to be the most appropriate target area for reducing water use and improving system efficiencies. Western and many of its retailers have signed the Memorandum of Understanding Regarding Urban Water Conservation in California, which focuses on 14 different Best Management Practices (BMPs) for urban water conservation. These include actions such as household and business conservation surveys and community education programs. Overall, implementation levels across Western MWD's wholesale service area of the BMPs could be improved. Table 4-4 summarizes the status of BMP implementation for Western and its retailers.

It is estimated that the seven signatory agencies alone could achieve water savings on the order of 30,000 AFY by reaching the long-term implementation goals established through development of Western MWD's Water Use Efficiency Master Plan (see Table 4-5). This suggests that Western MWD and its retailers may benefit by focusing more on implementing proven technologies contained in existing BMPs rather than initially adopting new emerging technologies. A combination of existing BMPs and new technologies may prove fruitful, especially with the proposed Urban MOU revision approach.

TABLE 4-4
SUMMARY OF IMPLEMENTATION OF CONSERVATION PROGRAMS

	Box Springs Mutual Water Company*	Eagle Valley Mutual Water Company*	Elsinore Valley Municipal Water District	City of Norco*	City of Corona Department of Water and Power	Lee Lake Water District*	Rancho California Water District	Home Gardens County Water District*	Jurupa Community Services District	City of Riverside Public Utilities	Riverside Highland Water Company*	Rubidoux Community Services* District	Western Municipal Water District (Retail)
Urban MOU Signatory			✓		✓		✓		✓	✓		✓	✓
BMP 1: Residential Survey Programs (SFR)[(a)]			✓		✓		✓			✓			
BMP 1: Residential Survey Programs (MFR)[(a)]			✓		✓		✓						
BMP 2: Residential Plumbing Retrofit – Low-flow Showerheads[(b)]			✓		✓		✓			✓			
BMP 2: Residential Plumbing Retrofit – Toilet Flappers[(b)]			✓		✓								
BMP 2: Residential Plumbing Retrofit – Faucet Aerators[(b)]			✓		✓		✓						
BMP 3: System Water Audits[(c)]			✓		✓		✓			✓			✓
BMP 4: Metering with Commodity Rates[(d)]			✓				✓		✓	✓		✓	✓
BMP 5: Large Landscape Conservation Programs and Incentives – Surveys[(a)]			✓		✓		✓			✓			✓
BMP 5: Large Landscape Conservation and Incentives - Dedicated Irrigation Meter Accounts with Water Budgets[(e)]			✓		✓		✓			✓			✓
BMP 6: High Efficiency Washing Machine Rebate Programs[(f)]			✓		✓		✓			✓			✓

	Box Springs Mutual Water Company*	Eagle Valley Mutual Water Company*	Elsinore Valley Municipal Water District	City of Norco*	City of Corona Department of Water and Power	Lee Lake Water District*	Rancho California Water District	Home Gardens County Water District*	Jurupa Community Services District	City of Riverside Public Utilities	Riverside Highland Water Company*	Rubidoux Community Services* District	Western Municipal Water District (Retail)
BMP 7: Public Information Programs[(g)]			✓		✓		✓			✓		✓	✓
BMP 8: School Education Programs[(g)]			✓		✓		✓			✓		✓	✓
BMP 9: Conservation Programs for CII Accounts - Water Use Surveys[(a)]			✓							✓			
BMP 9: Conservation Programs for CII Accounts - ULFTs and Pre-rinse Spray Valves[(b)]							✓						✓
BMP 10: Wholesaler Agency Assistance Programs	Not applicable to retailers												
BMP 11: Retail Conservation Pricing - Water Service for Residential[(h)]			✓		✓		✓		✓	✓		✓	✓
BMP 11: Retail Conservation Pricing - Water Service for CII[(h)]			✓		✓		✓		✓	✓		✓	✓
BMP 11: Retail Conservation Pricing – Water Service for Irrigation[(h)]			✓		✓		✓		✓	NA		NA	✓
BMP 11: Retail Conservation Pricing - Sewer Service for Residential[(h)]			✓		✓		✓		✓	✓		✓	✓
BMP 11: Retail Conservation Pricing - Sewer Service for CII[(h)]			✓		✓		✓		✓	✓		✓	✓
BMP 11: Retail Conservation Pricing – Sewer Service for Irrigation[(h)]			✓		✓		NA		✓	NA		NA	NA
BMP 12: Conservation Coordinator[(i)]			✓		✓		✓			✓			✓
BMP 13: Water Waste Prohibition[(j)]			✓		✓		✓		✓	✓			✓
BMP 14: Residential Ultra-Low-Flush Toilet Replacement Programs – SFR[(b)]			✓		✓		✓			✓			✓
BMP 14: Residential Ultra-Low-Flush Toilet Replacement Programs – MFR[(b)]			✓		✓								✓

Notes:
* Agency with limited or no dedicated water conservation staff
CII: Commercial, Institutional, and Industrial; ULFT: Ultra-low-flush toilet; NA : Service not available by the agency; SFR : Single Family Residential;
MFR: Multi-family Residential
(a) ✓: The agency has started an implementation strategy for surveys and has been offering/completing surveys.

(b) ✓: The agency has been retrofitting devices through distributions/installations/rebates.
(c) ✓: The agency's unaccounted water loss was reported <10 percent.
(d) ✓: The agency's accounts are 100 percent metered; X: The agency has un-metered accounts.
(e) ✓: The agency has dedicated irrigation meter accounts with water budgets.
(f) ✓: The agency has been issuing HEW rebates.
(g) ✓: The agency has implemented the program and has been conducting public/school events.
(h) ✓: The agency has implemented a volumetric rate (uniform, increasing block, or volumetric flat rate).
(i) ✓: The agency has water conservation coordinator(s).
✓: The agency has ordinance in place although the ordinance is not imposed except for the City of Corona.

TABLE 4-5
SUMMARY OF POTENTIAL WATER SAVINGS

BMP	Program	Potential Water Savings (AFY)						
		EVMWD	Western MWD	RCWD	City of Corona	City of Riverside	RCSD	JCSD
BMP 1	Residential Water Surveys	742	748	1117	914	1594	124	594
BMP 2	Low Flow Showerheads	66	23	92	48[(a)]	-	-	51
BMP 2	Faucet Aerators	134	81	139	124[(a)]	251[(a)]	-	81
BMP 2	Toilet Flappers	604	347	708	566[(a)]	1,051[(a)]	-	788
BMP 3	Unaccounted Water	All agencies in compliance with unaccounted water losses <10%.						
BMP 4	Metering	0	0	0	2,246	0	0	0
BMP 5	Large Landscape Surveys	452	489	429	1,091	3,501	131	744
BMP 6	High-Efficiency Clothes Washers (HECWs)	284	524	341	364	489	-	147
BMP 7	Public Information	Water savings estimates are not quantifiable for BMP 7.						
BMP 8	School Education	Water savings estimates are not quantifiable for BMP 8.						
BMP 9	CII Water Use Surveys	454	498	656	1,093	3,415	131	775
BMP 10	Wholesale Agency Programs	Not applicable to retailers						
BMP 11	Water and Sewer Rate Structures	Water savings estimates are not quantifiable for BMP 11						
BMP 12	Conservation Coordinator	Water savings estimates are not quantifiable for BMP 12						
BMP 13	Conservation Pricing	Water savings estimates are not quantifiable for BMP 13						
BMP 14	Residential ULFTs	350	107	508	-	1,311	-	277
Total Water Savings Potential (AFY)		**3,086**	**2,817**	**3,990**	**5,708**	**10,310**	**386**	**3,457**
Total Water Savings Potential for Seven Agencies (AFY)		**29,754**						

Notes:
AFY: acre-feet per year
CII: Commercial, Institutional, and Industrial
"-": Not quantified due to the limited information.
ULFTs: Ultra-low-flush toilets
Water savings estimated for SFRs; water savings estimates for MFRs not quantified due to the limited information.

Upon assessment of the 14 BMPs and the variety of emerging indoor and outdoor technologies available, a short-term strategy was created to focus on which programs could be implemented

in the next five years. Western MWD currently implements a number of programs that address the BMPs, as described in Table 4-6.

TABLE 4-6
CURRENT WESTERN MWD PROGRAMS AND RECOMMENDATIONS

Program		Recommendation
BMP5	Large Landscape Surveys	Current program largely ineffective, review and develop area wide marketing strategy.
BMP 6	High Efficiency Clothes Washers	Continue existing program.
BMP 7	Public Information Programs	Develop retailer support strategy.
BMP 8	School Education Programs	Develop retailer support strategy.
BMP 9	CII Conservation Program	Develop retailer support and marketing strategy.
BMP 10	Wholesaler Agency Assistance Program	Carry out recommendations of the WUEMP.
BMP 11	Retail Conservation Pricing	Review proposed new tiered rate structure for compliance with revised BMP 11.
BMP 12	Conservation Coordinator	Consider additional staff to implement the WUEMP recommendations.

To ensure that Western MWD is in compliance with AB 1420, adopted in 2007, which states that eligibility for any water management grant or loan be conditioned upon the implementation of water demand management measures described in the urban water supplier's urban management plan, it is recommended that Western MWD develop an implementation plan to achieve compliance with all BMPs that have been determined to be locally cost-effective. Accordingly, it is recommended that Western MWD focus on implementing the following programs:

- BMP 2 – Residential Plumbing Retrofits
- BMP 4 – Metering (provide support to retailers with unmetered accounts)
- BMP 13 – Water Waste Prohibitions
- BMP 14 – Ultra-Low-Flush Toilets (High Efficiency Toilets)

In addition, and in support of this short-term strategy, Western MWD has taken a proactive approach and fast-tracked the implementation of two (2) other water conservation programs:

1. Residential Weather Based Irrigation Controllers (WBICs)
2. Audits for Public Sector Customers

Additional water conservation savings will be a necessary part of any Western MWD water supply long-term strategy program. With the legislative environment continually changing, the Governor's requirement to reduce per capita water use by 20 percent and the pending revisions to the Urban MOU, a flexible long-term strategy is required. Recommending finite programs is not considered to be appropriate in these circumstances. Instead, the general focus is on

monitoring future legislation and updates to the Urban MOU and maintaining savings achieved from existing conservation programs.

4.2.2 Baseline Projection Based on Land Use

Currently, a water demand forecast model is being developed by DCSE for the Western service area that is land-use based. This model is being developed in GIS at the parcel level to provide a very accurate representation of existing and ultimate (build-out) water demand. Based on existing data from general plans and 2007 aerial photos, each parcel was assigned a land use type. For parcels with mixed use, multiple land use types were assigned and given a percentage of the total parcel area. For existing water demand, vacant lots have no demand assigned, however, for ultimate water demand projections vacant lots were assigned a land use type based on zoning for that parcel or known developments. Once all parcels have been assigned a land use type, water demand factors for each land use type are applied.

These water demand factors were developed based on MWD documents and member agency water meter data. These demand factors can be modified per district historical water use or overrided for any parcel where exact demands are known. Additionally, each parcel may be assigned an indoor and outdoor water demand factor or have conservation assigned. The existing water demand model has been calibrated with water demand data from the agencies prior to ultimate demand projections. At any time, the land-use type and water demand factors can be changed for any parcel and the model rerun to reflect the change. This is beneficial for expansion projects (where a change in density occurs on the parcel) and for redevelopment projects (where the land use type changes for a parcel). The model can also be adjusted to account for different climate zones within the region as well as different hydrologic conditions.

Although the model can predict ultimate demand it cannot provide when build-out will occur. However, a phasing plan (either linear or based on a percentage per year) can be included and model results for each phase can be developed. Preliminary results from the model are summarized in the Table 4-7 below. The projections of the retail demand for JCSD, EVMWD, LLWD, and HGCWD were calibrated against metered data, and the overall deviation percentage is ±10%. The projections for Corona, Riverside, Norco, and RCSD are generated based on the calibrated retail Demand Factor and on the data of Table 4-3. The demand projections for the Rancho have not been generated at this time due to limitations on agricultural demand calculations in the model.

TABLE 4-7
PRELIMINARY WDF MODEL RESULTS

Agency	2005	2010	2015	2020	2025
Box Springs MWC[a]	NA	NA	NA	NA	NA
City of Corona[b]	42,446	44,792	47,724	50,657	53,589
City of Norco[c]	6,223	6,497	6,839	7,182	7,524
City of Riverside[d]	58,750	64,346	71,341	78,337	85,332
Eagle Valley MWC[e]	NA	NA	NA	NA	NA
EVMWD[f]	31,597	36,999	42,033	47,067	52,100
EWD[g]	NA	NA	NA	NA	NA
Home Gardens CWD[h]	558	598	648	698	748
Lee Lake Water District[i]	2,523	2,634	2,781	2,922	3,063
RCWD[j]	NA	NA	NA	NA	NA
Western North and South Retail Areas[k]	25,644	30,918	37,511	44,104	50,697
Western - Murrieta Division[l]	NA	NA	NA	NA	NA
Jurupa CSD[m]	23,463	25,578	27,951	30,325	32,698
Riverside Highlands WC[n]	NA	NA	NA	NA	NA
Rubidoux CSD[o]	7,984	8,486	9,114	9,742	10,369
Total	180,321	202,796	230,626	258,451	286,275

Notes: NA= demands not generated by model since no data was received.

For the year 2005, the difference between the IRWMP and WDF is approximately 28 percent less and for 2025 the difference is approximately 22 % less, These differences could be a result of the demand for the agencies not included in the WDF model that were included as part of the IRWMP projections. When, the agencies demands are subtracted from the IRWMP, the modified percent difference are 18 percent less and 10 percent less for 2005 and 2025, respectively.

4.2.3 Comparisons to MWD Demand Projections

MWD provided a projection of Western's demand under average conditions from 2005-2030, which was compared to the total demand listed in Table 4-3. Figure 4-1 illustrates the MWD IWRP vs. Western demand comparison graphically. Figure 4-1 shows that between the years of 2010-2030, the demand differences between the MWD IWRP and Western demand projections are all 6 percent or less and is the same in 2015. For the year 2005, the difference in demand is 19 percent. This larger difference is likely due to the fact that the 2005 demand projections for MWD were based on planning documents from the year 2000, instead of actual production numbers from the year as provided in Western IRWMP. Demands have increased at a more significant rate than was estimated by MWD but converge and parallel in future years.

4.2.4 Comparison to RCIP Projections

The Riverside County Integrated Plan provides water demand projections for two hydrologic regions within Riverside County: South Coast and Colorado River Regions. However, the

portion of the demand attributed to Western is not provided. Thus no direct comparison can be made to the projections used in this report.

4.2.5 Comparison to Water Rights Applications Including SCAG Projections

The Santa Ana River Water Rights Applications for Supplemental Water Supply draft EIR provides a projection of Western's water demand to 2025. This projection is based on SCAG population projections and the SAWPA 2002 report, which estimates a water demand increase of 47 percent between 2000 and 2025. This projection varies by a difference of 23 percent (322,758 AFY vs 252,575 AFY) for 2005 and approximately 11 percent (410,237 AFY vs. 369,760 AFY) for 2025 from the existing projection.

4.3 Water Quality

4.3.1 Summary

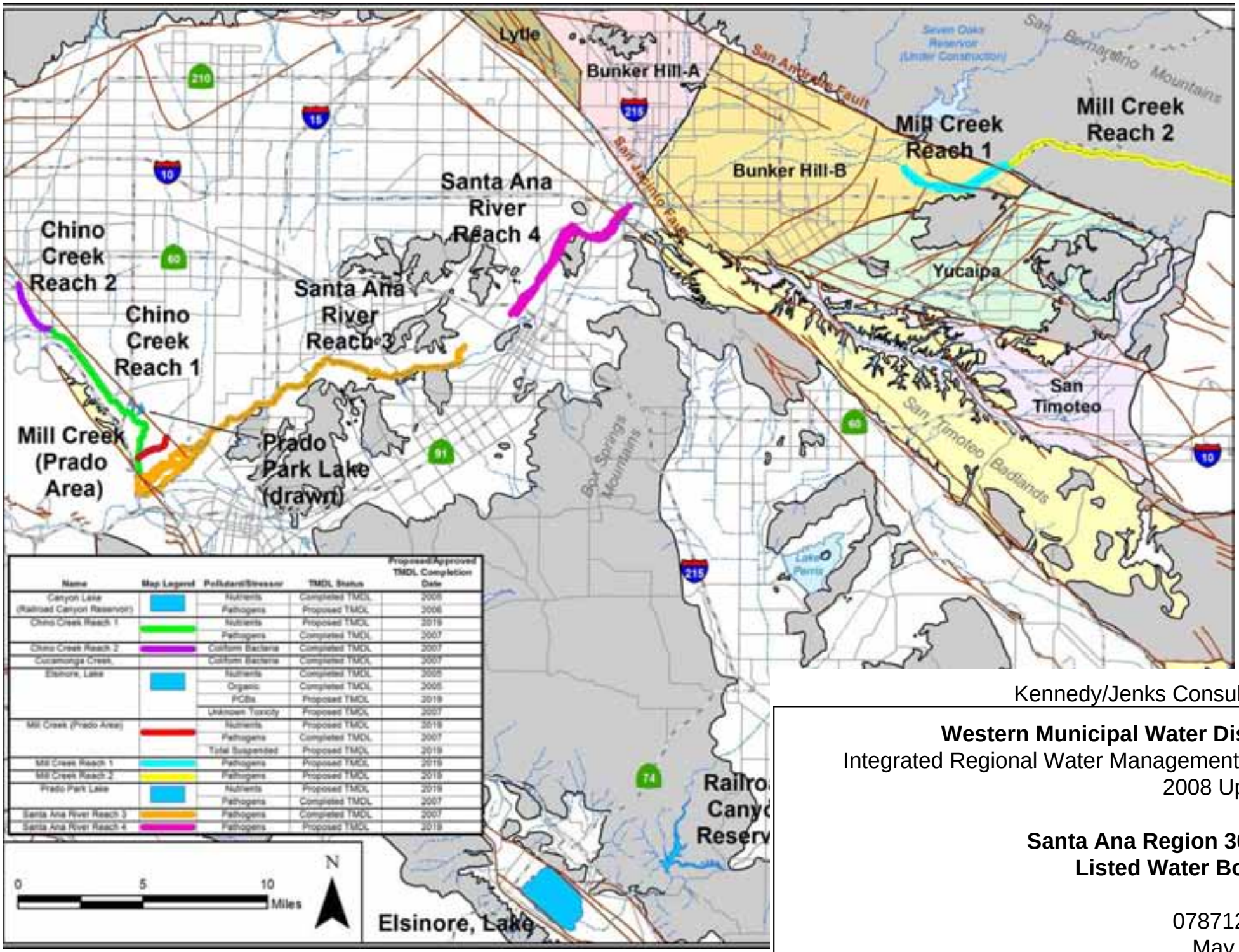
The quality of water supply, especially salinity, is a critical element in water supply planning because of the impacts it will have on wastewater discharges. Local groundwater in many of the basins are high in TIN/TDS because of prior agricultural practices and dairy farms that were prevalent, especially in Riverside County. The relationship between the various water supplies and water quality impacts are summarized below. One of the critical elements impacting water quality within Western's service area is the 2004 Regional Board's Basin Plan Amendment for Total Inorganic Nitrogen (TIN) and Total Dissolved Solids (TDS) adopted under Resolution R8-2004-0001 described below.

4.3.2 Regional Water Quality Control Boards – Santa Ana Region

Several water bodies within WMWD's service area are on the California 303(d) List of Water Quality Limited Segments and are affected by action plans to improve water quality. The listed bodies for the Santa Ana Region and their TMDL status are provided in Table 4-8 and shown on Figure 4-2.

TABLE 4-8
SANTA ANA REGION 303(D) LISTED WATER BODIES

Name	Pollutant/Stressor	TMDL Status	Proposed/Approved TMDL Completion Date
Canyon Lake (Railroad Canyon Reservoir)	Nutrients	Completed TMDL	2005
	Pathogens	Proposed TMDL	2006
Chino Creek Reach 1	Nutrients	Proposed TMDL	2019
	Pathogens	Completed TMDL	2007
Chino Creek Reach 2	Coliform Bacteria	Completed TMDL	2007
Cucamonga Creek, Valley Reach	Coliform Bacteria	Completed TMDL	2007
Elsinore, Lake	Nutrients	Completed TMDL	2005
	Organic Enrichment/Low Dissolved Oxygen	Completed TMDL	2005
	PCBs	Proposed TMDL	2019
	Unknown Toxicity	Proposed TMDL	2007
Mill Creek (Prado Area)	Nutrients	Proposed TMDL	2019
	Pathogens	Completed TMDL	2007
	Total Suspended Solids	Proposed TMDL	2019
Mill Creek Reach 1	Pathogens	Proposed TMDL	2019
Mill Creek Reach 2	Pathogens	Proposed TMDL	2019
Prado Park Lake	Nutrients	Proposed TMDL	2019
	Pathogens	Completed TMDL	2007
Santa Ana River Reach 3	Pathogens	Completed TMDL	2007
Santa Ana River Reach 4	Pathogens	Proposed TMDL	2019



Name	Map Legend	Pollutant/Stressor	TMDL Status	Proposed/Approved TMDL Completion Date
Canyon Lake (Railroad Canyon Reservoir)		Nutrients	Completed TMDL	2005
		Pathogens	Proposed TMDL	2006
Chino Creek Reach 1		Nutrients	Proposed TMDL	2019
		Pathogens	Completed TMDL	2007
Chino Creek Reach 2		Coliform Bacteria	Completed TMDL	2007
Cucamonga Creek		Coliform Bacteria	Completed TMDL	2007
Elsinore, Lake		Nutrients	Completed TMDL	2005
		Organic	Completed TMDL	2005
		PCBs	Proposed TMDL	2019
		Unknown Toxicity	Proposed TMDL	2007
Mill Creek (Prado Area)		Nutrients	Proposed TMDL	2019
		Pathogens	Completed TMDL	2007
		Total Suspended	Proposed TMDL	2019
Mill Creek Reach 1		Pathogens	Proposed TMDL	2019
Mill Creek Reach 2		Pathogens	Proposed TMDL	2019
Prado Park Lake		Nutrients	Proposed TMDL	2019
		Pathogens	Completed TMDL	2007
Santa Ana River Reach 3		Pathogens	Completed TMDL	2007
Santa Ana River Reach 4		Pathogens	Proposed TMDL	2019

Kennedy/Jenks Consultants

Western Municipal Water District
Integrated Regional Water Management Plan
2008 Update

Santa Ana Region 303(d)
Listed Water Bodies

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May 2008
Figure 4-2

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4.3.2.1 Basin Plan Update

4.3.2.1.1 TIN/TDS Basin Plan Amendment

As described in SAWPA's 2005 IRWMP, Appendix H, the purpose of the Basin Plan Amendment was to provide new TIN and TDS groundwater quality objectives based on the best science and data available; promote effective water resource management and water quality protection; and increase the reuse of recycled water to meet rapidly increasing water demands within the watershed. The Basin Plan Amendment was developed through the efforts of the Nitrogen/TDS Task Force (Task Force) formed in 1995-1996. The Task Force consisted of 22 water supply and wastewater agencies in the watershed that were coordinated by SAWPA with active participation from SARWQCB. Studies conducted by the Task Force totaled $3.5 million dollars and included review of groundwater TDS and nitrate-nitrogen objectives, groundwater sub-basin boundaries, and the TIN and TDS waste load allocations. The Basin Plan also included TDS and Nitrogen monitoring requirements for the 22 agencies with a schedule of implementation.

4.3.2.1.2 Lake Elsinore and Canyon Lake Nutrient TMDL

On December 20, 2004, the RWQCB adopted resolution R8-2004-0037 entitled, "Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Incorporate Nutrient Total Maximum Daily Loads for Lake Elsinore and Canyon Lake." This Basin Plan amendment specific numeric targets for total phosphorus, total nitrogen, chlorophyll a, and dissolved oxygen for Lake Elsinore and Canyon Lake. The numeric targets are summarized below and include:

- Annual average total phosphorus of < 0.1 mg/L by 2020
- Annual average total nitrogen of <0.75 mg/L by 2020
- Calculated ammonia concentrations not to exceed more than once in three years the acute criteria or chronic criteria.
  - Acute criteria = $0.411/(1 + 10^{(7.204-pH)})+ 58.4/(1 + 10^{(pH-7.204)})$
  - Chronic criteria = $0.0577/(1 + 10^{(7.688-pH)})+ 2.487/(1 + 10^{(pH-7.688)})* \min (2.85,1.45*10^{(0.028(25-T))})$
- Summer average chlorophyll a of < 40 micrograms/L by 2015; < 25 micrograms/L by 2020
- For Lake Elsinore: Depth average dissolved oxygen of > 5 mg/L by 2015; > 5 mg/L 1 meter above lake bottom by 2020
- For Canyon Lake: dissolved oxygen of > 5 mg/L above thermocline by 2015; daily average in hypolimnion of > 5 mg/L by 2020.

Additionally, the Basin Plan amendment establishes the following TMDLs, wasteload allocations (WLAs), and load allocations (LAs) (see Table 4-9).

TABLE 4-9
BASIN PLAN AMENDMENTS FOR LAKE ELSINORE AND CANYON LAKE

	Lake Elsinore		Canyon Lake	
Nutrient	**Total Phosphorus (kg/yr)**	**Total Nitrogen (kg/yr)**	**Total Phosphorus (kg/yr)**	**Total Nitrogen (kg/yr)**
TMDL	**28,584**	**239,025**	**8,691**	**37,735**
WLA	**3,845**	**7,791**	**487**	**6,248**
Supplemental water	3,721	7,442	48	366
Urban	124	349	306	3,974
CAFO	0	0	132	1,908
LA	**21,969**	**210,461**	**8,204**	**31,487**
Internal Sediment	21,554	197,370	4,625	13,549
Atmospheric Deposition	108	11,702	221	1,918
Agriculture	60	213	1,183	7,583
Open/Forest	178	567	2,037	3,587
Septic Systems	69	608	139	4,850
Canyon Lake Overflows	**2,770**	**20,774**	**NA**	**NA**

4.3.2.1.3 Proposed Bacterial Indicator TMDL's Basin Plan Amendment

Resolution No. RB8-2005-0001, titled "Resolution Amending the Water Quality Control Plan for the Sana Ana River Basin to Incorporate Bacterial Indicator Total Maximum Daily Loads (TMDLs) for Middle Santa Ana River Watershed Waterbodies" (Bacterial TMDL) amended the 1995 Basin Plan to include TMDLs to protect surface water bodies and preserve beneficial uses. It establishes criteria for controlling bacterial levels for waterbodies in the Middle Santa Ana River Watershed. These waterbodies are the: Santa Ana River, Reach 3; Chino Creek, Reach 1; Chino Creek, Reach 2; Mill Creek (Prado Area); Cucamonga Creek, Reach 1; and Prado Park Lake. Beneficial uses for these water bodies include water contact recreation (REC1) and non water contact recreation (REC2). Due to violations of the fecal coliform objectives required to preserve these beneficial uses, these water bodies have been listed as impaired water bodies in accordance with Section 303(d) of the Federal Clean Water Act.

Section 303(d) requires the establishment of TMDL's to address pollutants causing surface water impairment. The Bacterial TMDL specifies an implementation plan which includes compliance schedules, load allocations, as well as a monitoring program. The TMDL requires that compliance with load allocations for fecal coliform and *Escherichia coliform* (E. coli) for dry and wet seasons, to be achieved by December 31, 2015 and 2025, respectively.

The Bacterial TMDL specifies numeric targets for fecal coliform in order to preserve the water contact recreation (REC1) and non water contact (REC2) beneficial uses of Middle Santa Ana River waterbodies. These targets incorporate a 10 percent margin of safety to account for recognized uncertainties in the TMDL and are as follows:

- Fecal coliform: log mean less than 200 organisms/100 ml based on five or more samples per 30-day period and not more than 10 percent of the samples exceed 400 organisms/100ml for any 30-day period.

- E. Coli: log mean less than 126 organisms/100 ml based on five or more samples per 30-day period and not more than 10 percent of the samples exceed 235 organisms/100 ml for any 30-day period.

Additionally, TMDLs, WLAs, and LAs are specified for dry and wet weather discharges.

Dry Summer Conditions (implemented by December 2015):

- Fecal coliform: log mean less than 180 organisms/100 ml based on five or more samples per 30-day period and not more than 10 percent of the samples exceed 360 organisms/100ml for any 30-day period.

- E. Coli: log mean less than 113 organisms/100 ml based on five or more samples per 30-day period and not more than 10 percent of the samples exceed 212 organisms/100 ml for any 30-day period.

Wet Winter Conditions (implemented by December 2025):

- Fecal coliform: log mean less than 180 organisms/ 100 ml based on five or more samples per 30-day period and not more than 10 percent of the samples exceed 360 organisms/100ml for any 30-day period.

- E. Coli: log mean less than 113 organisms/100 ml based on five or more samples per 30-day period and not more than 10 percent of the samples exceed 212 organisms/100 ml for any 30-day period.

4.3.2.2 Santa Ana River Groundwater Basin Imported Water Quality Issues

As a follow-on to the 2004 Basin Plan Amendment for TIN/TDS described above, the Regional Board proposed waste discharge requirements (WDR) for Discharge of Salts Through the Injection/Percolation of Imported State Project Water, Colorado River Water or Imported Well Water to Recharge Groundwater Management Zones Within the Santa Ana Region.

An initial study and negative declaration for the proposed WDRs was prepared and circulated. The Regional Board did not adopt the proposed WDRs. Water agencies within the basin opposed the regulation of imported surface water as “waste” and a collaborative process to manage imported replenishment water has been started. A group of stakeholders, including the RWQCB, are now developing a cooperative agreement to monitor basin water quality and ensure that water importation into the basin will be consistent with sound water supply management practices.

4.3.2.3 Stormwater Quality Regulation

The Federal Water Pollution Control Act of 1972, now referred to as the Clean Water Act (CWA) provides the regulatory foundation for controlling the discharge of pollutants into surface water bodies in the United States. The CWA was amended in 1987 to include Section 402(p), which required the United States Environmental Protection Agency (USEPA) to establish a program of National Pollutant Discharge Elimination System (NPDES) permits for storm water discharges associated with industrial activities and municipal separate storm water sewer systems (MS4’s).

NPDES permits for MS4's include requirements to prohibit non-storm water discharges into the MS4 and controls to reduce pollutants in storm water discharges to the maximum extent practicable (MEP).

Section 303(d) of the CWA requires the entities, including the State of California, to develop and maintain a "303(d) List." The 303(d) List contains water bodies that are considered impaired because they do not meet water quality standards necessary to maintain designated beneficial uses as discussed in Section 4.3.2.1. The CWA requires that TMDLs be established to specify the maximum amount of a pollutant that a water body can receive and still meet water quality standards.

Within WMWD's service area, stormwater quality is addressed by the Riverside County Flood Control and Water Conservation District's (RCFCWCD) Riverside County Drainage Area Master Plan (Riverside County DAMP). The purpose of the Riverside County DAMP is to address the requirements of the MS4 NPDES Permits issued to the Riverside County Permittees by the Santa Ana Regional Water Quality Control Board in 2002 and the San Diego Regional Board in 2004. The Riverside County Permit Order No. R8-2002-0011 regulates discharges for the Santa Ana region of Riverside County, and the Riverside County, City of Murrieta, Temecula, and Riverside County Flood Control and Water Conservation District Permit Order No. R9-2004-001 regulates discharge for the portion of the Santa Margarita region within Riverside County.

Initial DAMPs for the Santa Ana River and the Santa Margarita River within Riverside County have been in place since 1996 and urban stormwater quality has been addressed through Supplement A, New Development Guidelines. The DAMP outlines the program elements, including pollutant limits, best management practices, and monitoring requirements, necessary for permitees covered by the plan to comply with NPDES permits and preserve the beneficial uses of water bodies, as listed in the 1995 Basin Plan. The DAMP is used by permittees in their development of individual ordinances, plans, policies and procedures to manage urban runoff.

The DAMP directly relates the element of land use planning to watershed management by outlining the requirements of General Plans to address watershed protection and include elements to minimize the impacts of urban runoff on water bodies by minimizing hydrology and pollutant loading, preserving wetlands, open-space, and natural areas, and promoting the use of BMPs to manage urban runoff. Additionally, CEQA processes are also required to address urban runoff issues.

4.3.2.3.1 Implementation

Of particular importance to water management, is the monitoring program element, which documents monitoring requirements and activities, as well as regional watershed-based monitoring efforts. Regional efforts include participation in the Stormwater Monitoring Coalition, Santa Margarita River Executive Management Team, San Diego Prop 13 Santa Margarita Watershed Project Team, and Water Quality Standards Task Force. The DAMP references the State Water Resources Control Board (SWRCB) 2006 303(d) list to identify impaired water bodies and water quality issues. RCFCWCD is further implementing stormwater best management practices and low impact development (LID) in the DAMP through the preparation of Water Quality Management Plans for each watershed.

4.3.3 Regional Water Quality Control Board- San Diego Region

Several water bodies within the Santa Margarita River watershed portion of WMWD's service area are on the California 303(d) List of Water Quality Limited Segments and are affected by action plans to improve water quality. The listed bodies for the San Diego Region and their TMDL status are provided in Table 4-10 and shown on Figure 4-3.

TABLE 4-10
SAN DIEGO REGION 303(D) LISTED WATER BODIES

Name	Pollutant/Stressor	TMDL Status	Proposed/Approved TMDL Completion Date
De Luz Creek	Iron	Proposed TMDL	2019
	Manganese	Proposed TMDL	2019
Murrieta Creek	Iron	Proposed TMDL	2019
	Manganese	Proposed TMDL	2019
	Nitrogen	Proposed TMDL	2019
	Sulfate	Proposed TMDL	2019
	TDS	Proposed TMDL	2019
Rainbow Creek	Nitrogen	Completed TMDL	2006
	Phosphorus	Completed TMDL	2006
	Iron	Proposed TMDL	2019
	Sulfate	Proposed TMDL	2019
	TDS	Proposed TMDL	2019
Sandia Creek	Iron	Proposed TMDL	2019
	Manganese	Proposed TMDL	2019
	Nitrogen	Proposed TMDL	2019
	Sulfate	Proposed TMDL	2019
	TDS	Proposed TMDL	2019
Santa Margarita River (Upper)	Phosphorus	Proposed TMDL	2019
Temecula Creek	Iron	Proposed TMDL	2019
	Phosphorus	Proposed TMDL	2019
	TDS	Proposed TMDL	2019

4.3.3.1 RWQCB – San Diego Region Policies

The San Diego Regional Water Quality Control Board (RWQCB) has limited the discharge of treated wastewater to the Santa Margarita River because it may cause potential downstream impacts near Camp Pendleton at the Pacific Ocean. In the portion of the Santa Margarita River Watershed within Western's boundaries, wastewater effluent is exported through Eastern Municipal Water District's Temescal Valley Regional Water Reclamation Facility (TVRWRF) pipeline. From there it flows north to a discharge point in Riverside County near the Temescal Wash.

In 1999, the RWQCB, San Diego Region began preparation of a plan for TMDLs for total nitrogen and total phosphorus on Rainbow Creek, which has in previous years shown high nitrate concentrations. On February 1, 2006, an amendment to the Basin Plan was approved to include the TMDLs. The TMDL numeric limit for nitrate as nitrogen was 10 mg/L, total nitrogen is 1.0 mg/L, and total phosphorus is 0.1 mg/L. The TMDLs of discharges into Rainbow Creek are 1,658 kg/year for nitrogen and 165 kg/year for phosphorus. Additionally, the amendment included a 74 percent reduction of total nitrogen loading and an 85 percent reduction in total phosphorus loading to Rainbow Creek to meet the TMDLs.

4.3.4 Recycled Water Policies

4.3.4.1 Department of Public Health Draft Regulation on Recharge of Groundwater

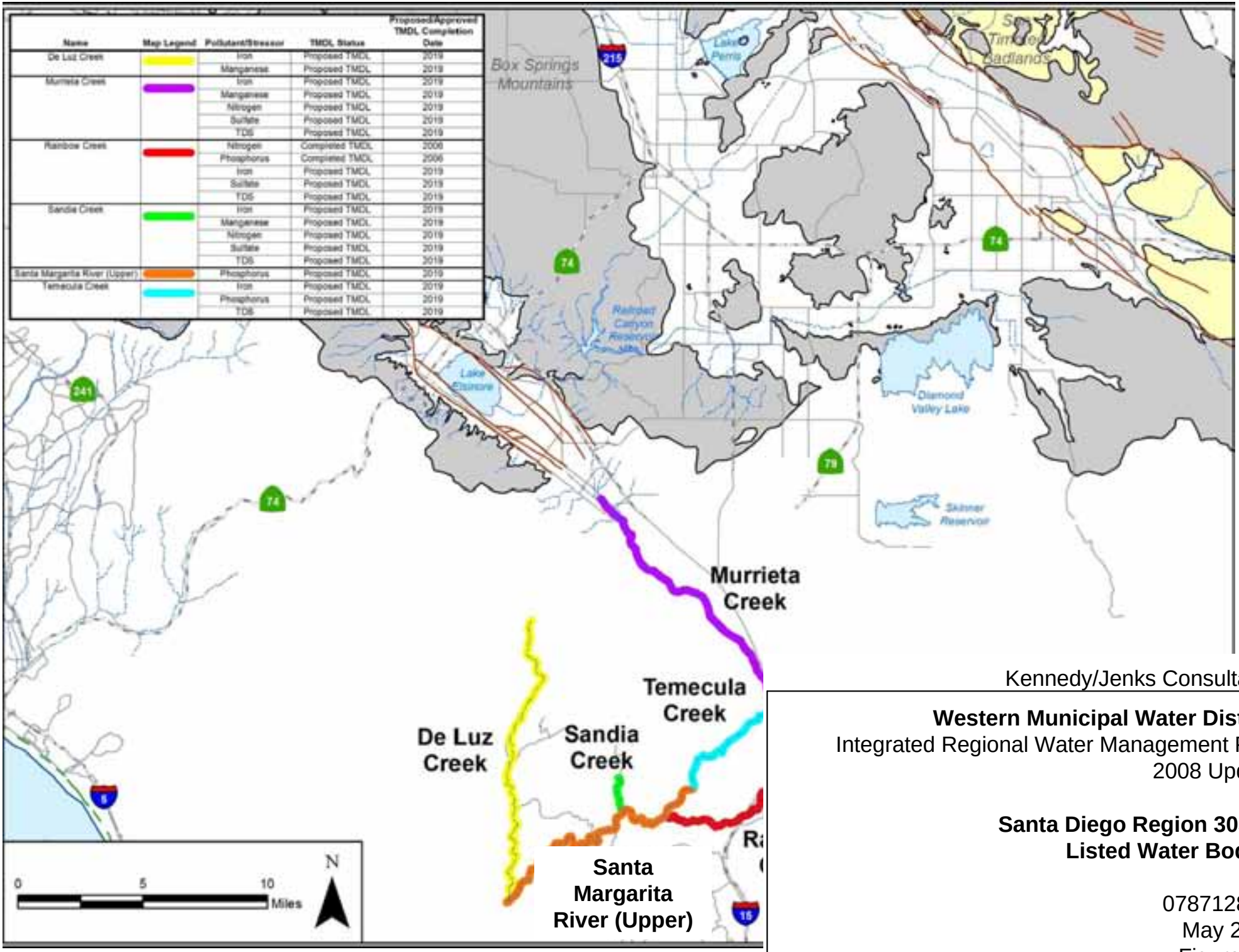
On January 4, 2007 the DPH released a Draft Regulation for Groundwater Recharge Reuse Projects.

General requirements outlined in the Draft Regulation include: recycled water sources from a wastewater management agency implementing industrial pretreatment and pollution source control programs as well as being in compliance with effluent limits; an approved alternative source plan/treatment method for any drinking water supplier whose source is degraded as a result of the GRRP; a public hearing with sufficient public notification prior to DPH's recommendation; and readily available current operations plan.

Other requirements outlined in the Draft Regulation include:

- Control of Pathogenic Microorganisms
  - Treated to meet 60301.320 and Section 60301.230
  - Surface spreading suspended and report to DPH and RWCQB if fail to meet above
  - Surface spreading requires 6 months prior to extraction and not within 500 feet of the spreading area.
  - Injection requires 12 months prior to extraction and not within 2,000 feet of the injection well.
  - If can demonstrate retention time can be achieved than can reduce distances above.

- Control of Nitrogen Compounds
  - Method 1: Sample in or above the Mound
    - Analyzed for Total Nitrogen
    - Ave: 5 mg/L Total N



Name	Map Legend	Pollutant/Stressor	TMDL Status	Proposed/Approved TMDL Completion Date
De Luz Creek		Iron	Proposed TMDL	2019
		Manganese	Proposed TMDL	2019
Murrieta Creek		Iron	Proposed TMDL	2019
		Manganese	Proposed TMDL	2019
		Nitrogen	Proposed TMDL	2019
		Sulfate	Proposed TMDL	2019
		TDS	Proposed TMDL	2019
Rainbow Creek		Nitrogen	Completed TMDL	2006
		Phosphorus	Completed TMDL	2006
		Iron	Proposed TMDL	2019
		Sulfate	Proposed TMDL	2019
		TDS	Proposed TMDL	2019
Sandia Creek		Iron	Proposed TMDL	2019
		Manganese	Proposed TMDL	2019
		Nitrogen	Proposed TMDL	2019
		Sulfate	Proposed TMDL	2019
		TDS	Proposed TMDL	2019
Santa Margarita River (Upper)		Phosphorus	Proposed TMDL	2019
Temecula Creek		Iron	Proposed TMDL	2019
		Phosphorus	Proposed TMDL	2019
		TDS	Proposed TMDL	2019

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Santa Diego Region 303(d)
Listed Water Bodies

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Figure 4-3

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- Max: 10 mg/L Total N

- Method 2: Sample prior to Spreading/Injection or within Mound/vadose zone
  - Analyzed for total nitrogen, nitrate, nitrite, ammonia, organic nitrogen, DO, and BOD
  - 10 mg/L total nitrogen or limits from Engineering Report

- Method 3: Sample groundwater down gradient
  - Analyzed for nitrate and nitrite
  - Current MCLs

- Control of Regulated Chemicals and Physical Characteristics
  - Meet Primary MCLs for Inorganic chemicals (except nitrogen compounds); radionuclides; and disinfection byproducts sampled quarterly.
  - Meet Action Levels for lead and copper sampled quarterly
  - Meet Secondary MCLs for constituents in Table 64449-A and B (except for color) sample annually.

- Diluent Water Requirements
  - Monitor diluent water quarterly for nitrate and nitrite
  - Approved DHS water quality monitoring Plan
  - Conduct diluent water source water evaluation
  - Determine volume of diluent water to be credited
  - Do not exceed maximum RWC

- Recycled Water Contribution (RWC) Requirements
  - Calculate monthly running average RWC for last 60 months of operation
  - Initial maximum RWC not exceed 0.20 for surface spreading or 0.50 for injection
  - RWC may be increased if
    - 20-week running average of TOC does not exceed the ratio of 0.5 mg/L to the proposed RWC.
    - DHS and RWQCB approval and permit

- Total Organic Carbon Requirements
  - TOC Monitoring
    - For filtered wastewater
      - Two 24-hr composite samples taken three days apart
    - For recycled water
      - One weekly 24-hr composite sample
    - For recycled water in Vadose zone/mound
      - Weekly representative sample after soil treatment with no diluent effect
    - Grab samples may be taken if representative or treated with reverse osmosis
  - TOC Limits
    - 16 mg/L for filtered wastewater
    - TOC max = 0.5 mg/L divided by RWC for recycled water or vadose zone/mound

- Additional Constituent Monitoring
  - Quarterly sampling for unregulated chemicals, priority toxic pollutants, other chemicals specified by DHS

- Annual sampling for pharmaceuticals, endocrine disruptors, and others specified by DHS

- Operation Optimization
  - Provide optimal reduction of microbial contaminants, regulated contaminants and nonregulated contaminants during first year of operation
  - Update operation plan as needed

- Monitoring between GRRP and Downgradient Drinking Water Supply Wells
  - Monitoring wells
    - between one and three months travel time from recharge area
    - between recharge area and nearest downgradient drinking water supply well
    - so that each aquifer may be sampled independently
  - Two (2) samples prior to operation and quarterly thereafter analyzed for TOC, total nitrogen, nitrate, nitrite, the constituents in Table 64449-A and B, total coliform bacteria, and any others specified by DHS

- Annual And Five-Year Reporting
  - Annual report by March 1 of each year summarizing analytical results and any violations
  - Every five years for approval of engineering report, including any changes to project

4.3.4.2 State Water Resources Control Board Draft Recycled Water Policy

The SWRCB currently has a Draft Recycled Water Policy in review. The Draft Recycled Water policy was issued in 2007 and provides requirements for irrigation and recharge projects using recycled water.

Requirements for irrigation projects stipulated in the Draft Policy include:

- Limiting the amount of recycled water applied to an amount that does not exceed the amount needed for vegetation/crops.

- Implementing a Salt Management Plan for all boards except Santa Ana RWQCB.

- Establishing Interim Salt Requirements, including:
  - Recycled water Monthly TDS concentration less than 550 mg/L
  - For irrigation projects with total nitrogen of more than 3 mg/L, implement nutrient management practices
  - For landscape irrigation projects, defer groundwater monitoring until salt management plan approved
  - If a Salt management plan is not required, than salt limitations do not apply except to ensure compliance with water quality objectives

- Developing numeric effluent limitations from narrative objectives based on established MCLs or predominance in the basin.

- Establishing requirements for groundwater recharge reuse projects, including:
  - Groundwater limitation in lieu of effluent limitations

- Any necessary additional requirements to prevent groundwater quality objectives based on an evaluation of the projects potential to alter the geochemical equilibrium in the aquifer

- Reiterates the State's antidegradation policy.

- Identifies ongoing responsibility and continued coordination with DHS.

4.3.5 Imported MWD Supplies

As discussed earlier, MWD delivers water from both the SWP and the Colorado River. All imported water meets primary drinking water standards, but certain supplies are higher in salinity and some other secondary drinking water standards. MWD indicates that there are no water quality risks from the imported supplies that cannot be mitigated through treatment or blending.

MWD's Board approved a Salinity Management Policy on April 13, 1999. The policy set a goal of achieving salinity concentrations in delivered water of less than 500 mg/L TDS. At the same time, the Board adopted an Action Plan consisting of the following four components:

1. Imported water source control and salinity reduction actions;
2. Distribution system salinity management actions;
3. Collaborative actions with other agencies; and
4. Local salinity management actions to protect groundwater and recycled water supplies.

Within Metropolitan's service area, local water sources account for approximately half of the salt loading, and imported water accounts for the remainder. All of these sources must be managed appropriately to sustain water quality and supply reliability goals. The following sections discuss the current salinity situation for each of Metropolitan's major imported supply sources.

It should be noted that based on Resolution R8-2004-0001, in some areas of the Santa Ana River Watershed, within Western's boundaries, the 500 mg/L TDS is not sufficiently restrictive to meet wastewater discharge requirements for TDS.

4.3.5.1 State Water Project

As discussed in MWD's 2005 Regional Urban Water Management Plan (RUWMP), the SWP provides a high quality water supply. The key water quality issues found in water from the State Water Project are total organic carbon, bromides, and salinity. Water supplies from the SWP have significantly lower TDS concentrations than water from the Colorado River, averaging 250 mg/L in water supplied through the East Branch which supplies Western's service area.

However, the TDS concentrations in SWP water can also vary, reflecting seasonal and tidal flow patterns. For example, in the 1977 drought, the salinity of SWP water reaching MWD increased to 430 mg/L, and supplies became limited. During this same event, salinity at the SWP's Banks pumping plant exceeded 700 mg/L. Under similar circumstances, Metropolitan's 500 mg/L salinity objective could only be achieved by reducing imported water from the CRA. Thus, it may

not always be possible to maintain both the salinity objective and water supply reliability unless salinity concentrations in source supplies can be reduced.

TDS objectives in Article 19 of the SWP Water Service Contract specify a ten-year average of 220 mg/L and a maximum monthly average of 440 mg/L. These objectives have not been met, and MWD is working with DWR and other agencies on programs aimed at reducing salinity in Delta supplies. These programs are intended to improve salinity in the San Joaquin River by modifying agricultural drainage and developing comprehensive basin plans. In addition, studies are underway to evaluate the benefits to salinity reduction of modifying levees in Franks Tract and other flooded islands in the Delta.

As discussed earlier, because of the lower salinity, MWD blends SWP water with high salinity Colorado River Aqueduct (CRA) water to reduce the salinity concentrations of delivered water. MWD is working to protect the water quality of the SWP source, but it has needed to upgrade its water treatment plants to deal adequately with disinfection byproducts (DBPs). The DBPs are the result of total organic carbon and bromide levels in the source water which may place some near term restrictions on Metropolitan's ability to use State Water Project water.

MWD expects this treatment restriction to be overcome in the next few years, and other than this, MWD does not expect any water quality restrictions on available water supplies from this source over the study period.

4.3.5.2 Colorado River

As discussed earlier in Section 4.1.2.2.3, MWD's 2005 RUWMP notes that high salinity levels represent the most serious current problem associated with Colorado River supplies. Water imported via the CRA has the highest level of salinity of all of MWD's sources of supply, averaging around 630 mg/L since 1976 and has ranged from as low as 525 mg/Land as high as at 674 mg/L in June 2005. In addition, MWD is working to protect against threats from uranium, perchlorate and hexavalent chromium.

Because of high salinity levels on the Colorado, water treatment could require membrane treatment for desalting, particularly for delivery to areas where water quality (salinity) is paramount. MWD fully expects its source protection efforts to reduce salts to be successful, so the only foreseeable water quality constraint to the use of Colorado River water will be the need to blend (mix) it with State Water Project supplies to meet the adopted salinity standards.

As noted arlier, the Colorado River Basin Salinity Control Program in process is designed to prevent a portion of this abundant salt supply from moving into the river system. The program targets the interception and control of non-point sources, such as surface runoff, as well as wastewater and saline hot springs.

4.3.6 Santa Ana River Watershed

4.3.6.1 Surface Water

Surface water flow and TDS and TIN concentration of the SAR are measured at a point just below Prado Dam. The USGS maintains a gauging station at this location to measure

instantaneous flow and, in 1973, installed a water quality recorder to obtain continuous measurements of specific conductance. Surface water grab samples are taken by the USGS and analyzed for both specific conductance and TDS to establish a mathematical relationship between the two parameters. The result is used to convert the continuous record of specific conductance to a daily average time history of TDS concentration. Other agencies, including the Orange County Water District (OCWD) and the Regional Water Quality Control Board (RWQCB), also collect grab samples at this location to measure TIN and TDS concentration of the SAR. The above data was collected, compiled, and analyzed in an effort to characterize the time history of surface water quality of the SAR at the location below Prado Dam.

Figure 4-4 illustrates the time history for instantaneous surface water flow and TDS of the SAR below Prado Dam from 1950 through 1998. There is distinct inverse correlation between flow and TDS concentration. During storm flow conditions, runoff dilutes the base flow TDS reducing the TDS concentration in the total flow sometimes to below 200 mg/L.

Figure 4-5 shows a time history of TDS and components of flow of the SAR below Prado Dam for the period 1950 to 1998. Flow is displayed as an annual value that is sub-divided based on source component (i.e., storm flow, base flow, etc.). From water year 1969-70 to 1997-98, flow and source component breakdown was obtained from the Santa Ana River Watermaster annual reports. Prior to 1969-70, flow and source component breakdown was obtained from a report prepared for use in Orange County v. City of Chino, et al (Leeds, Hill and Jewett, 1969). Comparison of TDS and source components of flow provides insight to TDS in SAR water at below Prado Dam.

TDS in SAR water at below Prado Dam ranged from a maximum of 1,160 mg/L on January 29, 1970 to a minimum of 109 mg/L on February 20, 1978. However, Figure 4-5 shows that the 1-year moving average of TDS fluctuated between 450 to 800 mg/L. Figure 4-5 also shows that the August-only TDS concentration at below Prado, as measured by the RWQCB, is typically greater than or equal to moving TDS averages. A notable exception occurred in 1997 when State Water Project water released upstream of Prado in August decreased TDS concentrations in the SAR.

The major TDS trends on Figures 4-4 and 4-5 are (1) generally increasing TDS concentrations from 1950 to about 1970, followed by (2) generally decreasing TDS concentrations from 1970 to 1998. These trends may be explained by the following factors:

- A dry climatic period during the 1950s and 1960s that resulted in base flow and Colorado River Water discharges to the SAR at Pedley (for purposes of groundwater recharge in Orange County in the 1950s) as the major components of flow.

- Adoption of the Basin Plan in the early 1970s, setting TDS limitations on wastewater discharges.

- Availability of relatively low-TDS State Water Project (SWP) water in the early 1970s for water supply and groundwater recharge.

- A wetter climatic period from 1978 to the present, which increased the relatively low-TDS storm flow component of SAR flow.

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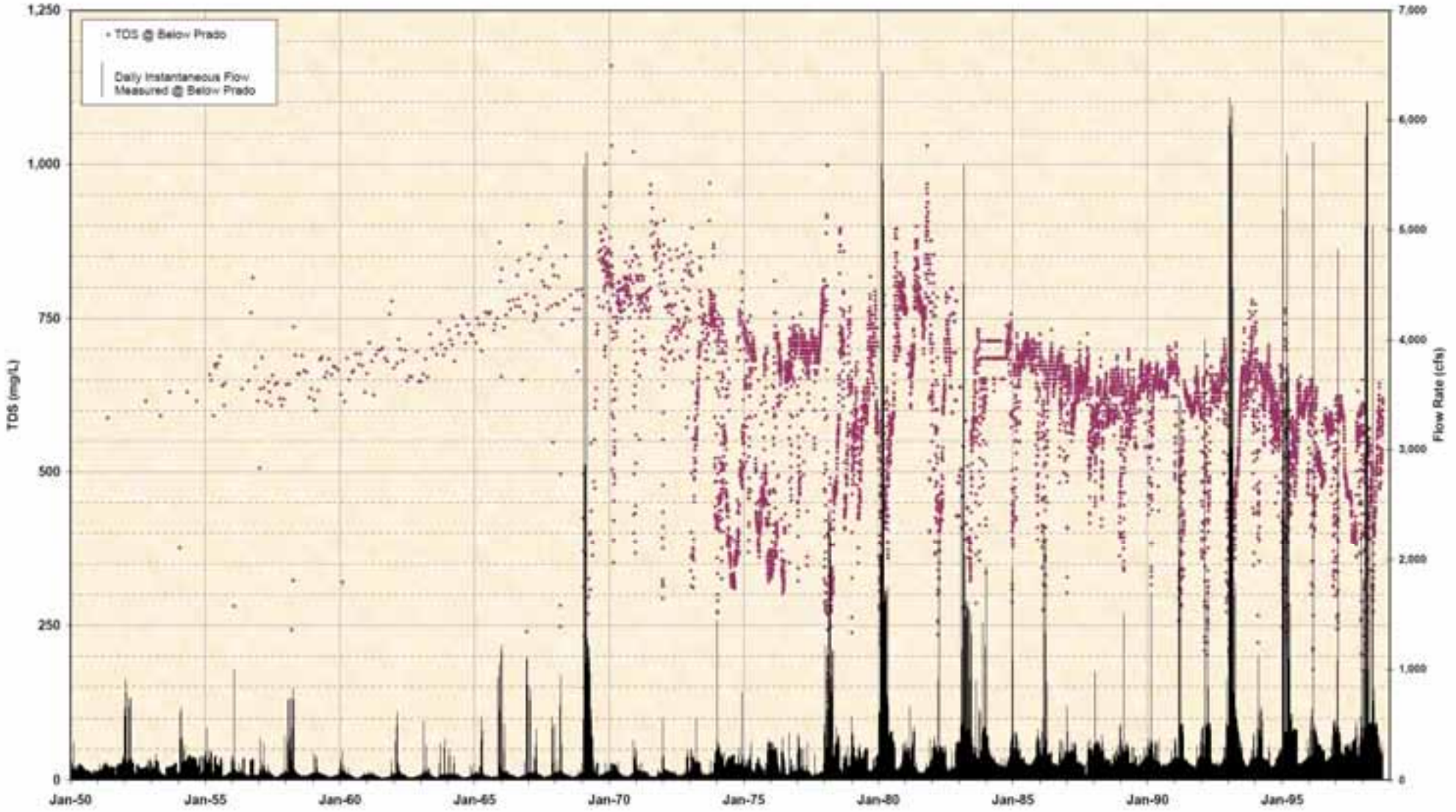

Source: Wildermuth Environmental, Inc., TIN/TDS Study – Phase 2A Final Technical Memorandum, Figure 6-2a.

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TDS at Daily Flow at Below Prado

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Figure 4-4

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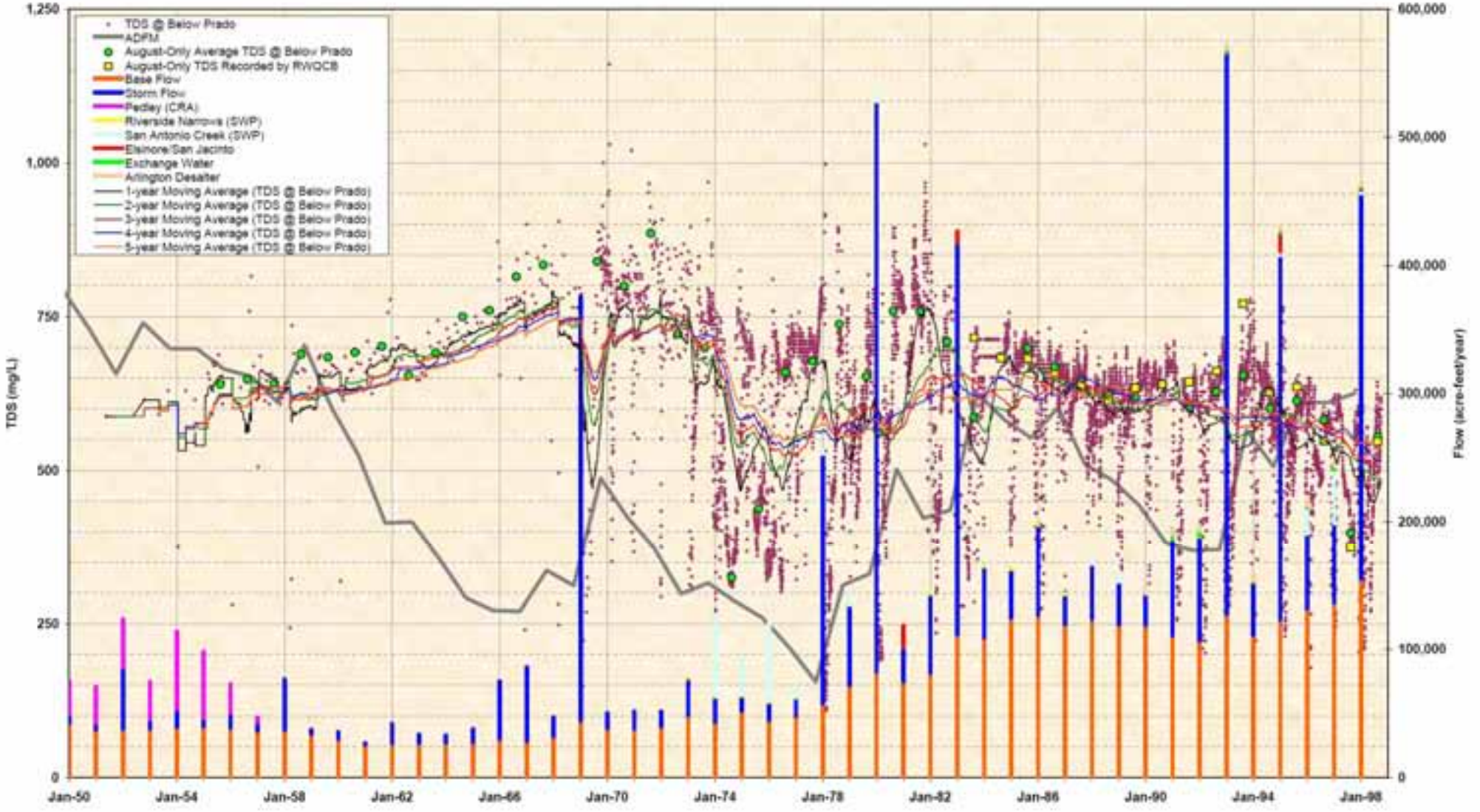

Source: Wildermuth Environmental, Inc., TIN/TDS Study – Phase 2A Final Technical Memorandum, Figure 6-2b.

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Integrated Regional Water Management
Plan 2008 Update

TDS and Components of Flow at Below Prado

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Figure 4-5

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Shorter-period TDS fluctuations also are readily apparent on Figures 4-4 and 4-5, and include:

- A depression in TDS concentrations during the mid-1970s, due to the purchase of low-TDS State Water Project water by OCWD and its subsequent release to San Antonio Creek upstream of Prado.

- Prolonged periods (~2 years) of relatively high TDS following extreme wet years (e.g., 1969, 1980, 1993).

- Seasonal decreases in TDS due to increased storm water flow.

Figures 4-6 and 4-7 are similar to Figures 4-4 and 4-5, but characterize TIN at below Prado Dam instead of TDS. Figure 4-7 is a time history of TIN and components of flow of the SAR at below Prado for the period 1950 to 1998. There is no TIN data for the SAR at below Prado prior to 1969.

TIN in SAR water below Prado ranged from below detection limits to a maximum of 18.7 mg/L on October 31, 1977. However, Figure 4-7 shows that the 1-year moving average of TIN fluctuated between about 4 to 11 mg/L.

The major TIN trends on Figures 4-6 and 4-7 are: (1) generally increasing TIN concentrations from 1979 to about 1991, followed by (2) generally decreasing TIN concentrations from 1991 to 1998. In contrast, TDS in the SAR at below Prado generally decreased during the 1982-1998 period. The TIN trends in SAR water below Prado may be explained by the following factors:

- Increasing effluent discharges from wastewater treatment facilities upstream of Prado from 1979 to 1991.

- Decreasing TIN concentrations in effluent discharges from wastewater treatment facilities upstream of Prado during the 1990s.

- A wetter climatic period from 1993 to 1998.

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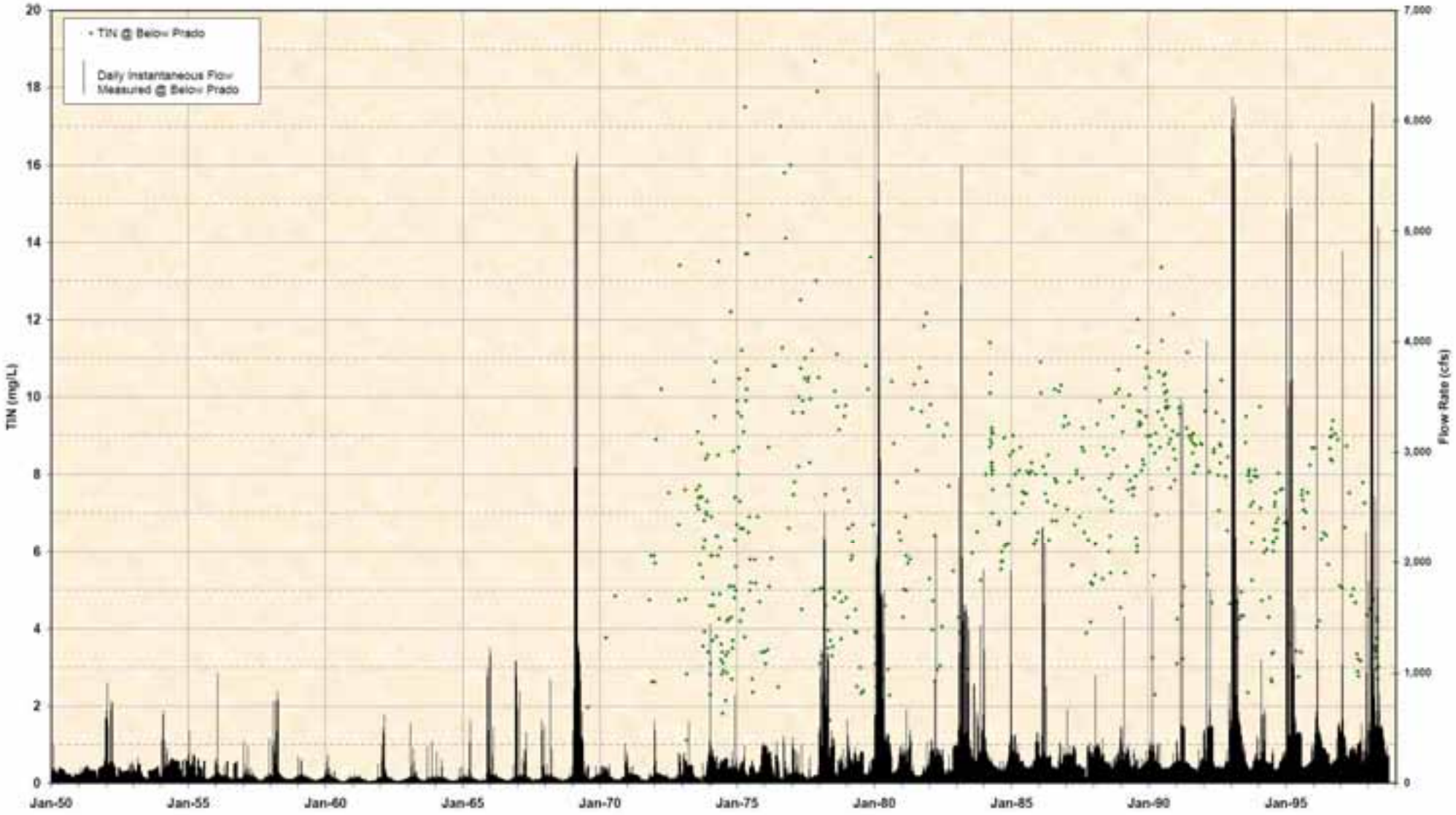

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TIN at Daily Flow at Below Prado

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Figure 4-6

Source: Wildermuth Environmental, Inc., TIN/TDS Study – Phase 2A Final Technical Memorandum, Figure 6-3a.

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TIN and Components of Flow at Below Prado

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Figure 4-7

Source: Wildermuth Environmental, Inc., TIN/TDS Study – Phase 2A Final Technical Memorandum, Figure 6-3b.

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4.3.6.2 Santa Ana River Groundwater Basins

4.3.6.2.1 Chino Basin

The Chino Basin Watermaster's Optimum Basin Management Program, Phase I Report (OBMP), shows that in the northeast part of the Chino Basin, TDS concentrations range from about 170 to about 300 mg/L for the period 1960 through 1990, with typical concentrations in the mid- to low-200s. With few exceptions, areas with significant irrigated land use or dairy waste disposal histories overlie groundwater with elevated TDS concentrations. The exceptions are areas where point sources have contributed to TDS degradation, such as the former Kaiser Steel site in Fontana and the former wastewater disposal ponds near IEUA Regional Plant No. 1 (RP1) in South Ontario.

The OBMP notes that, while considered one basin from geologic and legal perspectives, the Chino Basin can be hydrologically subdivided into at least five sub-basins that act as separate and distinct basins. Each sub-basin can be considered a management zone, which can be subdivided further if necessary to define and manage flow systems on a finer scale. These five (5) management zones, discussed in previous sections, are used to characterize the groundwater level, storage, production, and water quality conditions. Within the Chino Basin, TDS concentrations in groundwater have increased slightly or remained relatively constant in the northern parts of Management Zones 1, 2, and 3. TDS concentrations are significantly higher in the southern parts of Management Zones 1, 2, and 3, and in all of Management Zone 5, where they typically exceed 500 mg/L and frequently exceed 1,000 mg/L.

In Chino Basin, the primary areas of nitrate degradation are the areas formerly or currently overlain by the citrus and dairy industries. Nitrate concentrations in groundwater have increased slightly or remained relatively constant in the citrus areas formerly occupied by citrus and vineyard land uses over the period from 1960 to the present. Nitrate concentrations underlying these areas rarely exceed 20 mg/L (as nitrogen). Over the same period, nitrate concentrations have increased significantly in the areas where land use has progressively converted from irrigated/non-irrigated agriculture to dairy uses, and nitrate concentrations typically exceed the 10 mg/L MCL. It should be noted that in South Chino Basin, high nitrate levels are not only from overlying dairies, but are also due to the migration of nitrates from Upper Chino Basin as a result of agricultural practices.

4.3.6.2.2 San Bernardino Basin Area (Bunker Hill)

The groundwater quality in the SBBA or Bunker Hill Basin is generally accepted as being quite good and low in TDS (approximately 300 mg/L). However, perchlorate has been detected in wells at levels ranging from 6 parts per billion (ppb) up to 77 ppb. On March 12, 2002, the Office of Environmental Health Hazard Assessment (OEHHA), part of California's EPA, took the first step toward establishing a maximum perchlorate level, by recommending a concentration of 6 ppb. This perchlorate level could impact many wells in the SBBA. The San Bernardino Valley Municipal Water District (SBVMWD or Muni) is in the process of preparing a regional groundwater management plan which will have a more detailed description of the water quality in the basin.

4.3.6.2.3 Lake Elsinore

The EVMWD completed a Groundwater Management Plan in 2005. EVMWD has several groundwater wells, some of which are potentially impacted by nitrate from onsite septic systems. The TDS concentrations in the Elsinore Basin wells range from 250 mg/L to over 650 mg/L. A portion of the TDS can be attributed to sulfates (from 20 mg/L up to 220 mg/L) and nitrate as nitrate of 0 mg/L up to 35 mg/L. The higher sulfate and nitrate levels are generally associated with shallower wells. In addition, several wells have reported arsenic levels as high as 33 µg/L as compared to the primary drinking water standard of 10 µg/l. EVMWD continues to monitor water quality as part of its potable water monitoring program.

4.3.7 Santa Margarita River Watershed

As part of the adjudication of the Santa Margarita River, the Watermaster prepares an annual report documenting both surface water and groundwater use, water exports, water rights, and water quality. The discussion below is taken from the Santa Margarita River Watershed's Annual Watermaster Report for Water Year 2005-06, prepared in August 2007.

The key water quality concerns for the Watershed include high nitrate concentrations, potential overdraft conditions, and potentially adverse salt balance conditions.

4.3.7.1 Santa Margarita River Surface Water

Surface water quality sampling has been conducted by Rancho California Water District (RCWD) for TDS, nitrate, and dissolved oxygen (DO) on the Santa Margarita River near Temecula. In previous years, TDS values ranged from 660- 690 mg/L; nitrate as nitrogen ranged from 0.6 to 0.8 mg/L which is below the primary drinking standard of 10 mg/L nitrate as nitrogen. DO levels were from 4.8 mg/L up to 10.6 mg/L with higher levels occurring during the winter months. No new water quality data from RCWD was presented in the 2005-2006 Watermaster Annual Report. However, data is available for DO, pH, specific conductance, and temperature from the USGS for the same location. The USGS data for the 2005-2006 water year showed DO concentrations ranging from 4.9 to 8.6 mg/L.

Surface streams sampled by USGS on Cahuilla Creek had TDS concentrations ranging from 337 to 529 mg/L and nitrate concentrations ranging from 0.23 to 3.05 mg/L in early 2005.

4.3.7.2 Santa Margarita River Groundwater Basins

Groundwater monitoring was conducted primarily by either RCWD or the Western- Murrieta Division. Of the five wells sampled by the Western- Murrieta Division, total dissolved solids (TDS) concentrations ranged from 310 to 1,000 mg/L with two wells exceeding the Basin Plan Objective of 750 mg/L. Nitrate concentrations ranged from 1 to 21 mg/L in four of the wells. Groundwater production ceased shortly after the sampling in the one well that exceeded the primary drinking water standard of 45 mg/L.

Of the 40 wells that were sampled by RCWD, 26 wells were sampled for only for nitrate which ranged up to 25 mg/L nitrate as nitrate. TDS concentrations in the remaining wells during the 2005 – 2006 sample period increased in eight wells, decreased in six wells, and stayed the

same in one wells. TDS levels in RCWD Well 210 has declined from about 900 mg/L in 1960 to about 500-600 mg/L in the early 2000's.

Seven of the nine wells sampled at Camp Pendleton also exceeded the basin plan objective for TDS. Six wells were sampled by USGS on the Pechanga Indian Reservation. These wells ranged from 222 to 413 mg/L for TDS and <0.06 to 8.48 mg/L for nitrate. The three wells sampled on the Cahuilla Indian Reservation ranged from 160 to 441 mg/L for TDS and 1.07 to 8.26 mg/L for nitrate.

4.3.8 Implications of Source Water Quality

The main implications of the quality of the source water are the limitations on the wastewater discharge requirements and the potential to use of the wastewater for recycled water. As discussed earlier, the Regional Board's BPA has limited, through regulation of discharges, the source waters in many areas within Western's boundaries. Therefore, in the northern portions of Western's boundaries (south to Lake Elsinore), most areas require high quality water (<300 mg/L TDS) that can only be delivered by MWD's Mills Filtration Plant or from a groundwater desalter. In fact, some areas with high hardness groundwater and no access to higher quality drinking water find that residents and businesses use brine-regenerating water softeners that contribute an additional salt load to the wastewater treatment plants. That, in turn, limits the ability of those wastewater treatment plants to discharge treated wastewater to either groundwater or to surface water for disposal or to use it for beneficial reuse as recycled water.

In the southern portions of Western's boundaries, in the Santa Margarita Watershed, there is no specific Basin Plan Amendment for TDS; therefore, RCWD and Western- Murrieta Division can readily use CRA water blended with SWP water at MWD's Skinner Filtration Plant.

4.4 Habitat and Sensitive Species

4.4.1 Habitat and Plant Communities

Vegetation found within Western's service area consists of six main plant communities: riparian woodland; grassland; chaparral; coastal sage scrub; southern oak woodland; and yellow pine forest. Riparian woodland, coastal sage scrub and southern oak woodland are considered sensitive areas. Each habitat type is described in greater detail below (RCRCD, 2002).

Riparian woodland is found in moist to wet soils along rivers and streams. Riparian woodlands are generally characterized as narrow and frequent discontinuous bands of trees following stream courses. These woodlands are of considerable regional importance to many wildlife species.

Nearly all **grasslands** within Western's service area, especially those at lower elevations are predominately introduced annual grasses. Mixed in with these are usually some native grasses and native forbes and a scattering of sub-shrubs. Grasslands are associated with relatively gentle topography and deeper, fine textured soils.

Chaparral areas consist mostly of evergreen species forming a continuous canopy less than six feet high. Species are all well adapted to withstand drought, but are most active in the cooler, wetter part of the year. Large portions of chaparral species possess small leathery leaves to hold the water in the plant longer. Chaparral is best developed between 2,000 and 4,000 feet elevation where annual rainfall is 14 to 25 inches.

The **coastal sage scrub** community occupies not only coastal sites, but the mountain and hillside slopes below 3,000 feet and below the chaparral common within Western's service area. Compared to the chaparral, coastal sage scrub is low, open scrubby evergreen vegetation with thicker leaves. Precipitation is light, varying from 10 to 20 inches per year. Coastal sage scrub is considered to be an important natural habitat supporting a diverse amount of wildlife.

Two phases of the **southern oak woodland** exist, known as the Englemann oak phase and the Coast live oak phase. Isolated trees prominently of Englemann oak, and drier soils characterize the Englemann oak phase. Coast live oak and California walnut dominate the denser (over 30 percent cover), widespread woodland of the Coast live oak phase. Generally, this phase is found on moister slopes. This community can be found at elevations up to 5,000 feet. Precipitation ranges from 15 to 25 inches per year with a considerable amount of runoff.

The community of **yellow pine forest** is found at elevations between 5,000 and 8,000 feet. Precipitation, mostly in the form of snow, can fall between 25 to 80 inches per year. The soils are mostly residual upland soils and are moderately to strongly acidic. Plants of this community can include: Yellow pine, Jeffrey pine, Sugar pine, Incense cedar, White fur, Big cone spruce, Kellogg oak, and Greenleaf manzanita.

4.4.1.1 Habitat Issues and Concerns

Over the last decade, invasive plants have come to the forefront of agricultural and environmental issues. Due to these plants aggressive growth habits, they have overtaken many natural areas and now pose a threat to the native habitat in which they grow. Many local agencies have been working on removal over the last several years, with the Riverside-Corona Resource Conservation District working on removal in small target areas the last decade. Although some of these species have been seen by millions of people, these invasive plant species do not provide habitat or a food source for birds or animals. Many of these plants are out-competing the native plants that some endangered birds need for nesting. This increases the potential for damage to both the plant and animal communities.

The most common problems associated with invasive plant species are:

- Loss of native habitat
- Increased fire hazard
- Increased use of water in riparian areas
- Increased costs for control

Distribution of wildlife is determined by the distribution variety of vegetative communities, water and available food. Urban growth has put pressure on remaining areas suitable for wildlife. Direct loss of habitat to urban activity as well as the diversion of streams for municipal water

supplies, increased effluent discharge and intensified recreation use of open space will have an adverse effect upon wildlife populations.

Threatened habitats within Western's service area include:

- Riparian habitats such as the Santa Ana River which support numerous species including several of limited abundance;
- Lakes and reservoirs which support wintering raptors and thousands of migrating waterfowl;
- Chaparral and other upland habitats which support quail, deer, ground squirrels, and numerous raptors;
- Coastal sage scrub which is home for a diverse number of species including the endangered California gnatcatcher; and Stephen's Kangaroo Rat habitat.

4.4.1.2 Significant Natural Areas

Significant Natural Areas (SNAs) are areas determined by the California Department of Fish and Game's Lands and Natural Areas Program. These areas represent "the most important elements of California's natural diversity." SNAs are not technically protected by the state, but are designed to raise awareness of their uniqueness. Hopefully, if an area is listed as an SNA, the listing will prevent future abuse and uncontrolled, unplanned development.

There are eleven SNAs found within the Western district area. These areas include: Alberhill Mountain, Bedford Canyon, Box Springs, El Cerrito, Gavilian Springs, Harrison Reservoir, Ida-Leona, Sierra Peak, Southside of Lake Mathews, Upper Santa Ana River, Upper Temescal Canyon and Wardlow Wash.

Alberhill Mountain is the home for the San Diego Horned Lizard, Orange Throated Whiptail, Many-Stemmed Dudleya and Munz's Onion (extremely rare). All of these species are candidates for a federal listing. Palmer's Grapplinghook also is a resident plant of Alberhill Mountain.

Bedford Canyon is a community of Southern coast live oak riparian forest, Southern interior cypress forest and Tecate cypress.

The **Box Springs** area is characterized by Southern sycamore alder riparian woodland. The San Diego Horned Lizard and Orange Throated Whiptail can be found in the Box Springs area. Stephen's Kangaroo Rat also makes its home here.

The **El Cerrito** area is covered by an extremely rare Southern willow scrub.

Gavilan Springs is a Southern sycamore alder riparian woodland habitat. Munz's onion can sometimes be found here.

Harrison Reservoir is another place where the Southern willow scrub defines the natural community.

Ida-Leona hosts a Southern coast live oak riparian forest habitat. Cooper's Hawk and the Long-eared Owl make their home here. Federally listed candidates found here include San Diego Horned Lizard, Little Mousetail, California Black-Tailed Gnatcatcher, Orange throated Whiptail, and Munz's Onion. The endangered Stephen's Kangaroo Rat is also found here. Palmer's Grapplinghook is considered a "best example" of the area in which this plant defines the natural community, in a "relatively pristine and undisturbed condition."

Sierra Peak is an area composed of Southern sycamore alder riparian woodland and Southern interior cypress forest. Tecate cypress can be found here. The heart-leaved pitcher sage, a candidate for federally listing, is found here as well.

Southside Lake Mathews habitat is composed of southern sycamore alder riparian woodland. The California Black-Tailed and the Stephen's kangaroo Rat are residents of the Southside.

Upper Temescal Valley communities include Southern cottonwood willow riparian forest and Southern willow scrub. The Orange-Throated Whiptail, Munz's Onion, and the Many-Stemmed Dudleya can be found in the valley. Both the endangered Slender-Horned Spineflower and Stephen's Kangaroo Rat can be found here. Palmer's Grappling hook is a best example species.

The **Wardlow Wash** habitat is made up of the Southern cottonwood willow riparian forest and Southern sycamore alder riparian woodland. The endangered Least Bells Vireo is a resident of the wash as well.

4.4.2 Sensitive Species

Table 4-11 shows the following species found in Western's service area, have been identified as sensitive, rare, threatened, or endangered by the US Department of Interior and/or the California Department of Fish and Game (RCRCD, 2002).

TABLE 4-11
SENSITIVE SPECIES IN WESTERN'S SERVICE AREA

Common Species Name	Scientific Name
CRUSTACEAN	
Riverside Fairy Shrimp	*Streptocephalus wootoni*
INSECTS	
Quino Checkerspot Butterfly	*Euphydryas editha quino*
Delhi Sands Flower-Loving Fly	*Rhaphiomidas terminatus abdominalis*
AMPHIBIANS	
California Red-Legged Frog	*Rana aurora draytonii*
Arroyo Southwestern Toad	*Bufo microscaphus cailfomicus*
Western Spadefood	*Scaphiopus hammondii*

Common Species Name	Scientific Name
REPTILES	
San Diego Horned Lizard	*Phrynosoma comnatum blainvillei*
Orange Throated Whiptail	*Cnemidophorus hyperthyrus beldingi*
Southern Rubber Boa	*Charina bottae umbratica*
BIRDS	
Bald Eagle	*Haliaeetus leucocephalus*
Golden Eagle	*Aquila chryseatos*
Swainson's Hawk	*Buteo swainsoni*
Mountain Plover	*Charaddus montanus*
Western Yellow-Billed Cuckoo	*Coccyzus amedcanus occidentalis*
Southwestern Willow Flycatcher	*Empidonax trailii extimus*
California Coastal Gnatcatcher	*Polloptila califomica califomica*
Least Bells Vireo	*Vireo bellii pusillus*
Gilded Northern Flicker	*Colaples auratus chrysoides*
MAMMALS	
Stephen's Kangaroo Rat	*Dipodomys stephensi*
PLANTS	
Slender-Horned Spineflower	*Dodecahema leptoceras*
Multi-Stemmed Dudleya	*Dudleya multicaulis*
Munz's Onion	*Amum munzii*
Thread-Leaved Brodiaea	*Brodiaea filifolia*
Coulter's Goldfields	*Lasthenia glabrata coulteri*
Little Mousetail	*Myosurus minimus apus*
Santiago Peak Phacelia	*Phacelia suaveolens keckii*
Heart-leaved Pitcher Sage	*Lepechinia cardiophylla*
Palmer's Grapplinghook	*Hapagonella palmeri*
Santa Ana River Wool lystar	*Eriastrum densifollum ssp sanctorum*

4.4.3 Multi-Species Habitat Conservation Plans

To address the issues of wildlife health and sustainability in the region, two Multiple Species Habitat Conservation Plans (MSHCPs) have been developed and adopted, which are directly applicable to biological resources located within Western's service boundaries. These MSHCPs are stakeholder driven, comprehensive, and multi-jurisdictional, and focus on the conservation

of both species and associated habitats, to address biological and ecological diversity conservation needs and mitigate the impacts of development in Riverside County. These plans are two of several large multi-jurisdictional habitat planning efforts within southern California that have been developed with the overall goal of maintaining biological diversity within a rapidly urbanizing region.

The Western Riverside County MSHCP was adopted by the County on June 17, 2003, with approval granted by other participating jurisdictions and issuance of permits by U.S. Fish and Wildlife Service and California Department of Fish and Game provided in 2004. The Coachella Valley Association of Governments' (CVAG) MSHCP was approved by the CVAG Executive Committee on September 10, 2007, and approvals were made by other Plan Permittees in October 2007. Issuance of permits by the U.S. Fish and Wildlife Service and California Department of Fish and Game is expected by early 2008.

4.4.4 Riverside-Corona Resource Conservation District

The Riverside-Corona Resource Conservation District, a legally constituted unit of government formed under state law, is an independent special district formed on June 8, 1953. The primary goal of the Riverside-Corona Resource Conservation District is to promote the wise use of the District's soil, water and related resources, which are under pressure from ongoing and increasing population and housing growth needs. This goal is achieved through the promotion of the principles of resource conservation throughout the District.

The District also focuses on the prevention and control of soil erosion; the control of storm water runoff reducing the impact of non-point sources of pollution; carrying out an active information and education program; incorporating conservation education into school curriculums; improving irrigation water methods; and maintaining and improving prime and unique farmlands and wildlife resources. The District enlists and coordinates help from public and private sources to address such concerns.

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Section 5: Water Management Strategy Development and Evaluation

5.1 IRWMP Review and Update of Proposed Water Management Strategies

The State of California, through the Proposition 50, Chapter 8 Integrated Regional Water Management (IRWM) Plan Grant Program Guidelines, has identified the following 20 water management strategies for discussion to improve regional water resource management:

- Ecosystem Restoration[(a)]
- Environmental and habitat protection and improvement[(a)]
- Water Supply Reliability[(a)]
- Flood management[(a)]
- Groundwater management[(a)]
- Recreation and public access[(a)]
- Storm water capture and management[(a)]
- Water conservation[(a)]
- Water quality protection and improvement[(a)]
- Water recycling[(a)]
- Wetlands enhancement and creation[(a)]
- Conjunctive use
- Desalination
- Imported water
- Land use planning
- NPS pollution control
- Surface storage
- Watershed planning
- Water and wastewater treatment
- Water transfers

Note: (a) Pursuant to CWC §§ 79562.5 and 79564, these water management strategies must be considered to meet the minimum IRWM Plan Standards.

Proposition 84, for which the Guidelines are currently underway, will require that IRWMPs also consider those resource management strategies identified in the California Water Plan. The Water Plan resource management strategies are listed below; many of the strategies are the same or slight variations of those identified under Proposition 50, Chapter 8.

As shown below, these strategies are broken up into the following categories: Reduce Water Demand; Improve Operations Efficiencies and Transfers; Increase Water Supply; Improve Water Quality; Practice Resource Stewardship; and Flood Management.

- Reduce Water Demand
  - Agricultural Water Use Efficiency
  - Urban Water Use Efficiency
- Improve Operational Efficiency and Transfers
  - Conveyance
  - System Reoperation
  - Water Transfers
- Increase Water Supply
  - Conjunctive Management and Groundwater Storage
  - Desalination – brackish/seawater
  - Precipitation Enhancement
  - Recycled Municipal Water
  - Surface Storage – CALFED
  - Surface Storage – Regional/Local
- Improve Water Quality
  - Drinking Water treatment and Distribution
  - Groundwater/Aquifer Remediation
  - Matching Quality to Use
  - Pollution Prevention
  - Urban Runoff Management
- Practice Resource Stewardship
  - Agricultural Lands Stewardship
  - Economic Incentives (loans, grants, water pricing)
  - Ecosystem Restoration
  - Floodplain Management
  - Recharge Areas Protection
  - Urban Land Use Management
  - Water-Dependent Recreation
  - Watershed Management
  - Forest Management[(a)]

- Flood Management[(b)]
  - Improve Flood Management
  - Modify Flooding
  - Modify Susceptibility to Damage
  - Modify Impacts of Flooding
  - Preserve Natural Floodplain Resources

Note: (a) Potential new strategy that will be outlined in the California Water Plan Update 2009.
(b) Potential new resource category and strategies that will be outlined in the California Water Plan Update 2009.

Several workshops and meetings were held during the conduct of the update of the IRWMP. In addition, many water management activities, both existing and proposed, have been identified in prior water planning studies. Table 5-1 that follows in Section 5.2 summarizes the existing and proposed water management activities that were considered in the IRWMP. Table 5-2 demonstrates how each of the projects identified in this IRWMP could contribute to the California Water Plan strategies identified above.

5.2 Update Master Project List Process

During the development of the 2006 IRWMP, approximately 100 projects were identified for inclusion and evaluation within the IRWMP. The list of projects from the 2006 IRWMP was combined with project lists from the 2005 Santa Ana Watershed Project Authority IWP and the 2007 Upper Santa Ana River Watershed IRWMP to form an initial updated project list. The review included identifying projects both within the Western service area and/or that would affect water related resources in the Western service area. The preliminary list was sent to member agencies and other stakeholders along with a request to update the information on their projects if necessary. Projects that had already been completed, or were no longer being proposed for the 2008 IRWMP Update were eliminated from the list.

In addition to updating the old list, a formal 'call for projects' was conducted to identify new projects for inclusion. This provided an opportunity for Stakeholders who may not have participated in the 2006 IRWMP to submit their projects, and an opportunity for participating Stakeholders to submit new project ideas. Projects were solicited electronically, by telephone, and through the stakeholder and one-on-one meetings, and added to the new list as appropriate.

The review of the list is broken down in more detail as follows:

This list was reviewed with the goal of identifying projects suitable for the Water Management analysis. The following steps were taken:

- Eliminate projects that were existing or under design/construction.
- Eliminate out-of-area projects, in particular those whose responsibility would fall under the auspices of MWD, IEUA, or EMWD.

- Eliminate redundancies, such as when a project is known by more than one name and yet is composed of identical elements.

Additionally, the project list development process was modified from the 2006 IRWMP to include the resource management strategies of the California Water Plan (identified above) and use an integrated, multi-benefit approach to project selection and design as consistent with the requirements of Proposition 84 for IRWMPs, as shown in Table 5-2. During the Public Outreach Process, member agencies and stakeholders reviewed the list of projects and provided additional input. The list of projects was generated to help develop an integrated, regional water supply system which incorporated management and development of surface, ground, and recycled water sources as well as management of open-space and ecosystems.

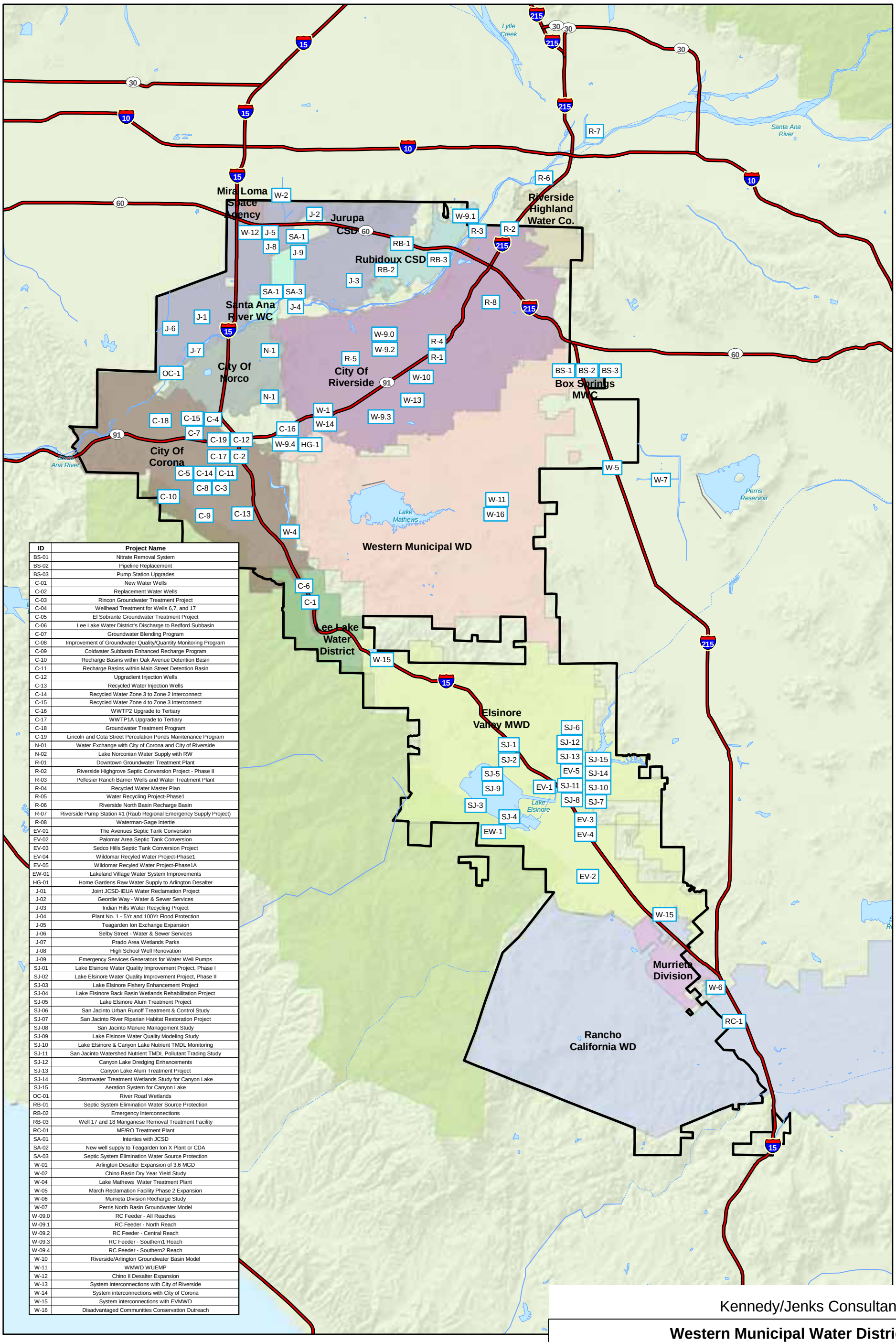
Through this process, approximately 90 loosely defined projects were identified as found in Table 5-1 and shown on Figure 5-1. Some were regional in nature, while others primarily satisfied local member agencies but also provided regional benefits. Detailed project sheets can be found in Appendix B.

Table 5-2 that follows shows a cross-reference between the projects identified and the Proposition 84 Resource Management Strategies described in Section 5.1.

TABLE 5-1
UPDATED LIST OF PROJECTS

ID	Project Name
BS-01	Nitrate Removal System
BS-02	Pipeline Replacement
BS-03	Pump Station Upgrades
C-01	New Water Wells
C-02	Replacement Water Wells
C-03	Rincon Groundwater Treatment Project
C-04	Wellhead Treatment for Wells 6,7, and 17
C-05	El Sobrante Groundwater Treatment Project
C-06	Lee Lake Water District's Discharge to Bedford Subbasin
C-07	Groundwater Blending Program
C-08	Improvement of Groundwater Quality/Quantity Monitoring Program
C-09	Coldwater Subbasin Enhanced Recharge Program
C-10	Recharge Basins within Oak Avenue Detention Basin
C-11	Recharge Basins within Main Street Detention Basin
C-12	Upgradient Injection Wells
C-13	Recycled Water Injection Wells
C-14	Recycled Water Zone 3 to Zone 2 Interconnect
C-15	Recycled Water Zone 4 to Zone 3 Interconnect
C-16	WWTP2 Upgrade to Tertiary
C-17	WWTP1A Upgrade to Tertiary
C-18	Groundwater Treatment Program
C-19	Lincoln and Cota Street Perculation Ponds Maintenance Program
EV-01	The Avenues Septic Tank Conversion
EV-02	Palomar Area Septic Tank Conversion
EV-03	Sedco Hills Septic Tank Conversion Project
EV-04	Wildomar Recyled Water Project-Phase1
EV-05	Wildomar Recyled Water Project-Phase1A
EW-01	Lakeland Village Water System Improvements
HG-01	Home Gardens Raw Water Supply to Arlington Desalter
J-01	Joint JCSD-IEUA Water Reclamation Project
J-02	Geordie Way - Water & Sewer Services
J-03	Indian Hills Water Recycling Project
J-04	Plant No. 1 - 5Yr and 100Yr Flood Protection
J-05	Teagarden Ion Exchange Expansion
J-06	Selby Street - Water & Sewer Services
J-07	Prado Area Wetlands Parks
J-08	High School Well Renovation
J-09	Emergency Services Generators for Water Well Pumps
N-01	Water Exchange with City of Corona and City of Riverside
N-02	Lake Norconian Water Supply with RW
OC-01	River Road Wetlands
R-01	Downtown Groundwater Treatment Plant
R-02	Riverside Highgrove Septic Conversion Project - Phase II

ID	Project Name
R-03	Pellesier Ranch Barrier Wells and Water Treatment Plant
R-04	Recycled Water Master Plan
R-05	Water Recycling Project-Phase1
R-06	Riverside North Basin Recharge Basin
R-07	Riverside Pump Station #1 (Raub Regional Emergency Supply Project)
R-08	Waterman-Gage Intertie
RB-01	Septic System Elimination Water Source Protection
RB-02	Emergency Interconnections
RB-03	Well 17 and 18 Manganese Removal Treatment Facility
RC-01	MF/RO Treatment Plant
SA-01	Interties with JCSD
SA-02	New well supply to Teagarden Ion X Plant or CDA
SA-03	Septic System Elimination Water Source Protection
SJ-01	Lake Elsinore Water Quality Improvement Project, Phase I
SJ-02	Lake Elsinore Water Quality Improvement Project, Phase II
SJ-03	Lake Elsinore Fishery Enhancement Project
SJ-04	Lake Elsinore Back Basin Wetlands Rehabilitation Project
SJ-05	Lake Elsinore Alum Treatment Project
SJ-06	San Jacinto Urban Runoff Treatment & Control Study
SJ-07	San Jacinto River Riparian Habitat Restoration Project
SJ-08	San Jacinto Manure Management Study
SJ-09	Lake Elsinore Water Quality Modeling Study
SJ-10	Lake Elsinore & Canyon Lake Nutrient TMDL Monitoring
SJ-11	San Jacinto Watershed Nutrient TMDL Pollutant Trading Study
SJ-12	Canyon Lake Dredging Enhancements
SJ-13	Canyon Lake Alum Treatment Project
SJ-14	Stormwater Treatment Wetlands Study for Canyon Lake
SJ-15	Aeration System for Canyon Lake
W-01	Arlington Desalter Expansion of 3.6 MGD
W-02	Chino Basin Dry Year Yield Study
W-04	Lake Mathews Water Treatment Plant
W-05	March Reclamation Facility Phase 2 Expansion
W-06	Murrieta Division Recharge Study
W-07	Perris North Basin Groundwater Model
W-09.0	RC Feeder - All Reaches
W-09.1	RC Feeder - North Reach
W-09.2	RC Feeder - Central Reach
W-09.3	RC Feeder - Southern1 Reach
W-09.4	RC Feeder - Southern2 Reach
W-10	Riverside/Arlington Groundwater Basin Model
W-11	WMWD WUEMP
W-12	Chino II Desalter Expansion
W-13	System interconnections with City of Riverside
W-14	System interconnections with City of Corona
W-15	System interconnections with EVMWD
W-16	Disadvantaged Communities Conservation Outreach



ID	Project Name
BS-01	Nitrate Removal System
BS-02	Pipeline Replacement
BS-03	Pump Station Upgrades
C-01	New Water Wells
C-02	Replacement Water Wells
C-03	Rincon Groundwater Treatment Project
C-04	Wellhead Treatment for Wells 6,7, and 17
C-05	El Sobrante Groundwater Treatment Project
C-06	Lee Lake Water District's Discharge to Bedford Subbasin
C-07	Groundwater Blending Program
C-08	Improvement of Groundwater Quality/Quantity Monitoring Program
C-09	Coldwater Subbasin Enhanced Recharge Program
C-10	Recharge Basins within Oak Avenue Detention Basin
C-11	Recharge Basins within Main Street Detention Basin
C-12	Upgradient Injection Wells
C-13	Recycled Water Injection Wells
C-14	Recycled Water Zone 3 to Zone 2 Interconnect
C-15	Recycled Water Zone 4 to Zone 3 Interconnect
C-16	WWTP2 Upgrade to Tertiary
C-17	WWTP1A Upgrade to Tertiary
C-18	Groundwater Treatment Program
C-19	Lincoln and Cota Street Perculation Ponds Maintenance Program
N-01	Water Exchange with City of Corona and City of Riverside
N-02	Lake Norconian Water Supply with RW
R-01	Downtown Groundwater Treatment Plant
R-02	Riverside Highgrove Septic Conversion Project - Phase II
R-03	Pellesier Ranch Barrier Wells and Water Treatment Plant
R-04	Recycled Water Master Plan
R-05	Water Recycling Project-Phase1
R-06	Riverside North Basin Recharge Basin
R-07	Riverside Pump Station #1 (Raub Regional Emergency Supply Project)
R-08	Waterman-Gage Intertie
EV-01	The Avenues Septic Tank Conversion
EV-02	Palomar Area Septic Tank Conversion
EV-03	Sedco Hills Septic Tank Conversion Project
EV-04	Wildomar Recyled Water Project-Phase1
EV-05	Wildomar Recyled Water Project-Phase1A
EW-01	Lakeland Village Water System Improvements
HG-01	Home Gardens Raw Water Supply to Arlington Desalter
J-01	Joint JCSD-IEUA Water Reclamation Project
J-02	Geordie Way - Water & Sewer Services
J-03	Indian Hills Water Recycling Project
J-04	Plant No. 1 - 5Yr and 100Yr Flood Protection
J-05	Teagarden Ion Exchange Expansion
J-06	Selby Street - Water & Sewer Services
J-07	Prado Area Wetlands Parks
J-08	High School Well Renovation
J-09	Emergency Services Generators for Water Well Pumps
SJ-01	Lake Elsinore Water Quality Improvement Project, Phase I
SJ-02	Lake Elsinore Water Quality Improvement Project, Phase II
SJ-03	Lake Elsinore Fishery Enhancement Project
SJ-04	Lake Elsinore Back Basin Wetlands Rehabilitation Project
SJ-05	Lake Elsinore Alum Treatment Project
SJ-06	San Jacinto Urban Runoff Treatment & Control Study
SJ-07	San Jacinto River Riparian Habitat Restoration Project
SJ-08	San Jacinto Manure Management Study
SJ-09	Lake Elsinore Water Quality Modeling Study
SJ-10	Lake Elsinore & Canyon Lake Nutrient TMDL Monitoring
SJ-11	San Jacinto Watershed Nutrient TMDL Pollutant Trading Study
SJ-12	Canyon Lake Dredging Enhancements
SJ-13	Canyon Lake Alum Treatment Project
SJ-14	Stormwater Treatment Wetlands Study for Canyon Lake
SJ-15	Aeration System for Canyon Lake
OC-01	River Road Wetlands
RB-01	Septic System Elimination Water Source Protection
RB-02	Emergency Interconnections
RB-03	Well 17 and 18 Manganese Removal Treatment Facility
RC-01	MF/RO Treatment Plant
SA-01	Interties with JCSD
SA-02	New well supply to Teagarden Ion X Plant or CDA
SA-03	Septic System Elimination Water Source Protection
W-01	Arlington Desalter Expansion of 3.6 MGD
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W-09.1	RC Feeder - North Reach
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W-09.3	RC Feeder - Southern1 Reach
W-09.4	RC Feeder - Southern2 Reach
W-10	Riverside/Arlington Groundwater Basin Model
W-11	WMWD WUEMP
W-12	Chino II Desalter Expansion
W-13	System interconnections with City of Riverside
W-14	System interconnections with City of Corona
W-15	System interconnections with EVMWD
W-16	Disadvantaged Communities Conservation Outreach

Kennedy/Jenks Consultants

Western Municipal Water District
Integrated Regional Water Management Plan
2008 Update

All Proposed Water Supply Projects

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May 2008
Figure 5-1

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Table 5-2
IRWMP Projects Vs. California Water Plan Strategies

			Reduce Water Demand		Improve Operational Efficiency and Transfers			Increase Water Supply						*Improve Flood Management* [1], [2]				Improve Water Quality						Practice Resources Stewardship					
Submitting Agency	**Project Name**	**Project ID**	Urban Water Use Efficiency	Agricultural water use efficiency	Conveyance	System Reoperation	Water Transfers	Conjunctive Management & Groundwater Storage	Desalination - Brackish and Seawater	Precipitation Enhancement	Recycled Municipal Water	Surface Storage - CALFED	Surface Storage - Regional/Local	*Modify Flooding*	*Modify Impacts to Flooding*	*Modify Susceptibility to Flooding*	*Preserve and Restore Natural Resource*	Drinking Water Treatment and Distribution	Groundwater / Aquifer Remediation	Matching Water Quality to Use	Pollution Prevention	Urban Runoff Management	Agricultural Lands Stewardship	Economic Incentives (Loans, Grants, and Water Pricing)	Ecosystem Restoration	Recharge Areas Protection	Urban Land Use Management	Water-Dependent Recreation	Watershed Management
BSMWC	Nitrate Removal System	BS-01																•	•		•								
BSMWC	Pipeline Replacement	BS-02			•	•																							
BSMWC	Pump Station Upgrades	BS-03			•	•																							
City of Corona	New Water Wells	C-01			•			•																					
City of Corona	Replacement Water Wells	C-02			•			•																					
City of Corona	Rincon Groundwater Treatment Project	C-03			•			•											•		•								
City of Corona	Wellhead Treatment for Wells 6,7, and 17	C-04						•											•		•								
City of Corona	El Sobrante Groundwater Treatment Project	C-05			•			•											•		•								
City of Corona	Lee Lake Water District's Discharge to Bedford Subbasin	C-06						•			•		•						•	•	•								
City of Corona	Groundwater Blending Program	C-07				•		•										•											
City of Corona	Improvement of Groundwater Quality/Quantity Monitoring Program	C-08						•										•	•		•					•	•		•
City of Corona	Coldwater Subbasin Enhanced Recharge Program	C-09			•			•						•	•	•						•							
City of Corona	Recharge Basins within Oak Avenue Detention Basin	C-10			•			•						•	•	•						•				•	•		
City of Corona	Recharge Basins within Main Street Detention Basin	C-11			•			•						•	•	•						•				•	•		
City of Corona	Upgradient Injection Wells	C-12						•											•										
City of Corona	Recycled Water Injection Wells	C-13			•			•			•															•			
City of Corona	Recycled Water Zone 3 to Zone 2 Interconnect	C-14			•			•			•			•	•	•			•	•						•			
City of Corona	Recycled Water Zone 4 to Zone 3 Interconnect	C-15			•																								
City of Corona	WWTP2 Upgrade to Tertiary	C-16						•			•									•									
City of Corona	WWTP1A Upgrade to Tertiary	C-17						•			•									•									
City of Corona	Groundwater Treatment Program	C-18						•	•										•		•								
City of Corona	Lincoln and Cota Street Perculation Ponds Maintenance Program	C-19																	•		•				•	•			
EVMWD	The Avenues Septic Tank Conversion	EV-01			•						•								•		•								
EVMWD	Palomar Area Septic Tank Conversion	EV-02			•						•								•	•	•								
EVMWD	Sedco Hills Septic Tank Conversion Project	EV-03			•						•								•	•	•								
EVMWD	Wildomar Recyled Water Project-Phase1	EV-04			•						•									•							•		
EVMWD	Wildomar Recyled Water Project-Phase1A	EV-05		•	•						•									•							•		
EWD	Lakeland Village Water System Improvements	EW-01			•																								
HGCSD	Home Gardens Raw Water Supply to Arlington Desalter	HG-01			•			•	•									•											
JCSD	Joint JCSD-IEUA Water Reclamation Project	J-01			•						•									•									
JCSD	Geordie Way - Water & Sewer Services	J-02			•														•		•								
JCSD	Indian Hills Water Recycling Project	J-03			•						•									•									
JCSD	Plant No. 1 - 5Yr and 100Yr Flood Protection	J-04												•	•	•	•				•	•					•			
JCSD	Teagarden Ion Exchange Expansion	J-05							•									•	•										
JCSD	#REF!	J-06			•														•		•								
JCSD	Prado Area Wetlands Parks	J-07																							•			•	•
JCSD	High School Well Renovation	J-08			•	•																							
JCSD	Emergency Services Generators for Water Well Pumps	J-09			•	•																							
City of Norco	Water Exchange with City of Corona and City of Riverside	N-01					•				•									•									
City of Norco	Lake Norconian Water Supply with RW	N-02									•							•		•	•				•			•	•
OCWD	River Road Wetlands	OC-01															•				•				•			•	•
City of Riverside	Downtown Groundwater Treatment Plant	R-01			•			•	•									•	•										
City of Riverside	Riverside Highgrove Septic Conversion Project - Phase II	R-02			•														•		•								
City of Riverside	Pellesier Ranch Barrier Wells and Water Treatment Plant	R-03																	•	•	•								
City of Riverside	Recycled Water Master Plan	R-04			•						•		•																
City of Riverside	Water Recycling Project-Phase1	R-05			•						•																		
City of Riverside	Riverside North Basin Recharge Basin	R-06						•						•	•	•	•					•				•			
City of Riverside	Riverside Pump Station #1 (Raub Regional Emergency Supply Project)	R-07			•	•																							
City of Riverside	Waterman-Gage Intertie	R-08			•			•												•									

Table 5-2
IRWMP Projects Vs. California Water Plan Strategies

			Reduce Water Demand		Improve Operational Efficiency and Transfers			Increase Water Supply						*Improve Flood Management* (1), (2)				Improve Water Quality							Practice Resources Stewardship					
Submitting Agency	Project Name	Project ID	Urban Water Use Efficiency	Agricultural water use efficiency	Conveyance	System Reoperation	Water Transfers	Conjunctive Management & Groundwater Storage	Desalination - Brackish and Seawater	Precipitation Enhancement	Recycled Municipal Water	Surface Storage - CALFED	Surface Storage - Regional/Local	*Modify Flooding*	*Modify Impacts to Flooding*	*Modify Susceptibility to Flooding*	*Preserve and Restore Natural Resource*	Drinking Water Treatment and Distribution	Groundwater / Aquifer Remediation	Matching Water Quality to Use	Pollution Prevention	Urban Runoff Management	Agricultural Lands Stewardship	Economic Incentives (Loans, Grants, and Water Pricing)	Ecosystem Restoration	Recharge Areas Protection	Urban Land Use Management	Water-Dependent Recreation	Watershed Management
RCSD	Septic System Elimination Water Source Protection	RB-01			•														•		•									
RCSD	Emergency Interconnections	RB-02			•	•																								
RCSD	Well 17 and 18 Manganese Removal Treatment Facility	RB-03																•	•		•									
RCWD	MF/RO Treatment Plant	RC-01									•								•		•		•							
SARWC	Interties with JCSD	SA-01			•	•																								
SARWC	New well supply to Teagarden Ion X Plant or CDA	SA-02							•									•	•		•									
SARWC	Septic System Elimination Water Source Protection	SA-03																	•		•									
LESJWA	Lake Elsinore Water Quality Improvement Project, Phase I	SJ-01											•							•	•				•			•	•	
LESJWA	Lake Elsinore Water Quality Improvement Project, Phase II	SJ-02											•							•	•				•			•	•	
LESJWA	Lake Elsinore Fishery Enhancement Project	SJ-03																			•				•			•	•	
LESJWA	Lake Elsinore Back Basin Wetlands Rehabilitation Project	SJ-04																			•				•				•	
LESJWA	Lake Elsinore Alum Treatment Project	SJ-05															•				•				•			•	•	
LESJWA	San Jacinto Urban Runoff Treatment & Control Study	SJ-06													•		•				•								•	
LESJWA	San Jacinto River Riparian Habitat Restoration Project	SJ-07												•	•	•	•				•	•			•					
LESJWA	San Jacinto Manure Management Study	SJ-08																			•		•						•	
LESJWA	Lake Elsinore Water Quality Modeling Study	SJ-09																			•				•			•	•	
LESJWA	Lake Elsinore & Canyon Lake Nutrient TMDL Monitoring	SJ-10																			•				•			•	•	
LESJWA	San Jacinto Watershed Nutrient TMDL Pollutant Trading Study	SJ-11																			•			•	•			•	•	
LESJWA	Canyon Lake Dredging Enhancements	SJ-12											•								•	•			•		•	•		
LESJWA	Canyon Lake Alum Treatment Project	SJ-13																			•								•	
LESJWA	Stormwater Treatment Wetlands Study for Canyon Lake	SJ-14													•	•	•				•	•						•	•	
LESJWA	Aeration System for Canyon Lake	SJ-15															•				•				•					
WMWD	Arlington Desalter Expansion of 3.6 MGD	W-01			•			•	•										•		•					•				
WMWD	Chino Basin Dry Year Yield Study	W-02						•											•		•					•				
WMWD	Lake Mathews Water Treatment Plant	W-04																•			•									
WMWD	March Reclamation Facility Phase 2 Expansion	W-05						•			•								•	•	•		•			•				
WMWD	Murrieta Division Recharge Study	W-06						•							•		•									•				
WMWD	Perris North Basin Groundwater Model	W-07						•											•		•					•				
WMWD	RC Feeder - All Reaches	W-09.0			•			•	•																					
WMWD	RC Feeder - North Reach	W-09.1			•																									
WMWD	RC Feeder - Central Reach	W-09.2			•																									
WMWD	RC Feeder - Southern1 Reach	W-09.3			•				•																					
WMWD	RC Feeder - Southern2 Reach	W-09.4			•			•																						
WMWD	Riverside/Arlington Groundwater Basin Model	W-10						•																						
WMWD	WMWD WUEMP	W-11	•	•																							•			
WMWD	Chino II Desalter Expansion	W-12							•									•												
WMWD	System interconnections with City of Riverside	W-13			•			•																						
WMWD	System interconnections with City of Corona	W-14			•			•	•																					
WMWD	System interconnections with EVMWD	W-15			•																									
WMWD	Disadvantaged Communities Conservation Outreach	W-16	•																											

Notes: (1) Resource Management Strategies shown in italics are being considered for the California Water Plan 2009 Update.
(2) Other Strategies including: crop idling for water transfers, dewvaporation, fog collection, irrigated land retirement, rainfed ag and transoceanic water bags, are in addition to these Flood Management Strategies, and are coming soon.

5.3 Water Management Strategy Evaluation

The next step was evaluating the projects' respective merits The 2006 IRWMP evaluated projects using weighted scores based on the following categories; water supply reliability, regional benefit, cost, imported water peak demand reduction, and environmental benefits. At that time, the projects with the highest overall scores were considered the best projects to move forward with and warranted further development. This process was modified for the 2008 Update in order to provide a water management strategy evaluation that is more dynamic and comprehensive. The new approach focused on creating a comprehensive set of project groups that will allow water managers and planners to easily view projects based on similar characteristics. Thus, the water management strategy evaluation grouped projects based on benefits provided, level of development, need for further funding and development, and project purpose.

The project evaluation process was adapted from the Project Prioritization and Screening Process used in the Upper Santa Ana River IRWMP. This two-step process was adjusted to reflect WMWD's water management priorities and gives heavier weight towards projects that provide broad regional benefit, additional water supply, increases operational flexibility, and serves disadvantaged or small communities. The first step is to evaluate whether the project has a funding and implementation sponsor, provides multiple benefits, and meets the identified IRWMP's objectives and water management strategies. Each project was first evaluated for how many potential benefits it provided. A ranking matrix was used to derive a project score for each project, which was weighted for the IRWMP objectives and strategies. Step two is the subsequent placement of the projects into groups and categories to reflect the project's readiness to proceed, benefits and different management strategies implemented by each project. This process is described in more detail in Sections 5.3.1 and 5.3.2.

Project Categorization

In addition to the three project groups that characterizes a projects' readiness and benefit, a categorization of the projects was also conducted across the groups to identify the different types of projects available. Projects were placed into 'category bins'. The categorization allowed for WMWD and the other Stakeholders to focus in on those projects which were of their interest, or which could be presented to meet a particular funding opportunity.

It is important to note that the project grouping represents a projects status at a particular snapshot in time based on the current understanding of the project. If a project concept is modified or refined, the project grouping can be updated. The project grouping is independent of the magnitude of the project benefit (e.g. water supply, water quality, environmental restoration) or the total cost or cost per acre-foot of water produced. Additionally, a project's grouping will likely change over time as it develops and comes closer to full funding and implementation. The groupings do not provide an absolute qualifier of all of a project's merits and benefits, but rather only provides a general categorization of which projects best meet the management strategies of the IRWMP and are closest to implementation.

5.3.1 Needs and Benefits Analysis

As described briefly above, the list of project were evaluated in order to place them into Groups, as well as into category 'bins.' The projects were evaluated based on the following criteria:

5.3.1.1 Project Effectiveness

Meets IRWMP Objectives: Project received two points for meeting a single objective and one point for meeting each additional objective. The IRWMP objectives are:

- New Water Supply– Does the project introduce a new source of water supply (ex: develops reclaimed water, or new groundwater sources) thereby improving water supply reliability?
- Basin Water Quality Improvement – Does the project help improve basin water quality (ex: reclaims contaminated groundwater or recharge groundwater with cleaner supply).
- Operational Flexibility – Does the project provide alternative conveyance, storage, or intertie systems for protection from shortage or emergencies? Does project provide additional water to allow a direct replacement of potable water demand?
- Ecosystem Restoration – Does project provide enhancement, restoration or protection of ecosystems, habitats, or wetlands?

Supports Water Management Strategies – One point was allocated for each water management strategy supported by the project for a maximum of three points. Water management strategies include:

- Conservation
- Conveyance and intertie
- Storage (including conjunctive use)
- Groundwater Management/quality protection
- Water supply (provides water supply, improves water supply quality, or provides groundwater improvement for agency that is highly dependent on groundwater supplies)
- Recycled water production or delivery
- Surface water management/quality
- Ecosystem protection/restoration/habitat enhancement/wetlands restoration
- Flood control
- Land use planning
- Recreation

5.3.1.2 Project Commitment

Readiness for Implementation – Project received one point if it is not well defined or limited information is available, two points if a feasibility study is available or if the project is described in a master plan or capital improvement plan, three points if either a preliminary design, scope or budget is available, four points if environmental documentation is also available, and five (5) points if either a detailed design, scope or budget is available.

Availability of Local Funds – Project received no points if no local funds are available to fund the project, two (2) points if 10 percent of funds are available, three points if 50 percent is available, and five points if 75 percent or more of funds are available locally.

5.3.1.3 Other Criteria

Serves Disadvantaged Communities – Project received two points for providing an indirect benefit to disadvantaged communities, and five points for directly targeting disadvantaged communities.

Regional Benefit – Project received one point for providing benefit to a single agency, five (5) points for two agencies, and 10 points if the project benefits three or more agencies.

Other Benefits – Project received one point for each of the following additional benefits provided

- Project is needed at the local level. This applies only to projects benefiting a single agency.
- Project provides recreational or open space benefits.
- Project reduces reliance on imported water.
- Project reduces reliance on imported water to meet peak demands.

5.3.1.2 Grouping System

The next step in the evaluation process was to formulate a grouping system by which to score each project. This system is similar to the system used in the San Bernardino Valley IRWMP. The grouping system was applied as follows:

- Projects were first evaluated for effectiveness on how it would benefit the region, and disadvantaged communities by sorting on the point allocations for the two criteria.
- Projects were evaluated for project commitment through sorting on the sum of the two criteria, readiness for implementation and availability of local funds.
- Separate project categories that addressed specific needs were developed by sorting on IRWMP objectives or water management strategies

Using the various sorts, projects were then separated into groupings as described in Section 5.3.2 that follows.

5.3.2 Project Grouping

Using the criteria described above, projects were placed into Groups. Projects were placed into one of three Groups depending on total score and sub-scores in the project commitment and regional benefit categories. The purpose of ranking projects into Groups is to allow water managers to easily review the proposed projects and determine which projects best meet the management strategies of the IRWMP and are closest to implementation. Projects were placed into the following groups:

- Ready-Regional: Regional projects with adequate funding or planning progress to be implemented within the next 3 years
- Ready-Local: Local projects with adequate funding or planning progress to be implemented within the next 3 years
- Future Planning: Projects that will need to acquire more funding to proceed, or are currently at a conceptual level

Again, it is important to reiterate that the project grouping represents a projects status at a particular snapshot in time based on the current understanding of the project. If a project concept is modified or refined, the project grouping can be updated. The project grouping is independent of the magnitude of the project benefit (e.g. water supply, water quality, environmental restoration) or the total cost or cost per acre-foot of water produced. Additionally, a project's grouping will likely change over time as it develops and comes closer to full funding and implementation. The groupings do not provide an absolute qualifier of all of a project's merits and benefits, but rather only provides a general categorization of which projects best meet the management strategies of the IRWMP and are closest to implementation.

It is important for project needs to be articulated and documented in this IRWMP in order to increase awareness of regulatory issues and help provide funding to agencies for problems that need to be addressed.

5.3.2.1 Ready Projects

Projects which best meet the IRWMP water management objectives and are closest to implementation are regarded as Ready for Implementation projects. These projects have the necessary local funds for implementation and adequate progress in development such as a preliminary design, scope, or budget. This Group is separated into regional projects and local projects.

Ready-Regional Projects:

- Projects that provide a regional benefit (serve more than three communities);
- Have necessary funding for implementation; and
- Is committed to being implemented (i.e., has a combination of local funds AND readiness for implementation)

Local Projects

Meet the criteria identified for Ready-Regional projects; however they provide more local benefits than regional.

5.3.2.2 Future Planning Projects

Future-Planning Projects are those which are in great need of funding assistance or further development, whether it is a result of a lack of current sponsor, lack of funds, or lack of information.

5.3.3 Project Bins

Projects were categorized across the groups into 'bins' which identify projects that have particular importance regardless of funding level or readiness to proceed. These bins allow water management professionals to focus in on certain types of projects. Projects were identified which:

- Target disadvantaged communities

  These are projects that specifically serve to benefit disadvantaged communities, which include Census data-identified disadvantaged communities, as well as smaller agencies and towns that are generally small in population, have fewer resources, and a smaller organizational structure. These aspects typically make them politically and physically isolated from IRWM planning processes. By highlighting the disadvantaged communities and the projects that directly benefit them, the IRWM planning process can better identify opportunities to create facilities or provide planning efforts in communities that that need the resources the most.

- Replace septic systems

  This category describes projects that will provide sewer service to areas currently being served by private sewer systems. These areas are often found within disadvantaged communities that do not have the local resources to fund the projects. Additionally, the areas may also be served by local private wells that are being contaminated with nitrates from the septic systems. These projects are important to ensuring a safe and reliable water supply for small and disadvantaged communities.

- Protect or restore ecosystems and habitats

  Ecosystems and habitats are closely related and dependent upon the lakes, rivers, and groundwater basins that provide water supply. Often, a project that protects a source of water supply can serve to benefit wildlife and habitats, and vice versa. The IRWM planning process highlights these projects because they are essential to an integrated, watershed-based approach to water resources planning.

- Integrate Multiple Water Management Strategies

  These are projects that implement multiple water management strategies and thus provide multiple benefits and focus on more than one aspect of water supply planning. They offer more comprehensive and diverse approaches to water supply problems.

- Serve the region

  This category includes projects that directly serve three or more agencies and are considered to be regional projects. Regional projects have a higher benefit to cost ratio through economies of scale, and are also easier to implement because the project beneficiaries can serve as partners and share the cost. Additionally, regional projects serve a greater area and population and help provide regional water supply reliability.

- Potable and Non-Potable Supply Projects

  This category lists projects that provide a new source of potable or non-potable water supply. These projects provide a new supply by increasing groundwater basin yield, treating otherwise unusable brackish groundwater, increasing treatment plant capacities or constructing new plants, or recycling water.

5.3.4 Project Lists

The results of the Water Management Strategy Evaluation are shown in the following tables.

- Table 5-3 – Projects Categorized by Groups
- Table 5-4 – Projects Targeting Disadvantaged Communities
- Table 5-5 – Septic Conversion Projects
- Table 5-6 – Projects Protecting or Restoring Ecosystems and Habitats
- Table 5-7 – Projects Integrating Multiple Water Management Strategies
- Table 5-8 – Regional Projects
- Table 5-9 – Potable and Non-Potable Water Projects

Table 5-3
Project Groups

	Submitting Agency	Project Name	Project ID	Project Type	SCORING CRITERIA: Project Effectiveness: IRWMP Objectives: New Water Supply	Basin Water Quality Improvement	Operational Flexibility (Potable)	Ecosystem Restoration	Water Management Strategies	Subtotal	Project Commitment: Readiness for Implementation	Availability of Local Funds	Total Project Commitment Score	Serves Disadvanted Communities	Regional Benefit	Subtotal	Other Benefits	Water Supply or Storage Produced (AFY/AF)	Total Points
Ready - Regional	City of Corona	Recycled Water Injection Wells	C-13	Planning	2	0	1	0	2	5	2	5	7	0	10	22	2	4,500	24
	City of Riverside	Riverside North Basin Recharge Basin	R-06	Const.	2	1	1	0	3	7	2	3	5	2	10	24	1	3,800	25
	City of Riverside	Riverside Pump Station #1 (Raub Regional Emergency Supply Project)	R-07	Const.	1	0	2	0	2	5	3	5	8	2	10	25	1	4,200	26
	RCSD	Well 17 and 18 Manganese Removal Treatment Facility	RB-03	Const.	2	1	1	0	3	7	4	3	7	5	10	29	1	7,900	30
	WMWD	RC Feeder - Central Reach	W-09.2	Const.	2	1	1	0	3	7	3	2	5	2	10	24	2	NA	26
	WMWD	RC Feeder - Southern1 Reach	W-09.3	Const.	1	0	2	0	1	4	4	2	6	2	10	22	2	NA	24
	WMWD	Riverside/Arlington Groundwater Basin Model	W-10	Planning	1	2	1	0	2	6	5	5	10	2	10	28	0	NA	28
	WMWD	WMWD WUEMP	W-11	Planning	2	0	0	0	1	3	4	2	6	2	10	21	1	NA	22
	WMWD	Chino II Desalter Expansion	W-12	Const.	2	1	1	0	2	6	3	3	6	2	10	24	2	11,500	26
Ready - Local	City of Corona	New Water Wells	C-01	Const.	2	0	1	0	1	4	2	5	7	0	1	12	2	1,935	14
	City of Corona	Replacement Water Wells	C-02	Const.	2	0	0	0	1	3	2	5	7	0	1	11	0	1,935	11
	City of Corona	Groundwater Blending Program	C-07	Const.	0	2	0	0	1	3	2	5	7	0	1	11	1	1,800	12
	City of Corona	Improvement of Groundwater Quality/Quantity Monitoring Program	C-08	Planning	1	2	1	0	2	6	2	5	7	0	1	14	1	0	15
	City of Corona	Recharge Basins within Oak Avenue Detention Basin	C-10	Const.	2	1	1	0	3	7	2	5	7	0	5	19	1	5,000	20
	City of Corona	Recharge Basins within Main Street Detention Basin	C-11	Const.	2	1	1	0	3	7	2	5	7	0	5	19	1	1,500	20
	City of Corona	Upgradient Injection Wells	C-12	Const.	2	1	1	0	3	7	2	5	7	0	1	15	2	4,800	17
	City of Corona	Lincoln and Cota Street Perculation Ponds Maintenance Program	C-19	Const.	2	0	0	0	1	3	2	5	7	0	1	11	1	8,000	12
	City of Riverside	Riverside Highgrove Septic Conversion Project - Phase II	R-02	Const.	1	2	0	0	2	5	2	3	5	5	5	20	1	NA	21
	City of Riverside	Pellesier Ranch Barrier Wells and Water Treatment Plant	R-03	Const.	2	1	1	0	3	7	3	3	6	2	5	20	1	11,200	21
	City of Riverside	Water Recycling Project-Phase1	R-05	Const.	2	0	1	0	2	5	4	5	9	2	5	21	1	2,300	22
	City of Riverside	Waterman-Gage Intertie	R-08	Const.	1	0	2	0	2	5	3	2	5	2	5	17	1	NA	18
	EVMWD	Wildomar Recyled Water Project-Phase1	EV-04	Const.	2	0	1	0	2	5	5	3	8	2	1	16	1	1,200	17
	EVMWD	Wildomar Recyled Water Project-Phase1A	EV-05	Const.	2	0	1	0	2	5	5	3	8	2	1	16	1	552	17
	JCSD	Indian Hills Water Recycling Project	J-03	Const.	2	0	1	0	2	5	2	3	5	2	1	13	1	NA	14
	JCSD	Plant No. 1 - 5Yr and 100Yr Flood Protection	J-04	Const.	0	2	0	1	2	5	4	5	9	2	5	21	1	NA	22
	JCSD	Teagarden Ion Exchange Expansion	J-05	Const.	2	1	1	0	3	7	3	3	6	2	5	20	1	7,800	21
	JCSD	Selby Street - Water & Sewer Services	J-06	Const.	0	2	1	0	2	5	4	2	6	5	1	17	1	NA	18
	JCSD	High School Well Renovation	J-08	Const.	2	1	1	0	3	7	5	0	5	2	1	15	2	600	17
	LESJWA	Lake Elsinore Fishery Enhancement Project	SJ-03	Planning	0	1	0	2	2	5	5	2	7	2	5	19	1	NA	20
	OCWD	River Road Wetlands	OC-01	Const.	0	1	0	2	2	5	2	3	5	0	5	15	1	NA	16
	WMWD	Arlington Desalter Expansion of 3.6 MGD	W-01	Const.	2	1	1	0	3	7	3	5	8	2	5	22	1	4,000	23
	WMWD	March Reclamation Facility Phase 2 Expansion	W-05	Const.	2	1	1	0	3	7	5	5	10	0	5	22	1	3,000	23
	WMWD	Perris North Basin Groundwater Model	W-07	Planning	2	1	1	0	2	6	1	5	6	0	5	17	0	2,000	17
	WMWD	System interconnections with City of Riverside	W-13	Const.	2	0	1	0	3	6	2	5	7	0	5	18	1	NA	19
	WMWD	System interconnections with City of Corona	W-14	Const.	2	0	1	0	2	5	2	5	7	0	5	17	1	NA	18
	WMWD	System interconnections with EVMWD	W-15	Const.	0	0	2	0	2	4	2	3	5	0	1	10	1	NA	11
Future Planning	BSMWC	Nitrate Removal System	BS-01	Const.	2	1	1	0	2	6	2	0	2	5	1	14	1	180	15
	BSMWC	Pipeline Replacement	BS-02	Const.	2	0	0	0	1	3	2	0	2	5	1	11	1	NA	12
	BSMWC	Pump Station Upgrades	BS-03	Const.	0	0	2	0	1	3	2	0	2	5	1	11	1	1,300	12
	City of Corona	Rincon Groundwater Treatment Project	C-03	Const.	2	1	1	0	3	7	2	2	4	0	10	21	2	5,600	23
	City of Corona	Wellhead Treatment for Wells 6,7, and 17	C-04	Const.	0	2	0	0	1	3	1	2	3	0	1	7	1	4,800	8
	City of Corona	El Sobrante Groundwater Treatment Project	C-05	Const.	2	1	1	0	2	6	2	2	4	0	10	20	2	5,600	22
	City of Corona	Lee Lake Water District's Discharge to Bedford Subbasin	C-06	Const.	2	1	1	0	3	7	2	2	4	0	10	21	2	800	23
	City of Corona	Coldwater Subbasin Enhanced Recharge Program	C-09	Const.	2	1	1	0	3	7	2	2	4	0	10	21	1	2,000	22
	City of Corona	Recycled Water Zone 3 to Zone 2 Interconnect	C-14	Const.	2	0	1	0	3	6	2	2	4	0	1	11	2	1,800	13
	City of Corona	Recycled Water Zone 4 to Zone 3 Interconnect	C-15	Const.	0	0	2	0	1	3	2	2	4	0	1	8	1	3,000	9
	City of Corona	WWTP2 Upgrade to Tertiary	C-16	Const.	2	0	0	0	2	4	2	2	4	2	1	11	2	0	13
	City of Corona	WWTP1A Upgrade to Tertiary	C-17	Const.	2	0	0	0	2	4	2	2	4	0	1	9	2	0	11
	City of Corona	Groundwater Treatment Program	C-18	Const.	0	0	2	0	1	3	2	2	4	0	1	8	1	3,800	9
	City of Norco	Water Exchange with City of Corona and City of Riverside	N-01	Const.	0	0	2	0	1	3	1	0	1	0	10	14	1	NA	15
	City of Norco	Lake Norconian Water Supply with RW	N-02	Const.	2	0	1	1	3	7	1	2	3	0	5	15	2	224	17
	City of Riverside	Downtown Groundwater Treatment Plant	R-01	Const.	2	1	1	0	3	7	2	2	4	2	5	18	1	7,000	19
	City of Riverside	Recycled Water Master Plan	R-04	Const.	2	0	1	0	3	6	1	3	4	2	5	17	2	15,000	19
	EVMWD	The Avenues Septic Tank Conversion	EV-01	Const.	0	2	0	0	1	3	2	2	4	5	5	17	1	NA	18
	EVMWD	Palomar Area Septic Tank Conversion	EV-02	Const.	0	2	0	0	1	3	2	2	4	5	5	17	1	NA	18
	EVMWD	Sedco Hills Septic Tank Conversion Project	EV-03	Const.	0	2	0	0	1	3	2	2	4	5	5	17	1	NA	18
	EWD	Lakeland Village Water System Improvements	EW-01	Const.	0	0	2	0	1	3	2	0	2	5	1	11	1	NA	12
	HGCSD	Home Gardens Raw Water Supply to Arlington Desalter	HG-01	Const.	2	1	1	0	3	7	1	0	1	5	10	23	1	2,200	24
	JCSD	Joint JCSD-IEUA Water Reclamation Project	J-01	Const.	2	0	1	0	3	6	2	2	4	5	10	25	1	1,616	26
	JCSD	Geordie Way - Water & Sewer Services	J-02	Const.	0	2	1	0	2	5	1	0	1	5	1	12	1	NA	13
	JCSD	Prado Area Wetlands Parks	J-07	Planning	0	2	0	1	1	4	1	0	1	2	10	17	1	NA	18
	JCSD	Emergency Services Generators for Water Well Pumps	J-09	Const.	0	0	2	0	1	3	2	0	2	2	1	8	1	NA	9
	LESJWA	Lake Elsinore Water Quality Improvement Project, Phase I	SJ-01	Const.	0	2	0	1	2	5	2	2	4	2	5	16	1	8,960	17
	LESJWA	Lake Elsinore Water Quality Improvement Project, Phase II	SJ-02	Const.	0	2	0	1	2	5	2	2	4	2	5	16	1	11,200	17
	LESJWA	Lake Elsinore Back Basin Wetlands Rehabilitation Project	SJ-04	Const.	0	2	0	1	2	5	2	2	4	2	5	16	1	1,120	17
	LESJWA	Lake Elsinore Alum Treatment Project	SJ-05	Planning	0	2	0	1	2	5	2	2	4	2	5	16	1	0	17
	LESJWA	San Jacinto Urban Runoff Treatment & Control Study	SJ-06	Planning	0	2	0	1	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	San Jacinto River Riparian Habitat Restoration Project	SJ-07	Planning	0	1	0	2	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	San Jacinto Manure Management Study	SJ-08	Planning	0	2	0	0	1	3	2	2	4	2	5	14	0	NA	14
	LESJWA	Lake Elsinore Water Quality Modeling Study	SJ-09	Planning	0	2	0	1	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	Lake Elsinore & Canyon Lake Nutrient TMDL Monitoring	SJ-10	Planning	0	2	0	1	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	San Jacinto Watershed Nutrient TMDL Pollutant Trading Study	SJ-11	Planning	0	2	0	0	1	3	2	2	4	2	5	14	1	NA	15
	LESJWA	Canyon Lake Dredging Enhancements	SJ-12	Const.	0	1	0	2	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	Canyon Lake Alum Treatment Project	SJ-13	Planning	0	2	0	1	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	Stormwater Treatment Wetlands Study for Canyon Lake	SJ-14	Planning	0	2	0	1	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	Aeration System for Canyon Lake	SJ-15	Const.	0	2	0	1	2	5	2	2	4	2	5	16	1	NA	17
	RCSD	Septic System Elimination Water Source Protection	RB-01	Const.	0	2	0	0	1	3	2	2	4	5	1	13	1	NA	14
	RCSD	Emergency Interconnections	RB-02	Const.	0	0	2	0	1	3	2	2	4	5	10	22	1	<=12,000	23
	RCWD	MF/RO Treatment Plant	RC-01	Const.	2	0	1	0	2	5	2	1	3	0	1	9	3	5,000	12
	SARWC	Interties with JCSD	SA-01	Const.	0	0	2	0	1	3	1	0	1	5	1	10	1	NA	11
	SARWC	New well supply to Teagarden Ion X Plant or CDA	SA-02	Const.	2	1	1	0	3	7	1	0	1	5	5	18	1	3,200	19
	SARWC	Septic System Elimination Water Source Protection	SA-03	Planning	0	2	0	0	1	3	1	0	1	5	1	10	1	NA	11
	WMWD	Chino Basin Dry Year Yield Study	W-02	Planning	2	1	1	0	3	7	1	2	3	2	10	22	2	8,000	24
	WMWD	Lake Mathews Water Treatment Plant	W-04	Const.	1	0	2	0	2	5	2	2	4	2	10	21	1	44,000	22
	WMWD	Murrieta Division Recharge Study	W-06	Planning	2	0	1	0	2	5	2	1	3	0	1	9	2	NA	11
	WMWD	RC Feeder - All Reaches	W-09.0	Const.	2	1	1	0	3	7	2	2	4	2	10	23	2	40,000	25
	WMWD	RC Feeder - North Reach	W-09.1	Const.	2	1	1	0	2	6	2	2	4	2	5	17	2	NA	19
	WMWD	RC Feeder - Southern2 Reach	W-09.4	Const.	1	0	2	0	1	4	2	2	4	2	5	15	2	NA	17
	WMWD	Disadvantaged Communities Conservation Outreach	W-16	Const.	2	0	0	0	1	3	1	2	3	5	10	21	1	NA	22

Scoring Criteria

Meets IRWMP Objectives: Score **2** for 1 objective. Add **1** point for each additional objective met.

Supports Water Management Strategies: See below. Score **1** point for single strategy, **2** points for 2 strategies. Score **3** points for 3 strategies, 1 strategy must be related to water supply.

Serves Disadvantaged Communities: Score **2** if project area includes disadvantaged communities. Score **5** if project provides specific benefit to disadvantaged communities.

Readiness for Implementation: Score **1** point for limited information, **2** points for feasibility study for project covered in master plan or CIP, **3** points for preliminary design, scope, and budget, **4** points if also have environmental documentation, and **5** points for detailed design, scope and budget.

Availability of Local Funds: No funds, **0** points. 10%, **2** points, 50%, **3** points, 75%, **5** points.

Regional Benefit: Single agency, **1** point. 2 agencies, **5** points. 3+ agencies, **10** points.

Other Benefits: **1** point each if a locally needed project, provides recreation/open space benefits, reduces reliance on MWD water, or reduces reliance on MWD for peak demands.

Water Management Strategies:

Flood control
Land use planning
Recreation
Conservation
Conveyance and intertie
Storage (including conjunctive use)
Groundwater management/quality protection
Water supply (provides water supply, improves water supply quality, or if groundwater improvement for agencies highly dependent on GW supplies)
Recycled water production or delivery
Surface water management/quality
Ecosystem protection/restoration, habitat enhancement, wetlands restoration

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Table 5-4
Projects Targeting Disadvantaged Communities

					SCORING CRITERIA														
					Project Effectiveness						Project Commitment								
					IRWMP Objectives														
	Submitting Agency	Project Name	Project ID	Project Type	New Water Supply	Basin Water Quality Improvement	Operational Flexibility (Potable)	Ecosystem Restoration	Water Management Strategies	Subtotal	Readiness for Implementation	Availability of Local Funds	Total Project Commitment Score	Serves Disadvanted Communities	Regional Benefit	Subtotal	Other Benefits	Water Supply or Storage Produced (AFY/AF)	Total Points
Targets Disadvantaged Communities	BSMWC	Nitrate Removal System	BS-01	Const.	2	1	1	0	2	6	2	0	2	5	1	14	1	180	15
	BSMWC	Pipeline Replacement	BS-02	Const.	2	0	0	0	1	3	2	0	2	5	1	11	1	NA	12
	BSMWC	Pump Station Upgrades	BS-03	Const.	0	0	2	0	1	3	2	0	2	5	1	11	1	1,300	12
	EVMWD	The Avenues Septic Tank Conversion	EV-01	Const.	0	2	0	0	1	3	2	2	4	5	5	17	1	NA	18
	EVMWD	Palomar Area Septic Tank Conversion	EV-02	Const.	0	2	0	0	1	3	2	2	4	5	5	17	1	NA	18
	EVMWD	Sedco Hills Septic Tank Conversion Project	EV-03	Const.	0	2	0	0	1	3	2	2	4	5	5	17	1	NA	18
	EWD	Lakeland Village Water System Improvements	EW-01	Const.	0	0	2	0	1	3	2	0	2	5	1	11	1	NA	12
	HGCSD	Home Gardens Raw Water Supply to Arlington Desalter	HG-01	Const.	2	1	1	0	3	7	1	0	1	5	10	23	1	2,200	24
	JCSD	Joint JCSD-IEUA Water Reclamation Project	J-01	Const.	2	0	1	0	3	6	2	2	4	5	10	25	1	1,616	26
	JCSD	Geordie Way - Water & Sewer Services	J-02	Const.	0	2	1	0	2	5	1	0	1	5	1	12	1	NA	13
	JCSD	Selby Street - Water & Sewer Services	J-06	Const.	0	2	1	0	2	5	4	2	6	5	1	17	1	NA	18
	City of Riverside	Riverside Highgrove Septic Conversion Project - Phase II	R-02	Const.	1	2	0	0	2	5	2	3	5	5	5	20	1	NA	21
	RCSD	Septic System Elimination Water Source Protection	RB-01	Const.	0	2	0	0	1	3	2	2	4	5	1	13	1	NA	14
	RCSD	Emergency Interconnections	RB-02	Const.	0	0	2	0	1	3	2	2	4	5	10	22	1	<=12,000	23
	RCSD	Well 17 and 18 Manganese Removal Treatment Facility	RB-03	Const.	2	1	1	0	3	7	4	3	7	5	10	29	1	7,900	30
	SARWC	Interties with JCSD	SA-01	Const.	0	0	2	0	1	3	1	0	1	5	1	10	1	NA	11
	SARWC	New well supply to Teagarden Ion X Plant or CDA	SA-02	Const.	2	1	1	0	3	7	1	0	1	5	5	18	1	3,200	19
	SARWC	Septic System Elimination Water Source Protection	SA-03	Planning	0	2	0	0	1	3	1	0	1	5	1	10	1	NA	11
	WMWD	Disadvantaged Communities Conservation Outreach	W-16	Const.	2	0	0	0	1	3	1	2	3	5	10	21	1	NA	22

Scoring Criteria

Meets IRWMP Objectives: Score **2** for 1 objective. Add **1** point for each additional objective met.

Supports Water Management Strategies: See below. Score **1** point for single strategy, **2** points for 2 strategies. Score **3** points for 3 strategies, 1 strategy must be related to water supply.

Serves Disadvantaged Communities: Score **2** if project area includes disadvantaged communities. Score **5** if project provides specific benefit to disadvantaged communities.

Readiness for Implementation: Score **1** point for limited information, **2** points for feasibility study for project covered in master plan or CIP, **3** points for preliminary design, scope, and budget, **4** points if also have environmental documentation, and **5** points for detailed design, scope and budget.

Availability of Local Funds: No funds, **0** points. 10%, **2** points, 50%, **3** points, 75%, **5** points.

Regional Benefit: Single agency, **1** point. 2 agencies, **5** points. 3+ agencies, **10** points.

Other Benefits: **1** point each if a locally needed project, provides recreation/open space benefits, reduces reliance on MWD water, or reduces reliance on MWD for peak demands.

Water Management Strategies:
Flood control
Land use planning
Recreation
Conservation
Conveyance and intertie
Storage (including conjunctive use)
Groundwater management/quality protection
Water supply (provides water supply, improves water supply quality, or if groundwater improvement for agencies highly dependent on GW supplies)
Recycled water production or delivery
Surface water management/quality
Ecosystem protection/restoration, habitat enhancement, wetlands restoration

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Table 5-5
Septic Conversion Projects

	Submitting Agency	Project Name	Project ID	Project Type	SCORING CRITERIA: Project Effectiveness: IRWMP Objectives: New Water Supply	Basin Water Quality Improvement	Operational Flexibility (Potable)	Ecosystem Restoration	Water Management Strategies	Subtotal	Project Commitment: Readiness for Implementation	Availability of Local Funds	Total Project Commitment Score	Serves Disadvanted Communities	Regional Benefit	Subtotal	Other Benefits	Water Supply or Storage Produced (AFY/AF)	Total Points
Septic Conversion Projects	EVMWD	The Avenues Septic Tank Conversion	EV-01	Const.	0	2	0	0	1	3	2	2	4	5	5	17	1	NA	18
	EVMWD	Palomar Area Septic Tank Conversion	EV-02	Const.	0	2	0	0	1	3	2	2	4	5	5	17	1	NA	18
	EVMWD	Sedco Hills Septic Tank Conversion Project	EV-03	Const.	0	2	0	0	1	3	2	2	4	5	5	17	1	NA	18
	JCSD	Geordie Way - Water & Sewer Services	J-02	Const.	0	2	1	0	2	5	1	0	1	5	1	12	1	NA	13
	JCSD	Selby Street - Water & Sewer Services	J-06	Const.	0	2	1	0	2	5	4	2	6	5	1	17	1	NA	18
	City of Riverside	Riverside Highgrove Septic Conversion Project - Phase II	R-02	Const.	1	2	0	0	2	5	2	3	5	5	5	20	1	NA	21
	RCSD	Septic System Elimination Water Source Protection	RB-01	Const.	0	2	0	0	1	3	2	2	4	5	1	13	1	NA	14
	SARWC	Septic System Elimination Water Source Protection	SA-03	Planning	0	2	0	0	1	3	1	0	1	5	1	10	1	NA	11

Scoring Criteria

Meets IRWMP Objectives: Score **2** for 1 objective. Add **1** point for each additional objective met.

Supports Water Management Strategies: See below. Score **1** point for single strategy, **2** points for 2 strategies. Score **3** points for 3 strategies, 1 strategy must be related to water supply.

Serves Disadvantaged Communities: Score **2** if project area includes disadvantaged communities. Score **5** if project provides specific benefit to disadvantaged communities.

Readiness for Implementation: Score **1** point for limited information, **2** points for feasibility study for project covered in master plan or CIP, **3** points for preliminary design, scope, and budget, **4** points if also have environmental documentation, and **5** points for detailed design, scope and budget.

Availability of Local Funds: No funds, **0** points. 10%, **2** points, 50%, **3** points, 75%, **5** points.

Regional Benefit: Single agency, **1** point. 2 agencies, **5** points. 3+ agencies, **10** points.

Other Benefits: **1** point each if a locally needed project, provides recreation/open space benefits, reduces reliance on MWD water, or reduces reliance on MWD for peak demands.

Water Management Strategies:

Flood control
Land use planning
Recreation
Conservation
Conveyance and intertie
Storage (including conjunctive use)
Groundwater management/quality protection
Water supply (provides water supply, improves water supply quality, or if groundwater improvement for agencies highly dependent on GW supplies)
Recycled water production or delivery
Surface water management/quality
Ecosystem protection/restoration, habitat enhancement, wetlands restoration

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Table 5-6
Projects Protecting or Restoring Ecosystems and Habitats

					SCORING CRITERIA														
					Project Effectiveness						Project Commitment								
					IRWMP Objectives														
	Submitting Agency	Project Name	Project ID	Project Type	New Water Supply	Basin Water Quality Improvement	Operational Flexibility (Potable)	Ecosystem Restoration	Water Management Strategies	Subtotal	Readiness for Implementation	Availability of Local Funds	Total Project Commitment Score	Serves Disadvanted Communities	Regional Benefit	Subtotal	Other Benefits	Water Supply or Storage Produced (AFY/AF)	Total Points
Protects or Restores Ecosystems and Habitats	JCSD	Plant No. 1 - 5Yr and 100Yr Flood Protection	J-04	Const.	0	2	0	1	2	5	4	5	9	2	5	21	1	NA	22
	JCSD	Prado Area Wetlands Parks	J-07	Planning	0	2	0	1	1	4	1	0	1	2	10	17	1	NA	18
	City of Norco	Lake Norconian Water Supply with RW	N-02	Const.	2	0	1	1	3	7	1	2	3	0	5	15	2	224	17
	OCWD	River Road Wetlands	OC-01	Const.	0	1	0	2	2	5	2	3	5	0	5	15	1	NA	16
	LESJWA	Lake Elsinore Water Quality Improvement Project, Phase I	SJ-01	Const.	0	2	0	1	2	5	2	2	4	2	5	16	1	8,960	17
	LESJWA	Lake Elsinore Water Quality Improvement Project, Phase II	SJ-02	Const.	0	2	0	1	2	5	2	2	4	2	5	16	1	11,200	17
	LESJWA	Lake Elsinore Fishery Enhancement Project	SJ-03	Planning	0	1	0	2	2	5	5	2	7	2	5	19	1	NA	20
	LESJWA	Lake Elsinore Back Basin Wetlands Rehabilitation Project	SJ-04	Const.	0	2	0	1	2	5	2	2	4	2	5	16	1	1,120	17
	LESJWA	Lake Elsinore Alum Treatment Project	SJ-05	Planning	0	2	0	1	2	5	2	2	4	2	5	16	1	0	17
	LESJWA	San Jacinto Urban Runoff Treatment & Control Study	SJ-06	Planning	0	2	0	1	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	San Jacinto River Riparian Habitat Restoration Project	SJ-07	Planning	0	1	0	2	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	Lake Elsinore Water Quality Modeling Study	SJ-09	Planning	0	2	0	1	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	Lake Elsinore & Canyon Lake Nutrient TMDL Monitoring	SJ-10	Planning	0	2	0	1	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	Canyon Lake Dredging Enhancements	SJ-12	Const.	0	1	0	2	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	Canyon Lake Alum Treatment Project	SJ-13	Planning	0	2	0	1	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	Stormwater Treatment Wetlands Study for Canyon Lake	SJ-14	Planning	0	2	0	1	2	5	2	2	4	2	5	16	1	NA	17
	LESJWA	Aeration System for Canyon Lake	SJ-15	Const.	0	2	0	1	2	5	2	2	4	2	5	16	1	NA	17

Scoring Criteria

Meets IRWMP Objectives: Score **2** for 1 objective. Add **1** point for each additional objective met.

Supports Water Management Strategies: See below. Score **1** point for single strategy, **2** points for 2 strategies. Score **3** points for 3 strategies, 1 strategy must be related to water supply.

Serves Disadvantaged Communities: Score **2** if project area includes disadvantaged communities. Score **5** if project provides specific benefit to disadvantaged communities.

Readiness for Implementation: Score **1** point for limited information, **2** points for feasibility study for project covered in master plan or CIP, **3** points for preliminary design, scope, and budget, **4** points if also have environmental documentation, and **5** points for detailed design, scope and budget.

Availability of Local Funds: No funds, **0** points. 10%, **2** points, 50%, **3** points, 75%, **5** points.

Regional Benefit: Single agency, **1** point. 2 agencies, **5** points. 3+ agencies, **10** points.

Other Benefits: **1** point each if a locally needed project, provides recreation/open space benefits, reduces reliance on MWD water, or reduces reliance on MWD for peak demands.

Water Management Strategies:
Flood control
Land use planning
Recreation
Conservation
Conveyance and intertie
Storage (including conjunctive use)
Groundwater management/quality protection
Water supply (provides water supply, improves water supply quality, or if groundwater improvement for agencies highly dependent on GW supplies)
Recycled water production or delivery
Surface water management/quality
Ecosystem protection/restoration, habitat enhancement, wetlands restoration

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Table 5-7
Projects Integrating Multiple Water Management Strategies

					SCORING CRITERIA															
					Project Effectiveness						Project Commitment									
					IRWMP Objectives															
	Submitting Agency	Project Name	Project ID	Project Type	New Water Supply	Basin Water Quality Improvement	Operational Flexibility (Potable)	Ecosystem Restoration	Water Management Strategies	Subtotal	Readiness for Implementation	Availability of Local Funds	Total Project Commitment Score	Serves Disadvanted Communities	Regional Benefit	Subtotal	Other Benefits	Water Supply or Storage Produced (AFY/AF)	Total Points
Integrates Multiple Water Management Strategies	City of Corona	Rincon Groundwater Treatment Project	C-03	Const.	2	1	1	0	3	7	2	2	4	0	10	21	2	5,600	23
	City of Corona	Lee Lake Water District's Discharge to Bedford Subbasin	C-06	Const.	2	1	1	0	3	7	2	2	4	0	10	21	2	800	23
	City of Corona	Coldwater Subbasin Enhanced Recharge Program	C-09	Const.	2	1	1	0	3	7	2	2	4	0	10	21	1	2,000	22
	City of Corona	Recharge Basins within Oak Avenue Detention Basin	C-10	Const.	2	1	1	0	3	7	2	5	7	0	5	19	1	5,000	20
	City of Corona	Recharge Basins within Main Street Detention Basin	C-11	Const.	2	1	1	0	3	7	2	5	7	0	5	19	1	1,500	20
	City of Corona	Upgradient Injection Wells	C-12	Const.	2	1	1	0	3	7	2	5	7	0	1	15	2	4,800	17
	City of Corona	Recycled Water Zone 3 to Zone 2 Interconnect	C-14	Const.	2	0	1	0	3	6	2	2	4	0	1	11	2	1,800	13
	HGCSD	Home Gardens Raw Water Supply to Arlington Desalter	HG-01	Const.	2	1	1	0	3	7	1	0	1	5	10	23	1	2,200	24
	JCSD	Joint JCSD-IEUA Water Reclamation Project	J-01	Const.	2	0	1	0	3	6	2	2	4	5	10	25	1	1,616	26
	JCSD	Teagarden Ion Exchange Expansion	J-05	Const.	2	1	1	0	3	7	3	3	6	2	5	20	1	7,800	21
	City of Norco	Lake Norconian Water Supply with RW	N-02	Const.	2	0	1	1	3	7	1	2	3	0	5	15	2	224	17
	City of Riverside	Downtown Groundwater Treatment Plant	R-01	Const.	2	1	1	0	3	7	2	2	4	2	5	18	1	7,000	19
	City of Riverside	Pellesier Ranch Barrier Wells and Water Treatment Plant	R-03	Const.	2	1	1	0	3	7	3	3	6	2	5	20	1	11,200	21
	City of Riverside	Recycled Water Master Plan	R-04	Const.	2	0	1	0	3	6	1	3	4	2	5	17	2	15,000	19
	City of Riverside	Riverside North Basin Recharge Basin	R-06	Const.	2	1	1	0	3	7	2	3	5	2	10	24	1	3,800	25
	RCSD	Well 17 and 18 Manganese Removal Treatment Facility	RB-03	Const.	2	1	1	0	3	7	4	3	7	5	10	29	1	7,900	30
	SARWC	New well supply to Teagarden Ion X Plant or CDA	SA-02	Const.	2	1	1	0	3	7	1	0	1	5	5	18	1	3,200	19
	WMWD	Arlington Desalter Expansion of 3.6 MGD	W-01	Const.	2	1	1	0	3	7	3	5	8	2	5	22	1	4,000	23
	WMWD	Chino Basin Dry Year Yield Study	W-02	Planning	2	1	1	0	3	7	1	2	3	2	10	22	2	8,000	24
	WMWD	March Reclamation Facility Phase 2 Expansion	W-05	Const.	2	1	1	0	3	7	5	5	10	0	5	22	1	3,000	23
	WMWD	RC Feeder - All Reaches	W-09.0	Const.	2	1	1	0	3	7	2	2	4	2	10	23	2	40,000	25
	WMWD	RC Feeder - Central Reach	W-09.2	Const.	2	1	1	0	3	7	3	2	5	2	10	24	2	NA	26
	WMWD	System interconnections with City of Riverside	W-13	Const.	2	0	1	0	3	6	2	5	7	0	5	18	1	NA	19

Scoring Criteria

Meets IRWMP Objectives: Score **2** for 1 objective. Add **1** point for each additional objective met.

Supports Water Management Strategies: See below. Score **1** point for single strategy, **2** points for 2 strategies. Score **3** points for 3 strategies, 1 strategy must be related to water supply.

Serves Disadvantaged Communities: Score **2** if project area includes disadvantaged communities. Score **5** if project provides specific benefit to disadvantaged communities.

Readiness for Implementation: Score **1** point for limited information, **2** points for feasibility study for project covered in master plan or CIP, **3** points for preliminary design, scope, and budget, **4** points if also have environmental documentation, and **5** points for detailed design, scope and budget.

Availability of Local Funds: No funds, **0** points. 10%, **2** points, 50%, **3** points, 75%, **5** points.

Regional Benefit: Single agency, **1** point. 2 agencies, **5** points. 3+ agencies, **10** points.

Other Benefits: **1** point each if a locally needed project, provides recreation/open space benefits, reduces reliance on MWD water, or reduces reliance on MWD for peak demands.

Water Management Strategies:
Flood control
Land use planning
Recreation
Conservation
Conveyance and intertie
Storage (including conjunctive use)
Groundwater management/quality protection
Water supply (provides water supply, improves water supply quality, or if groundwater improvement for agencies highly dependent on GW supplies)
Recycled water production or delivery
Surface water management/quality
Ecosystem protection/restoration, habitat enhancement, wetlands restoration

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Table 5-8
Regional Projects

					SCORING CRITERIA															
					Project Effectiveness						Project Commitment									
					IRWMP Objectives															
	Submitting Agency	Project Name	Project ID	Project Type	New Water Supply	Basin Water Quality Improvement	Operational Flexibility (Potable)	Ecosystem Restoration	Water Management Strategies	Subtotal	Readiness for Implementation	Availability of Local Funds	Total Project Commitment Score	Serves Disadvanted Communities	Regional Benefit	Subtotal	Other Benefits	Water Supply or Storage Produced (AFY/AF)	Total Points
Regional Projects	City of Corona	Rincon Groundwater Treatment Project	C-03	Const.	2	1	1	0	3	7	2	2	4	0	10	21	2	5,600	23
	City of Corona	El Sobrante Groundwater Treatment Project	C-05	Const.	2	1	1	0	2	6	2	2	4	0	10	20	2	5,600	22
	City of Corona	Lee Lake Water District's Discharge to Bedford Subbasin	C-06	Const.	2	1	1	0	3	7	2	2	4	0	10	21	2	800	23
	City of Corona	Coldwater Subbasin Enhanced Recharge Program	C-09	Const.	2	1	1	0	3	7	2	2	4	0	10	21	1	2,000	22
	City of Corona	Recycled Water Injection Wells	C-13	Planning	2	0	1	0	2	5	2	5	7	0	10	22	2	4,500	24
	HGCSD	Home Gardens Raw Water Supply to Arlington Desalter	HG-01	Const.	2	1	1	0	3	7	1	0	1	5	10	23	1	2,200	24
	JCSD	Joint JCSD-IEUA Water Reclamation Project	J-01	Const.	2	0	1	0	3	6	2	2	4	5	10	25	1	1,616	26
	JCSD	Prado Area Wetlands Parks	J-07	Planning	0	2	0	1	1	4	1	0	1	2	10	17	1	NA	18
	City of Norco	Water Exchange with City of Corona and City of Riverside	N-01	Const.	0	0	2	0	1	3	1	0	1	0	10	14	1	NA	15
	City of Riverside	Riverside North Basin Recharge Basin	R-06	Const.	2	1	1	0	3	7	2	3	5	2	10	24	1	3,800	25
	City of Riverside	Riverside Pump Station #1 (Raub Regional Emergency Supply Project)	R-07	Const.	1	0	2	0	2	5	3	5	8	2	10	25	1	4,200	26
	RCSD	Emergency Interconnections	RB-02	Const.	0	0	2	0	1	3	2	2	4	5	10	22	1	<=12,000	23
	RCSD	Well 17 and 18 Manganese Removal Treatment Facility	RB-03	Const.	2	1	1	0	3	7	4	3	7	5	10	29	1	7,900	30
	WMWD	Chino Basin Dry Year Yield Study	W-02	Planning	2	1	1	0	3	7	1	2	3	2	10	22	2	8,000	24
	WMWD	Lake Mathews Water Treatment Plant	W-04	Const.	1	0	2	0	2	5	2	2	4	2	10	21	1	44,000	22
	WMWD	RC Feeder - All Reaches	W-09.0	Const.	2	1	1	0	3	7	2	2	4	2	10	23	2	40,000	25
	WMWD	RC Feeder - Central Reach	W-09.2	Const.	2	1	1	0	3	7	3	2	5	2	10	24	2	NA	26
	WMWD	RC Feeder - Southern1 Reach	W-09.3	Const.	1	0	2	0	1	4	4	2	6	2	10	22	2	NA	24
	WMWD	Riverside/Arlington Groundwater Basin Model	W-10	Planning	1	2	1	0	2	6	5	5	10	2	10	28	0	NA	28
	WMWD	WMWD WUEMP	W-11	Planning	2	0	0	0	1	3	4	2	6	2	10	21	1	NA	22
	WMWD	Chino II Desalter Expansion	W-12	Const.	2	1	1	0	2	6	3	3	6	2	10	24	2	11,500	26
	WMWD	Disadvantaged Communities Conservation Outreach	W-16	Const.	2	0	0	0	1	3	1	2	3	5	10	21	1	NA	22

Scoring Criteria

Meets IRWMP Objectives: Score **2** for 1 objective. Add **1** point for each additional objective met.

Supports Water Management Strategies: See below. Score **1** point for single strategy, **2** points for 2 strategies. Score **3** points for 3 strategies, 1 strategy must be related to water supply.

Serves Disadvantaged Communities: Score **2** if project area includes disadvantaged communities. Score **5** if project provides specific benefit to disadvantaged communities.

Readiness for Implementation: Score **1** point for limited information, **2** points for feasibility study for project covered in master plan or CIP, **3** points for preliminary design, scope, and budget, **4** points if also have environmental documentation, and **5** points for detailed design, scope and budget.

Availability of Local Funds: No funds, **0** points. 10%, **2** points, 50%, **3** points, 75%, **5** points.

Regional Benefit: Single agency, **1** point. 2 agencies, **5** points. 3+ agencies, **10** points.

Other Benefits: **1** point each if a locally needed project, provides recreation/open space benefits, reduces reliance on MWD water, or reduces reliance on MWD for peak demands.

Water Management Strategies:
Flood control
Land use planning
Recreation
Conservation
Conveyance and intertie
Storage (including conjunctive use)
Groundwater management/quality protection
Water supply (provides water supply, improves water supply quality, or if groundwater improvement for agencies highly dependent on GW supplies)
Recycled water production or delivery
Surface water management/quality
Ecosystem protection/restoration, habitat enhancement, wetlands restoration

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Table 5-9
Potable and Non-Potable Supply Projects

	Submitting Agency	Project Name	Project ID	Yield (AFY)
Potable Supply Projects	BSMWC	Nitrate Removal System	BS-01	180
	City of Corona	New Water Wells	C-01	1,935
	City of Corona	Replacement Water Wells	C-02	1,935
	City of Corona	Rincon Groundwater Treatment Project	C-03	5,600
	City of Corona	Wellhead Treatment for Wells 6,7, and 17	C-04	4,800
	City of Corona	El Sobrante Groundwater Treatment Project	C-05	5,600
	City of Corona	Lee Lake Water District's Discharge to Bedford Subbasin	C-06	800
	City of Corona	Coldwater Subbasin Enhanced Recharge Program	C-09	2,000
	City of Corona	Recharge Basins within Oak Avenue Detention Basin	C-10	5,000
	City of Corona	Recharge Basins within Main Street Detention Basin	C-11	1,500
	City of Corona	Upgradient Injection Wells	C-12	4,800
	City of Corona	Recycled Water Injection Wells	C-13	4,500
	City of Corona	Groundwater Treatment Program	C-18	3,800
	HGCSD	Home Gardens Raw Water Supply to Arlington Desalter	HG-01	2,200
	JCSD	Teagarden Ion Exchange Expansion	J-05	7,800
	JCSD	High School Well Renovation	J-08	600
	City of Riverside	Downtown Groundwater Treatment Plant	R-01	7,000
	City of Riverside	Riverside North Basin Recharge Basin	R-06	3,800
	RCSD	Well 17 and 18 Manganese Removal Treatment Facility	RB-03	7,900
	SARWC	New well supply to Teagarden Ion X Plant or CDA	SA-02	3,200
	WMWD	Arlington Desalter Expansion of 3.6 MGD	W-01	4,000
	WMWD	Chino Basin Dry Year Yield Study	W-02	8,000
	WMWD	Lake Mathews Water Treatment Plant	W-04	44,000
	WMWD	RC Feeder - All Reaches	W-09.0	40,000
	WMWD	Chino II Desalter Expansion	W-12	11,500
		Total Yield (AFY) - Projects With Known Yield		**182,450**
	WMWD	Murrieta Division Recharge Study	W-06	NA
	WMWD	WMWD WUEMP	W-11	NA
	WMWD	Disadvantaged Communities Conservation Outreach	W-16	NA
Non-Potable Supply Projects	City of Corona	WWTP1A Upgrade to Tertiary	C-17	0
	City of Corona	Recycled Water Zone 3 to Zone 2 Interconnect	C-14	1,800
	City of Corona	WWTP2 Upgrade to Tertiary	C-16	0
	EVMWD	Wildomar Recyled Water Project-Phase1	EV-04	1,200
	EVMWD	Wildomar Recyled Water Project-Phase1A	EV-05	552
	JCSD	Joint JCSD-IEUA Water Reclamation Project	J-01	1,616
	JCSD	Indian Hills Water Recycling Project	J-03	8,000
	City of Norco	Lake Norconian Water Supply with RW	N-02	224
	City of Riverside	Pellesier Ranch Barrier Wells and Water Treatment Plant	R-03	11,200
	City of Riverside	Recycled Water Master Plan [1]	R-04	15,000
	City of Riverside	Water Recycling Project-Phase1 [1]	R-05	2,300
	RCWD	MF/RO Treatment Plant	RC-01	5,000
	WMWD	March Reclamation Facility Phase 2 Expansion	W-05	3,000
		Total Yield (AFY)		**47,590**

[1] Project R-04 can provide 15,000 AFY of recycled water use and includes 2,300 AFY from project R-05. However, ultimate (2030) goal is to provide as much as 41,000 AFY of recycled water if sufficient users can be identified.

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5.3.5 Integration of Water Management Strategies

The mix of water supply projects identified through the analysis above represent the water management strategies from Section 5.1 of water supply reliability, groundwater management, water conservation, water quality protection and improvement, conjunctive use, desalination, imported water (for recharge and storage), non-point sources pollution control, water and wastewater treatment, and regional, inter-basin water transfers. These projects have been selected for inclusion in the Plan because they articulate the needs in the region as well as:

- Provide regional benefits for more than one agency.
- Represent geographic diversity within Western's service area and provide reliability benefits by providing local supplies close to use areas where they are used.
- Use primarily groundwater which is pumped from many wells and therefore provides reliability from a supply perspective.
- Improve water quality in the Chino, Arlington, and Temescal Basins by desalting and exporting brine.
- Improve water quality in the SBBA by increasing recharge of high quality SWP water and pumping and treating water impacted by perchlorate and TCE/PCE or improve stormwater quality to the Prado Basin.
- Provide conveyance through the R/C Feeder that can integrate both inside the region by conveying Arlington Desalter water as well as regionally outside of Western's service area by conveying SBBA water.
- Provide the ability to transfer water between groundwater basins.
- Provide environmental/recreational benefit.

As discussed earlier, many of the projects identified integrate multiple water management strategies. For example, the R/C Feeder incorporates the strategies of water supply reliability, groundwater management in the SBBA, imported water for aquifer storage in the SBBA to increase the yields for SWP water, and provide the opportunity to better utilize existing/expanded desalters. One of the projects in this IRWMP will potentially provide recharge to an existing flood control effort between Murrieta County and the Army Corps of Engineers; another example of integration. Other strategies include NPS pollution control by incorporating treatment for perchlorate in the SBBA, water treatment for salt removal, and water transfers from the SBBA to the Riverside groundwater basins from the Arlington to the Riverside groundwater basins, and to Western's retail service area which does not cover any groundwater basins. The integration of these multiple water management strategies yields benefits such as treating underutilized groundwater supplies, improving water quality, and delivering potable supply to increase the reliability of the water supply.

Additionally, integration of projects can lead to an integration of water management strategies; which may provide additional benefits, as compared to implementing stand alone projects. These added benefits may include:

- Facilitating cost sharing among agencies (economy of scale) and organizations,
- Resolving potentially conflicting water management needs,
- Avoiding duplication of planning, design, compliance, or implementation efforts,
- Identifying and resolving jurisdictional, legal, regulatory, administrative, or water rights issues,
- Enhancing efficiency of monitoring (e.g., combining monitoring efforts and reducing monitoring duplication) and data management,
- Increasing public awareness, public education and outreach, and stakeholder involvement, and
- Providing synergistic effects to optimize attainment of IRWM Plan objectives.

5.3.6 Integrated Projects

The integrated regional water management planning process brought together various groups in order to discuss and better understand the shared needs and opportunities of the region. Local water agencies, flood control agencies, planning entities, open space, recreation, and habitat preservation interests all collaborated to discuss integrated water management topics and compile a list of projects. During this process, inter-agency collaboration and input allowed for opportunities to improve projects and enhance benefits and effectiveness through identification of project partnership opportunities and integration of multiple projects.

Through stakeholder discussions of projects, entities decided to join and collaborate on a number of projects rather than duplicate effort. Additionally, interrelationships between projects were identified which can be utilized to implement individual projects as integrated 'project bundles', in order to maximize the potential benefits of these projects for the region. Implementation of individual projects as integrated groups is beneficial because it utilizes resources and facilities within individual agencies to augment systems and provide benefits that can be shared throughout multiple agencies within the region. Table 5-10 lists the integrated projects and how they are related to one another.

Table 5-10
Integrated Projects

Project Name	ID	Description	Integration
RC Feeder - All Reaches	W-09.0	The RC Feeder will connect facilities within WMWD's northern and central service area to the Bunker Hill Basin in San Bernardino County. The facilities will allow conveyance between the Bunker Hill, Arlington, Chino, Riverside, and Temescal Basins as well as desalters and local water systems. The project will promote conjunctive use and water reliability.	The Riverside-Corona Feeder Project (W-9.0 to W-9.4) will reduce the WMWD dependency on imported water by banking water in the upper areas of the Santa Ana River basin as well as by facilitating conveyance of desalted groundwater from the Arlington and Chino Basin Desalters to WMWD's service area. In addition, the project could convey desalted water from the City of Riverside Downtown Groundwater Treatment Plant Project (R-01) which will provide desalted water from the Riverside South Basin. The Chino Basin Dry Year Yield Study (W-2) and Chino II Desalter Expansion (W-12) will augment the Chino Desalter supplies to the RC-Feeder. The City of Riverside's Pump Station #1 Project (R-7) will provide an additional source of supply of Bunker Hill Basin water to WMWD.
RC Feeder - North Reach	W-09.1	Infrastructure from Bunker Hill to Jurupa	
RC Feeder - Central Reach	W-09.2	Infrastructure from Jurupa to Mockingbird P.S.	
RC Feeder - Southern1 Reach	W-09.3	Infrastructure from Arlington Desalter to Central Reach	
RC Feeder - Southern2 Reach	W-09.4	Infrastructure from Arlington Desalter West to Corona	
Arlington Desalter Expansion of 3.6 MGD	W-01	Enhance and expand existing Arlington desalter by 4000 AF/yr to 10 MGD. Suitable for potable delivery. Also desalinizes and blends water for recharge in the Santa Ana River (OCWD). Intercept perchlorate-contamined groundwater flows to Santa Ana River and use discharge as Desalter water. Brine discharges to SARI line.	
Chino Basin Dry Year Yield Study	W-02	The project will evaluate the possiblity of developing 25,000 AF of storage North of Jurupa and approximately 8,000 AFY of groundwater pumping yield and nitrate removal in the Chino Basin through extraction/ASR wells as far north as Fontana or Ontario. Facilities will connect this supply with the Riverside-Corona Feeder at the Central Reach. This project would allow water to be stored in the Chino Basin when surplus supplies are available and extracted when needed.	
Chino II Desalter Expansion	W-12	Expansion from 10 MGD to 20.5 MGD	
Downtown Groundwater Treatment Plant	R-01	Construct a treatment plant for treatment of contaminated groundwater that can be the used as a potable supply, and producing water from three to five wells in the area of downtown Riverside. The capacity of the plant would be 7.0 mgd with an assumed annual use factor of approximately 90% for an annual production of 7,000 ac-ft/yr. Construction of approximately 10,000 ft of pipeline to convey the product water to the Lynden-Evans reservoir.	
Riverside Pump Station #1 (Raub Regional Emergency Supply Project)	R-07	Emergency supply connection to SBVMWD Central Feeder pipeline.	
Potential Jurupa SWTP at Etiwanda Pipeline	Future	Future surface water treatment plant to treat MWD SWP water, when available, can be conveyed through JCSD system to RC Feeder.	
Recharge Basins within Oak Avenue Detention Basin	C-10	Project will configure Oak Avenue Detention Basin for groundwater recharge of stormwater. According to a pilot study, a recharge basin constructed within the larger detention basin is capable of receiving and percolating about 2,500 AF/year or 4,000/5,000 AF/year if two basins are constructed. Recycled water or imported water can also be conveyed to the basin for recharge.	The Zone 3 to Zone 2 Interconnect (C-14) could allow recycled water to be stored in the detention basins on Oak Avenue and Main Street, which are being expanded as part of projects C-10 and C-11. The Zone 3 to Zone 2 Interconnect would allow conveyance of recycled water from the WWTP3 (which would be discharged to a live stream during wet weather otherwise) to be conveyed into Zone 2 and recharged in the expanded detention basins.
Recharge Basins within Main Street Detention Basin	C-11	Project will configure Main Street Detention Basin for groundwater recharge of stormwater. According to a pilot study, a recharge basin constructed within the larger detention basin is capable of receiving and percolating about 500 AF/year or 1,500 AF/year if two basins are constructed.	
Recycled Water Zone 3 to Zone 2 Interconnect	C-14	Connect Zone 3 to Zone 2 to allow conveyance of recycled water to different groundwater storage facilities in the City. Currently, Zone 3 is fed by WWTP3 and is not connected to any groundwater storage facilities, during wet periods the effluent from WWTP3 is discharged to the Temescal Wash rather than stored in the groundwater basin.	
Upgradient Injection Wells	C-12	Enhanced recharge through wells at the upgradient portion of the Channel Aquifer, near Arlington Gap. Potable, recycled, or blended water could be injected into these wells.	Project C-12 would develop recharge facilities near the Arlington Gap and help meet a need for increased yield of the Temescal Basin. The Phase 2 expansion of the MARB Reclamation Facility (W-05) will provide excess recycled water in the WMWD U-2 system that can be used for recharge at the Arlington Gap.
March Reclamation Facility Phase 2 Expansion	W-05	Expand the March Reclamation Facilty from 1 MGD to 3 MGD and add tertiary treatment in order to provide additional treatment capacity and irrigation water for new developments as well as water for groundwater recharge.	
Water Exchange with City of Corona and City of Riverside	N-01	The project involves a non-potable water transfer and exchange between the Cities of Riverside, Norco, and Corona. The Crestview Memorial cemetery in the City of Riverside could be served by a 1 mile extension of the Norco recycled water system. The City of Norco could receive recycled water from the City of Corona's Zone 2 to provide non-potable supply to the Hidden Valley Golf Course.	Wet weather discharge from the City of Corona WWTP3 is currently discharged to Temescal Creek. The Zone 3 to Zone 2 Interconnect (C-14) will allow the excess recyled water to be conveyed to Zone 2, which would allow the water to be used in a water exchange with the City of Norco (N-01) and possibly irrigate the Hidden Valley Golf Course or provide other non-potable uses.
Recycled Water Zone 3 to Zone 2 Interconnect	C-14	Connect Zone 3 to Zone 2 to allow conveyance of recycled water to different groundwater storage facilities in the City. Currently, Zone 3 is fed by WWTP3 and is not connected to any groundwater storage facilities, during wet periods the effluent from WWTP3 is discharged to the Temescal Wash rather than stored in the groundwater basin.	
Wildomar Recyled Water Project-Phase1	EV-04	Construct 32,500 feet of recycled water pipelines and the necessary on-site system conversions to provide recycled water service to thirty (34) sites including seven schools, a cemetery, park, church, and the Diamond Stadium.	The Phase 1A Recycled Water Project (EV-05) will expand upon facilities built through the Phase 1 Project (EV-04) to provide recycled water to additional users in EVMWD's Wildomar area.
Wildomar Recyled Water Project-Phase1A	EV-05	Construct 7,200 feet of recycled water pipelines, two pump stations, and two storage reservoirs, and the necessary on-site system conversions to provide recycled water to six (6) sites including one school and five landscape areas.	

Table 5-10
Integrated Projects

Project Name	ID	Description	Integration
Home Gardens Raw Water Supply to Arlington Desalter	HG-01	Construct 3 miles pipeline from Home Gardens well field to Arlington Desalter and upgrade existing wells.	Water from Home Gardens supplied to the Arlington Desalter (HG-01) would help supply the additional groundwater needed with the expansion of the Desalter to 10 MGD (W-01).
Arlington Desalter Expansion of 3.6 MGD	W-01	Enhance and expand existing Arlington desalter by 4000 AF/yr to 10 MGD. Suitable for potable delivery. Also desalinizes and blends water for recharge in the Santa Ana River (OCWD). Intercept perchlorate-contamined groundwater flows to Santa Ana River and use discharge as Desalter water. Brine discharges to SARI line.	
Lake Elsinore Water Quality Improvement Project, Phase I	SJ-01	Construct facilities to transfer and treat water to Lake Elsinore as part of a larger effort to meet short and long term water quality and lake levels. The project will provide 8 mgd of chemical phosphorus treatment of reclaimed water to supply Lake Elsinore.	Projects will help improve the water quality of Lake Elsinore and its ability to serve as a habitat and recreational facility.
Lake Elsinore Water Quality Improvement Project, Phase II	SJ-02	Construct a 10 mgd remote transfer granular media filtration process at the Elsinore Valley RWRF as part of a larger effort to meet short and long term water quality and lake levels. The filtration system will remove phosphorus from treated water used to supply Lake Elsinore.	
Lake Elsinore Fishery Enhancement Project	SJ-03	The project is a part of an adaptive fishery enhancement and maintenance program to create a balanced, self-sustaining sport fishery, which complements efforts to rehabilitate lake water quality. Project includes carp control, zooplankton enhancement, aquaitic and emergent vegetation restoration, fish habitat improvement, and fish community structure improvement.	
Lake Elsinore Back Basin Wetlands Rehabilitation Project	SJ-04	The Phase 3 project will construct 100 acres of treatment wetlands as part of a larger effort to meet short and long term water quality and lake levels. The project will construct facilities to modify the Back Basin Wetland for removal of nutrients from water flowing into Lake Elsinore.	
Lake Elsinore Alum Treatment Project	SJ-05	The project will provide for temporary treatment of in-lake water quality from inputs of phosphorus from stormwater using aluminum sulfate.	
Lake Elsinore Water Quality Modeling Study	SJ-09	The Project will develop a water quality model of Lake Elsinore will provide information to help stakeholders gain a better understanding of in-lake nutrient processes. Information gained from this model would be used to select effective BMPs to treat/reduce nutrient sources significantly impacting in-lake water quality.	
Canyon Lake Dredging Enhancements	SJ-12	The Canyon Lake Dredging Enhancements project will purchase 10 Dewatering Bins, a 950 wheel loader and develop mitigation habitat. Exessive sedimentation has contributed to a loss of overall reservoir storage capacity, an increase in total nutrient levels in lake bed sediments, a decrease in overall water quality of the lake, and a reduction in the recreational use of the lake due to the raising of the lake bed. The project will double the daily porduction of sediment removal in the lake.	Projects will help improve the overall condition of Canyon Lake and improve its ability to serve as a water storage faciltiy, habitat and recreational facility.
Canyon Lake Alum Treatment Project	SJ-13	The Canyon Lake Alum Treatment Project will provide for the temporary treatment of in-lake water quality from inputs of high concentrations of phosphorus from the San Jacinto River Watershed.	
Stormwater Treatment Wetlands Study for Canyon Lake	SJ-14	The Stormwater Treatment Wetlands Study for Canyon Lake will investigate opportunities to develop treatment wetlands up-stream of Canyon Lake to treat stormwater and other sources of supply. This study will include an investigation of the current impacts of stormwater on lake hydrology, water quality, habitat and recreational opportunities.	
Aeration System for Canyon Lake	SJ-15	The Aeration System for Canyon Lake will install an artificial destratification and hypolimnetic oxygenation system and should maintain aerobic conditions throughout the water column in the main body of Canyon Lake all year. This system should achieve expected improvements in water quality including reduced iron, manganese, ammonia, hydrogen sulfide, and phosphorus, with probable reductions in algal densities.	
Emergency Interconnections	RB-02	Design and construct bi-directional interconnection facilities with Jurupa Community Services District and West Valley Water District to improve reliability of local water supplies.	The interconnection facilities constructed as part of project RB-02 will help distribute the water provided by the Well 17 and 18 Treatment Facility (RB-03)
Well 17 and 18 Manganese Removal Treatment Facility	RB-03	Design and construct new manganese treatment facility to remove manganese from Wells 17 and 18, allowing for 7,900 AF/year of additional potable water for regional system.	
New well supply to Teagarden Ion X Plant or CDA	SA-02	Wells 3, 3a, and 1a are currently shut down because of water quality issues. Wells could potentially serve JCSD Ion Exchange Plant or CDA.	Groundwater from wells 3, 3a or 1a in the SARWC could help supply either the Teagarden Ion Exchange Expansion (J-05) or the Chino II Desalter Expansion (W-12). If supplied to the Chino II Desalter, these projects could augment supplies for the RC-Feeder (W-9.0 to W-9.4) and related projects.
Teagarden Ion Exchange Expansion	J-05	Upgrade JCSD's Ion Exchange Plant from 8 mgd to 15 mgd	
Chino II Desalter Expansion	W-12	Expansion from 10 MGD to 20.5 MGD	
Riverside/Arlington Groundwater Basin Model	W-10	A numerical model for the Riverside Basin will be developed in order to facilitate groundwater management. The model will aid in running scenarios including, but not limited to, new production wells, new desalter production wells, and conjunctive use.	The Riverside/Arlington Groundwater Model (W-10) will help develop scenarios for recharge and groundwater production of the basin (R-06). In addition these projects would augment the Riverside North WTP, which is currently under construction.
Riverside North Basin Recharge Basin	R-06	Construct 2 recharge facilities to recharge Riverside Basin.	

Section 6: Plan Implementation

6.1 Institutional Structure for Plan Implementation

As described in Section 1, Western and retailers within the Western service area have prepared this IRWMP in order to evaluate possible water management alternatives. The responsibility for implementing the IRWMP will be shared among the entities that participated in the planning process and who assisted in preparation of this plan. Members of Western come from five separate geographical areas that make up the overall Western service area, which makes the Western Board representative of the overall Region. Western will adopt the IRWMP and will encourage its member agencies and other plan participants to adopt the IRWMP.

Implementation of individual projects will be carried out by the associated project sponsor. Project sponsors will be responsible for complying with necessary environmental regulations, designing, constructing, and managing their projects. Project sponsors should also be prepared to fund their projects or to pursue funding opportunities such as grants. However, it is anticipated that grant applications, grant requirements, and grant funding will be coordinated by regional agencies, such as Western or SAWPA, as appropriate for the funding opportunity.

In order to keep the IRWMP current, it should be revised on a regular basis. Reviews and updates should focus on analyzing new data and new developments since adoption of the previous plan. Updates should re-evaluate regional needs and plan objectives, gather data on past actions and successes, update the list of potential projects, and then re-evaluate projects based on the revised objectives.

It is anticipated that regular planning efforts already undertaken in the Western region will result in monitoring and data management consistent with integrated regional water management planning. Western and its member agencies are involved in annual reporting of groundwater extractions as part of the Western Judgment. As part of this reporting, Western and others examine actions that affect groundwater extractions and recharge (e.g., changes in imported water, recycled water application). As part of the Stipulated Agreement, Western and its member agencies also participate in tracking, monitoring, and reporting on flows in the Santa Ana River and actions which may affect flows in the Santa Ana River (e.g, changes in wastewater discharges to the river, changes in stormwater management). In addition to these activities, Western and other local agencies prepare and update Urban Water Management Plans every five years. In these plans information on water supply and projections of water supply are regularly evaluated.

In addition to the regular and on-going planning efforts, Western intends to facilitate IRWMP implementation and IRWMP updates through quarterly meetings of IRWMP participants and publication, annually, of an IRWMP status reports.

6.2 Plan Implementation Activities

A number of ongoing activities and planned activities have been identified for plan implementation as summarized below and as required under the IRWMP Guidelines.

6.2.1 Past Actions

Since the adoption of the 2006 IRWMP, Western, its member agencies, and stakeholders in the region have embarked on and completed a number of activities to support implementation of water management strategies. These activities include:

- Preparation of a number of grant/funding applications including groundwater investigations under DWR's Local Groundwater Assistance Program; non-point source pollution reduction through SWRCB's programs; and construction of a portion of the R/C Feeder through the DWR Proposition 50 IRWMP Round 1 Implementation Grant program.
- Initiation of studies by City of Corona, City of Riverside, and Western to further evaluate groundwater yields and conjunctive use opportunities in the Temescal, Riverside, and Arlington groundwater basins
- Initial study by Western on expansion of desalters in the Chino Basin
- Initiation of NEPA compliance by USBR for R/C Feeder
- Initiation of preliminary engineering design by Western for the portion of the R/C Feeder between Arlington Desalter and Mockingbird Pump Station
- Continuing negotiations with Chino Basin parties and SBBA parties to finalize water supply agreements such as participation in the Chino Basin Dry Year Yield Program and the SBVMWD IRWMP for the SBBA.
- Initiation of an update to the IRWMP through an enhanced public outreach process.
- Identification and further development of projects in a range of resource management strategies by Western, its member agencies and stakeholders.

6.2.2 Planned Actions

In addition to the current actions described above, Western and/or its member agencies and stakeholders are planning the following additional activities:

- Continue to seek additional funding for IRWMP implementation through State funding sources, MWD's Local Resource Program, and Federal Funding/appropriation
- Continue quarterly member agency general manager meetings to further communicate the activities each agency is embarking on and review project implementation
- Refinement of GIS land-use based water demand projections
- Evaluation of water supply reliability benefits of various project portfolios using Western's decision-support tool

- Continue implementation of the water management activities, especially those that are ready to proceed.

- Update of the IRWMP following 2010 UWMP, as appropriate and necessary

Many are in initial stages of study and/or design that should be completed in the next 12 to 24 months. At that time, clearer alternatives regarding more specific action items will be identified and timelines developed. Western and its member agencies/stakeholders are committed to implementation of local/regional water supply projects and are laying the foundation for these projects by preparing grant applications, preparing environmental documents, and otherwise initiating feasibility design for these projects.

6.3 Plan Impacts and Benefits

The section below discusses the impacts and benefits of Plan Implementation as required in the IRWMP Guidelines.

6.3.1 Screening Level Impacts and Benefits from Plan Implementation

The impacts and benefits from Plan implementation are expected to include:

<u>Impacts</u>

- Temporary impacts associated with construction (as identified and evaluated in the PEIR for the R/C Feeder)

- Potential impacts associated with operation such as increased energy and chemical use; increased energy use associated with local projects could be offset by reduced energy use associated with imported water

- Financial impact to existing and future Western users and ratepayers

<u>Benefits</u>

- Improved regional water supply reliability, especially for agencies that only have a single source of supply

- Reduced reliance on SWP water, especially in drought

- Improved supply to meet growth in the area

- Improved conveyance to allow more water transfers and water wheeling

- Improved water quality in Chino and Arlington Basins from salt removal and in the SBBA from perchlorate and TCE/PCE removal

- Improved use of groundwater storage for both local (e.g. stormwater and recycled water) and SWP supplies

- Improved recharge of groundwater with associated benefit to flood management and beneficial reuse of recycled water
- Improved groundwater management, especially in Chino and SBBA which have areas of high groundwater that have negative impacts locally and downstream.
- Improved environmental habitat through eco-system restoration projects

In addition there are clear linkages between the high-priority projects such as:

- Arlington Desalter can use the central reaches of the R/C Feeder to convey water from Arlington Desalter to Western's Mockingbird P.S. providing a function for the pipeline before the entire R/C Feeder is completed.
- Construction of the Chino II Desalter expansion from 10 – 20.5 MGD will allow additional water produced at the Arlington Desalter to be conveyed to Western and other agencies for emergency supply.
- Water from the SBBA could be conveyed in the R/C Feeder to Corona for recharge in the Temescal Basin, which could improve groundwater quality in the Temescal Basin.

6.3.2 Evaluation of Potential Impacts Within the Region and In Adjacent Areas from Plan Implementation

The potential impacts in the region and adjacent areas from Plan implementation are expected to be the same as those described in Section 6.3.1, construction impacts and increased regional energy and chemical use. The financial impacts to communities within Western's service area (Region) are being minimized by striving to find alternative grant funding sources. No financial impacts are expected to adjacent areas.

6.3.3 Advantages of the Regional Plan

The advantages of a regional plan as opposed to individual local planning efforts are:

- Ability to consider larger projects that have lower overall cost per partner, because of economies of scale
- Ability to have more partners for implementation of projects with regional benefit (such as the R/C Feeder)
- Ability to "see" opportunities on a broader scale and incorporate multiple projects that achieve a greater regional benefit than individual local projects, such as a conveyance to move water from several sources.

6.3.4 Objectives That Necessitate a Regional Solution

Western's function as a water wholesaler require it to consider both the needs of its retail service area and the needs of its member agencies throughout its 510 square mile service area.

One of the main criteria for evaluating water management strategies was the degree of regional benefit that a project could offer.

6.3.5 Evaluation of Impacts/Benefits to Other Resources, Such As Air Quality or Energy

As discussed earlier, some construction impacts are expected to occur, including temporary air quality impacts. As discussed in the PEIR for the R/C Feeder, air quality impacts will be minimized through use of dust and emissions control. Other impacts identified in the PEIR are some potential cultural and biological resources that could be encountered during construction. Efforts will be made to avoid potential resources during design and if they cannot be avoided, mitigated during construction.

Additional energy will be required to operate facilities associated with implementation of the Plan. This includes pumping and treatment energy, especially for desalters, which generally require reverse osmosis (RO) membranes. Recent improvements in RO technology have reduced energy usage, which is expected to continue in the future. It should be noted that energy associated with producing water to meet the needs of this region would be expended regardless of the source of the water and that pumping of imported SWP water requires a significant amount of energy as well.

6.3.6 Environmental Justice

Concerns for environmental justice will need to be addressed as part of IRWMP implementation. The types of the projects proposed (e.g., projects to reduce water demand, to improve operational efficiency, to increase water supply, to improve water quality) tend to have broad, community-wide and even region-wide benefits. Impacts of these types of projects are generally temporary, related to construction. The potential for environmental justice related impacts due to implementation of IRWMP projects is low. However, as the Region continues to develop, care will need to be taken to prevent creating environmental justice issues that unfairly affect certain communities. The IRWMP objectives must be consistently applied to future projects so as to ensure greatest regional benefits without placing an undue burden on a specific community.

6.4 Financing

Western has already expended considerable effort in preparing grant funding applications for funding of various projects as summarized below.

- R/C Feeder – USBR Authorization, California Proposition 50 (Prop 50) Step 1 and 2 Implementation Grant through SAWPA
- Chino II Desalter, Ultimate Expansion– Prop 50 DHS and SWRCB Consolidated Grants
- Arlington Desalter Expansion – DWR Prop 50

- March ARB WWTP Tertiary and EVMWD Wildomar Phase 1 Recycled Water project-MWD LRP Application

As additional grant programs become available, Western will evaluate whether they are appropriate for these projects or this Plan. Other funding/financing mechanisms that Western is evaluating include bond funding for a number of projects. The main challenge with bond repayment is constructing the projects in such a way that bond repayment can occur quickly through use of the project facilities to deliver water. This is especially challenging for multi-phase projects such as R/C Feeder that may take 8 – 10 years to construct. Portions of the pipeline need to function before the entire pipeline is completed in order to start debt repayment.

The beneficiaries of the projects in the Plan are Western's member agencies and its retail service area.

Financing for operation and maintenance of implemented projects will be through water rates. Water rates will reflect cost components associated with the operation of facilities within the Plan.

6.4.1 Project Funding Opportunities

This section identifies various funding sources and their associated requirements and guidelines, to assist with implementation of Plan Projects. The source of these funds may include: water and wastewater general funds, capital improvement funds, general funds from local Cities, County departments, private organizations, member dues, and user fees. Local taxpayers may also fund these projects through rate increases, bond measures, and tax increases.

Table 6-1 provides a summary of all available, identified funding opportunities, divided into local, state, and federal funding sources. Table 6-2 shows which of these potential funding opportunities may be applied to projects in the Plan; due to the size of Table 6-2, it has been placed at the end of this Section. Some of these funding opportunities are described in greater detail in Sections 6.5.1.1 through 6.5.1.4, which present information on local, state, and federal funding sources.

TABLE 6-1
POTENTIAL FUNDING OPPORTUNITIES

Funding Objective	Program Sponsor	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
LOCAL						
Additional Local Supply	MWD	Local Resources Program	Reimburses up to $250/AF above projected rates	MWD Member agency applies (e.g. WMWD) on behalf of applicant	Rolling applications	http://www.mwdh2o.com/mwdh2o/pages/business/business01.html
Other local funding opportunities include revenue bonds and property taxes for capital, parcel taxes, existing capital improvement budgets, and user fees.						
STATE						
Proposition 84						
Water Quality, Water Supply, Resource Stewardship	DWR	Chapter 2 - Funding for IRWMP planning and implementation	$100M budget	Public agencies and non-profit organizations (other groups may also receive funding if teamed with public agency or non-profit organization)	Funding anticipated in FY 2008.	Joe Yun jyun@water.ca.gov
Water Quality	DPH	Chapter 2 - Emergency/Urgent Water Supply Protection	$10M budget; max grant $250,000	Local water suppliers	Funding anticipated in FY 2008.	Steve Woods (916) 449-5624
Water Quality	DPH	Chapter 2 - Small Community Drinking Water Infrastructure Program	$180M budget, max grant $5 million	Local water suppliers	Funding anticipated in FY 2008.	Steve Woods (916) 449-5624
Water Quality	DPH	Chapter 2 - Prevention of Groundwater Contamination	$50M budget	Community water systems, preference for systems serving Disadvantaged Communities	Funding anticipated in FY 2008.	Steve Woods (916) 449-5624
Water Quality	SWRCB	Chapter 5 - Storm Water Grant Program	$90M budget	Local public agencies	Funding anticipated in FY 2008.	Erin Ragazzi (916) 341-5733
Proposition 1E						
Flood Management	DWR	FloodSAFE California. Grants for stormwater flood management projects with non-state cost share of not less than 50%; projects must not be part of State Plan for Flood control, must have multiple benefits, comply with Basin Plans, and be consistent with an IRWMP	$300M	DWR has not yet provided information on eligible applicants	DWR has not yet provided information on funding or applications for this program	floodSAFE@water.ca.gov

Funding Objective	Program Sponsor	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Proposition 50						
Water Supply/ Security	DPH	Chapter 3 - Water Security: Grants for protection of state, local, and regional drinking water systems	Grants cannot be used for the routine responsibilities or projects previously required by a DPH compliance order, permit or regulation. $10 million maximum grant per project; $50,000 minimum; 1 to 1 local resource match to grant award required except for small community systems and Disadvantaged Communities. http://ww2.cdph.ca.gov/certlic/drinkingwater/Pages/DWPfunding.aspx	State, local, and regional drinking water systems under DPH regulation	DPH provides a universal application for most of its grant programs.	Mark Bartson (707) 576-2734
Water Quality	DPH	Chapter 4 - Community Water System Monitoring Facilities: Water quality monitoring facilities and equipment; must be in non-compliance with a safe drinking water standard	Project Funding: $5,000-$2 million. 50% local match required, but waived for Disadvantaged Communities and small water systems. http://ww2.cdph.ca.gov/certlic/drinkingwater/Pages/DWPfunding.aspx	Public water systems under DPH regulation	DPH provides a universal application for most of its grant programs.	Mark Bartson (707) 576-2736
Water Quality	DPH	Chapter 4 - Drinking Water Source Protection: For planning, preliminary engineering, detailed design, construction, education, land acquisition, conservation easements, equipment purchase, and implementing the elements of a Source Water Protection program	Project Funding: $50,000-$2 million. 50% local match required, but waived for Disadvantaged Communities and small water systems. http://ww2.cdph.ca.gov/certlic/drinkingwater/Pages/DWPfunding.aspx	Public water systems under DPH regulation	DPH provides a universal application for most of its grant programs.	Mark Bartson (707) 576-2738
Water Quality	DPH	Chapter 4 - Disinfection By-Product Treatment Facilities: To meet DBP safe drinking water standards, must be in non-compliance with the EPA Stage 1 DBP Rule MCLs or treatment technique	Project Funding: $50,000-$2 million. 50% local match required, but waived for Disadvantaged Communities and small water systems. http://ww2.cdph.ca.gov/certlic/drinkingwater/Pages/DWPfunding.aspx	Public water systems under DPH regulation	DPH provides a universal application for most of its grant programs.	Mark Bartson (707) 576-2739
Water Quality	DPH	Chapter 4a1 - Small Community Water System Facilities: Upgrade monitoring, treatment, or distribution infrastructure of small community water systems; must be in noncompliance with a safe drinking water standard	Project Funding: $5,000-$2 million. No required local match. http://ww2.cdph.ca.gov/certlic/drinkingwater/Pages/DWPfunding.aspx	Small Community Water Systems: < 1,000 connections or 3,300 people	DPH provides a universal application for most of its grant programs.	Mark Bartson (707) 576-2735
Water Quality	DPH	Chapter 4a2 - Demonstration Projects & Studies for Contaminant Treatment: Development and demonstration of new treatment and related facilities for water contaminant removal and treatment	Project Funding: $50,000-$2 million. 50% local match required, but waived for Disadvantaged Communities and small water systems. http://ww2.cdph.ca.gov/certlic/drinkingwater/Pages/DWPfunding.aspx	Public water systems under DPH regulation	DPH provides a universal application for most of its grant programs.	Mark Bartson (707) 576-2737

Funding Objective	Program Sponsor	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Water Quality	DPH	Chapter 6(b) - Demonstration Projects and Studies for Contaminant Removal: Treatment or removal technology for the following contaminants: Petroleum products, such as MTBE and BTEX, N-Nitrosodimethylamine (NDMA), Perchlorate, Radionuclides, such as radon, uranium, and radium, Pesticides and herbicides, Heavy metals, such as arsenic, mercury, and chromium, Pharmaceuticals and endocrine disrupters	Project Funding: $50,000-$5 million No more than 30% of the funds can address a single contaminant. 50% match that can be waived for Disadvantaged Communities or small water systems. http://ww2.cdph.ca.gov/certlic/drinkingwater/Pages/DWPfunding.aspx	Public water systems under DPH regulation	DPH provides a universal application for most of its grant programs.	Mark Bartson (707) 576-2740
Water Quality	DPH	Chapter 6(c) - Ultraviolet (UV) and Ozone Disinfection. Must address an Maximum Contaminant Level (MCL) compliance violation, surface water treatment microbial requirements, or other mandatory disinfection that can only be met by UV/ or ozone; the water system must demonstrate that it can operate and maintain the treatment facilities; ozone treatment projects shall be designed and operated to minimize residual disinfection byproduct formation from the ozone treatment	Project Funding: $50,000-$5 million http://ww2.cdph.ca.gov/certlic/drinkingwater/Pages/DWPfunding.aspx	Public water systems under DPH regulation	DPH provides a universal application for most of its grant programs.	Mark Bartson (707) 576-2741
Conservation/ Water Supply	DWR	Chapter 7(g) - Water Use Efficiency Grants: Program primarily funds projects not locally cost effective, and that provide water savings, or in-stream flows that are beneficial to the Bay-Delta or the rest of the state. Consideration also for water quality and energy efficiency	Two step on-line process application process: first step is concept proposal and second step is detailed on-line submittal. Project Funding: $3 million, cost-share expected http://www.owue.water.ca.gov/finance/index.cfm	Cities, counties, districts, tribes, non-profits; also utilities and mutual water companies for Section A, also universities, colleges, state, and federal for Section B.	DWR posted its 2008 WUE Draft Proposal Solicitation Package on January 25, 2008. Step 1 Application due TBD following determination of AB 1420 requirements. Step 2 Application due TBD.	Baryohay Davidoff DWR (916) 651-9666
Proposition 13						
Conservation	DWR	Agricultural Water Conservation: voluntary, cost effective projects or programs to improve agricultural water use efficiency, and feasibility studies for such projects	Canal or ditch piping or lining projects; tailwater recovery projects; and replacement of leaking distribution system components; $5 million per eligible project http://www.grantsloans.water.ca.gov/loans/conservation.cfm	Local public agencies and incorporated mutual water companies	Continuous filing; application being updated.	Baryohay Davidoff DWR (916) 651-9666

Funding Objective	Program Sponsor	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Proposition 82						
Water Supply	DWR	New Local Water Supply Construction: Provides funding for water supply development projects and feasibility studies (loans)	Projects such as a canals, dams, reservoirs, groundwater extraction facilities or other construction or improvements; up to $5 million per eligible project	Local public agencies	Continuous filing	David Rolph (916) 651-9635
Other						
Water Quality	DPH, SWRCB	Drinking Water State Revolving Fund: Provides low-interest loans and/or grants to assist public agencies in correcting deficiencies in water infrastructure for compliance with the Safe Drinking Water Act	Grants and loans can be combined with other funding sources	Publicly owned treatment works, local public agencies, non-profit organizations, and private parties	Applications vary depending on type of project and agency from which funds requested. Applications are accepted on a continuing basis.	Steve Woods (DPH) (916) 449-5624 Dave Kirn (SWRCB) dkirn@waterboards.ca.gov
Water Supply	State Department of Housing and Community Development	Community Development Block Grant (CDBG) Program – Planning & Technical Assistance Grants: Project must principally benefit low income persons/ households; for example, provide clean water to residents of a community with over half its residents qualifying as low income	Pay for project feasibility study, final plans and specs, site acquisition and construction, and grant admin costs; pay for one time assessment fees; pay for installation of private laterals and hook-up fees	Cities or counties are not under HUD's CDBG entitlement program; jurisdictions can pay for their own system or give funds to private or public water providers	Notices of Funding Availability released each year, with two funding cycles per year.	CDBG Program Administration (916) 552-9398
Resource Conservation	Department of Parks and Recreation	Land and Water Conservation Fund – For acquisition or development projects. Acquisition projects shall be for outdoor recreation, development projects shall include the construction of new and/or renovated existing facilities for outdoor recreation.	50% reimbursement, match can be money, services, or real property	Cities, counties and districts authorized to acquire, develop, operate and maintain park and recreation areas.	Application for local agencies due March 3, 2008 and for state agencies June 2, 2008	Patti Keating (916) 653-7423
Resource Stewardship	Resources Agency	Environmental Enhancement and Mitigation Program – Resource Lands: Projects for the acquisition, restoration, or enhancement of watersheds, wildlife habitat, wetlands, forests, or other natural areas.	No match required. http://www.resources.ca.gov/eem/	Local, state, federal government and non-profit organizations	2008/2009 Solicitation Period TBD.	EEM Program Coordinator (916) 654-9923
Water Quality	EPA-SWRCB	Federal 319 Program: Funding to support projects throughout the State to restore impaired surface waters through the control of nonpoint source pollution	Project proposals that address TMDL implementation; problems in impaired waters; implementing management activities that lead to reduction and/or prevention of pollutants. Project Funding: $250,000-$1 million. 25% local match required, but waived for Disadvantaged Communities and small water systems	Public agencies, public colleges, 501(c)(3) non-profit organizations, tribes, state and federal entities	Applications accepted in periodic application cycles.	Julé Rizzardo (916) 341-5822

Funding Objective	Program Sponsor	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Water Supply	SWRCB	Water Recycling Funding Program: Projects to promote the beneficial use of treated municipal wastewater (water recycling) in order to augment fresh water supplies through provision of technical and financial assistance to agencies and other stakeholders in support of water recycling projects and research	Grants up to $75,000 for planning studies; local match is 25% for planning studies. Grants up to 25% of costs or $5M (whichever is less) for construction.	Public agencies	Continuous application process	Claudia Villacorta (916) 341-5735
Water Quality	DWR	Local Groundwater Assistance: Provides grants to local public agencies to conduct groundwater studies or to carry out groundwater monitoring and management activities.	Up to $250,000 per eligible applicant. Eligible projects include: groundwater data collection, modeling, monitoring and management studies; monitoring programs and installation of equipment; basin management; and development of information systems	Local public agencies with authority to management groundwater resources	Applications accepted in periodic application cycles.	Harley H. Davis (916) 651-9229
Wastewater/ Watershed	EPA-SWRCB	Clean Water State Revolving Fund (SRF) Program: Projects for publicly-owned wastewater treatment facilities. Funds may be used to better the quality of watersheds and protect groundwater resources through planning, design, and construction; to build or rehabilitate sewer collection systems and urban wet weather flow control activities, including stormwater and sanitary and combined sewer control measures.	Program also offers significant funding for nonpoint source pollution control and estuary protection, assistance to a variety of borrowers and partnerships with other funding sources. Matching funds are not required. http://www.swrcb.ca.gov/funding/srf.html	Borrowers range from municipalities, communities of all sizes, farmers, homeowners, small businesses, and nonprofit organizations. SRF's partner with banks, nonprofits, local governments, and other federal and state agencies	Continuous application process. $200-$300 million annually	Christopher Stevens (916) 341-5698
Water Quality	EPA-SWRCB	State Revolving Fund Loan Nonpoint Source Protection Program: Address water quality problems associated with discharges from nonpoint source dischargers and for estuary enhancement.	Planning study to determine cost effective alternative, CEQA compliance, dedicate source repayment and compliance with certain Federal requirements. http://www.swrcb.ca.gov/funding/srf.html	Point source dischargers, municipalities and nonpoint source dischargers, public and private entities	Continuous application process. $200-$300 million annually	Christopher Stevens (916) 341-5698
Water Supply	California Infrastructure and Economic Development Bank (i-bank)	Infrastructure State Revolving Fund (ISRF) Program: Provides financing for construction and/or repair of publicly owned water supply and treatment systems including these components: drainage, supply, flood control, treatment and distribution	Eligible uses include: to acquire land, construct, and/or repair water collection and treatment systems, including equipment; $10 million maximum per project; annual jurisdiction funding caps; Interest rate is 67% of Thompson's Municipal Market Index for A rated security; up to 30 year terms; continuous filing	Applicant must be a local municipal entity; project must meet tax-exempt financing criteria	Continuously accepting applications.	Diane Cummings (916) 324-4805

Funding Objective	Program Sponsor	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
FEDERAL						
Water Quality	EPA	Source Reduction Assistance: The purpose of this program is to provide an overall benefit to the environment by preventing the generation of pollutants at the source. This program seeks projects that support source reduction, pollution prevention, and/or source conservation practices.	Specific requirements for measurement and reporting requirements.	Units of state, local, and tribal government; independent school district governments; private or public colleges and universities; nonprofits; and community-based grassroots organizations.	Funding opportunity anticipated in FY 2008.	Leif Magnuson Pollution Prevention Coordinator (415) 972-3286
Water Quality and Resource Stewardship	EPA	EPA Wetlands Program Development Grants: Projects that promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution	Three priority areas identified by the EPA: Developing a comprehensive monitoring and assessment program; improving the effectiveness of compensatory mitigation; and refining the protection of vulnerable wetlands and aquatic resources. Typically $25,000 to $250,000, but no set amount. 25% match required.	States, tribes, local governments, interstate associations, intertribal consortia, and national non-profit, non-governmental organizations are eligible to apply.	Grants to be awarded in FY 2008. Funding in later years is unknown.	Suzanne Marr US EPA Region 9 (415) 972-3468
Resource Stewardship	National Fish and Wildlife Foundation (NFWF)	Five-Star Restoration Program: Purpose is to support community-based wetland, riparian, and coastal habitat restoration projects. Applicants must demonstrate that measurable ecological, educational, social, and/or economic benefits are expected to result from the completion of the project.	Modest financial assistance (average award of $14,500) with no matching requirements; however, applicants are strongly encouraged to show funding support from other sources. Matching funds include cash and/or in-kind goods and services and can be from both federal and non-federal sources.	State and local agencies, private landowners, and other interested parties.	Proposals are due in early February each year, with notification of award in June.	Brian Kittler Brian.Kittler@nfwf.org

Funding Objective	Program Sponsor	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Resource Stewardship	National Park Service	Rivers, Trails, and Conservation Assistance Program: The program provides staff assistance to conserve rivers, preserve open space, and develop trails and greenways.	Projects will be evaluated on how they meet the following criteria: 1) A clear outcome leading to on the ground success; 2) Commitment, cooperation, and cost-sharing by applicant; 3) Opportunity for significant public involvement; 4) Protection of significant natural and/or cultural resources and enhancement of outdoor recreational opportunities; and 5) Consistency with the National Park Service mission and goals. http://www.nps.gov/rtca/	Nonprofits, community groups, tribes, or tribal governments; and state or local government agencies.	Applications are due August 1st for assistance during the next fiscal year.	Charlie Stockman (202) 354-6900
Resource Stewardship	Natural Resources Conservation Service	Watershed Protection and Flood Prevention: Funding for activities that promote soil conservation and the preservation of the watersheds of rivers and streams throughout the US.	Matching funds are not required: applicants must generally provide matching ranging from 0%-50% in cash or in-kind resources depending on such factors as project type and the kinds of structural measures a project proposes.	States, local governments, and other political subdivisions; soil or water conservation districts; flood prevention or control districts and tribes. Potential applicants must be able to obtain all appropriate land and water rights and permits to successfully implement proposed projects.	Not currently soliciting applications.	Luana Kiger Acting Director Watershed Planning Services (530) 792-5661
Water Supply	US Bureau of Reclamation (USBR)	Challenge Grant Program: Through the Challenge Grant Program, USBR provides 50/50 cost share funding to irrigation and water districts and states for projects focused on water conservation, efficiency, and water marketing. Projects are selected through a competitive process, based on their ability to meet the goals identified in Water 2025: Preventing Crises and Conflict in the West. The focus is on projects that can be completed within 24 months that will help to prevent crises over water.	Funding for Water 2025 Challenge Grant projects is awarded on a competitive basis through a merit-based review process performed by a Technical Proposal Evaluation Committee. Matching funds are required. Applicants must provide a minimum 50% of project costs in non-Federal cash or in-kind resources. Priority is given to projects that will be completed within 24 months from the date of the award, and that will decrease the likelihood of conflict over water. http://www.doi.gov/water2025/grant.html	Eligible applicants include irrigation and water districts, state governmental entities with water management authority. Projects must be located in Western US.	The FY 2008 budget request for *Water 2025* is $11 million	Miguel Rocha Water 2025 Program Coordinator (303) 445-2841
Water Quality	US Department of Agriculture (USDA) Rural Development	Water and Waste Disposal Program: Program that provides financial assistance (loans and grants) for community water, wastewater, and drainage systems in rural areas	Funds may be used for planning, design, and construction of new or existing systems; eligible projects include storage, distribution, source development; no funding limits, but average project size is $1.8 million. Greater funding share provided for low-income communities.	Cities, towns, public bodies, and census designated places with populations less than 10,000. Must demonstrate financial need.	Applications accepted on continuous basis.	Dave Hartwell USDA State Office (530) 792-5817

Funding Objective	Program Sponsor	Brief Description	Key Points	Eligibility	Submit Grant Application	Contact
Resource Stewardship	US FWS	North American Wetlands Conservation Act: Provides funding, up to $75,000, for projects that provide long-term protection of wetlands and wetlands dependent fish and wildlife.	Partners must match the grant request at a 1 to 1 ratio.	Organizations and individuals who have developed partnerships to carry out wetlands conservation projects in the US, Canada, and Mexico.	Applications accepted on continuous basis.	Division of Bird Habitat Conservation (703) 358-1784

6.4.1.1 Local

In the past, local entities have planned, implemented, and funded construction and operation of water-related projects. These funds may be available to fund Plan Projects or to provide the local match.

6.4.1.1.1 Capital Improvements Program Funding (Revenue Bonds, Certificates of Participation)

Water districts, as well as other government entities (e.g., counties and cities) can raise funds by issuing municipal bonds or certificates of participation. Bonds and certificates of participation are governed by an extensive system of laws and regulations. Under these systems, investors provide immediate funding for the promise of later repayment. Generally, bonds and certificates of participation are used for capital improvement projects. In the case of a water district, bonds and certificates are secured by revenues from the water system and by property taxes received by the agency.

6.4.1.1.2 Property Tax Assessment (Assessed Valuation)

Property taxes are a large source of revenue for water-related projects and agencies in the Region. The Riverside County Tax Assessor collects the charges on behalf of various districts. This funding is used for general expenditures, capital improvements, and to service bond and certificate debt. While this is a large and important source of funding for local agencies, in some cases, the State of California can divert these funds.

During FY 2005/06 and FY 2006/07, the State diverted property tax revenues from special purpose districts. Future losses of property taxes may hinder the ability to fund water-related projects.

6.4.1.1.3 User Fees

Funding for operation and maintenance of water-related projects often comes from user fees, which are charges for water delivered to a home or charges for wholesale water supplies. In addition to these fees, many agencies also charge “hook-up” or “connection” fees – charges for providing facilities to provide water or wastewater services to a new development. These fees are also known as “facility capacity fees.” Facility capacity fee revenue is difficult to forecast due to the unpredictable timing of development activity. Development activity depends on real estate demands, the regional economy, and land use planning activity.

6.4.1.1.4 Metropolitan Water District Local Resources Program

MWD has a Local Resources Program (LRP) to encourage development of local water supply within the MWD service area. MWD reimburses up to $250/AFY for the lifecycle cost of a new water supply that exceeds the project MWD rates. Application for this program is made through the MWD wholesaler (Western). Recycled water and desalter water may be good candidates for this funding program. As it reimburses over 25 years, agencies will have to cover the upfront capital of the implementing a project and could potentially use the LRP reimbursement to cover some costs of loan or bond financing. MWD seeks development of 174,000 AFY of yield to meet a regional goal of 779,000 AFY by year 2025 through help from this program.

6.4.1.1.5 Metropolitan Water District Community Partnering Program

MWD's Community Partnering Program (CPP), which started in 1999, provides sponsorships to non-profit community organizations, educational institutions, public agencies and professional associations for short and long-term water-related projects, events and activities.

The current focus of MWD's CPP, due to dry hydrologic conditions, is on conservation activities and programs. Through the CPP, MWD provides two categories of sponsorships; a short-term program for special events or activities (1-3 days), and the CPP for longer-term projects.

6.4.1.2 State

Potential funding for IRWMP implementation may be available through various State programs, including Propositions 84, 1E, and 50. The discussion below and Table 6-1 provide information on State funding opportunities.

6.4.1.2.1 Proposition 84

The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Act of 2006 (Public Resources Code § 75001, et seq.), was passed by California voters in the November 2006 general election. Proposition 84 will be implemented by DPH, DWR, and the SWRCB. Specific grant funding programs available under Proposition 84 are highlighted below:

6.4.1.2.1.1 Integrated Regional Water Management Planning

DWR will offer grants for projects that assist local public agencies to meet the long-term water needs of the State including the delivery of safe drinking water and the protection of water quality and the environment. Proposition 84 allocated $1 billion to integrated regional water management planning grants; of this amount, $114 million is earmarked for the Santa Ana River Watershed area. Eligible projects must be part of integrated regional water management plans. Under current Guidelines, projects eligible for integrated regional water management plan funding include:

- Development of integrated regional water management plans or components thereof
- Completion or modification of integrated regional water management plans
- Programs for water supply reliability, water conservation, and water use efficiency
- Storm water capture, storage, treatment, and management
- Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management, and monitoring
- Groundwater recharge and management projects

- Contaminant and salt removal through reclamation, desalting, and other treatment technologies
- Water banking, water exchange, water reclamation, and improvement of water quality
- Planning and implementation of multipurpose flood control programs that: protect property; improve water quality, storm water capture and percolation; and protect or improve wildlife habitat
- Watershed management planning and implementation
- Demonstration projects to develop new drinking water treatment and distribution methods

Pending legislation may alter the types of projects eligible for funding as part of an integrated regional water management plan.

6.4.1.2.1.2 Department of Public Health - Emergency and Urgent Water Protection

DPH offers grants for projects that address emergency and urgent situations related to drinking water supplies. Eligible projects include, but are not limited to, provision of alternate water supplies, improvements to existing water systems to avoid contamination, establishment of new connections, and purchase and installation of water treatment equipment. The program is open to local water suppliers.

6.4.1.2.1.3 Department of Public Health - Small Community Drinking Water Infrastructure

DPH offers grants for small community drinking water system infrastructure improvements and related actions to meet safe drinking water standards. Priority for these grants is given to projects that address chemical and nitrate contaminants and other health hazards. Priority is also given for projects that benefit Disadvantaged Communities. Eligible recipients include public agencies and incorporated mutual water companies that serve Disadvantaged Communities.

6.4.1.2.1.4 Department of Public Health – Prevention of Groundwater Contamination

Loans and grants are available from DPH for projects that prevent or reduce contamination of groundwater that serves as a source of drinking water. Community water systems are eligible for these grants and loans and preference is given to projects that serve Disadvantaged Communities.

6.4.1.2.1.5 State Water Resources Control Board – Storm Water Grant Program

The SWRCB provides grant funds for projects designed to reduce and prevent storm water contamination of rivers, lakes, and streams. Eighty two million dollars in funding, up to $5 million per project, is available. These grants are available to local public agencies. Preference is given to projects consistent with an integrated regional water management plan and projects that promote long-term water quality.

6.4.1.2.2 Proposition 1E

Proposition 1E, the Disaster Preparedness and Flood Protection Bond Act, encourages new investments for flood protection and storm water management programs. Within Proposition 1E, $3 million in grants are available from DWR to local entities for storm water runoff projects. These projects must be outside of the State Plan of Flood Control and be consistent with an integrated regional water management plan. In addition, local match must be at least 50 percent of project costs. Preference is given to projects that use storm water management to improve groundwater supplies, improve water quality, and to restore ecosystems. Projects must be able to demonstrate reduction in flood damage.

6.4.1.2.3 Proposition 50

The Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, Water Code §79500, et seq., was passed by California voters in the November 2002 general election. Proposition 50 authorized $3,440,000,000 in general obligation bonds, to be repaid from the State's General Fund, to fund a variety of water projects including: specified CALFED Bay-Delta Program projects including urban and agricultural water use efficiency projects; grants and loans to reduce Colorado River water use; purchasing, protecting and restoring coastal wetlands near urban areas; competitive grants for water management and water quality improvement projects; development of river parkways; improved security for state, local and regional water systems; and grants for desalination and drinking water disinfecting projects. Many grant programs funded by Proposition 50 have concluded, but those funding programs still accepting applications are summarized below.

6.4.1.2.3.1 Department of Public Health – Water Security

These funds may be used for projects designed to: prevent damage to water treatment, distribution, and supply facilities; to prevent disruption of drinking water deliveries; and to protect drinking water supplies from intentional contamination. Eligible projects include: monitoring and early warning systems; fencing; protective structures; contamination treatment facilities; emergency interties; and communications systems. Grants cannot be used to supplant funding for routine responsibilities or for projects previously required by a DPH compliance order, permit condition or regulation. Grants are a minimum of $50,000, up to a maximum of $10,000,000. A 50 percent match is required, but this requirement is waived in part or in full for Disadvantaged Communities and small water systems. Public water systems are eligible to receive these funds.

6.4.1.2.3.2 Department of Public Health - Water System Monitoring Facilities

Like the Small Community Water System Facilities grant program, this program provides money to community water systems that are in non-compliance with a safe drinking water standard. However, this program is not limited to “small” community water systems as defined above. Monies are to be used to upgrade monitoring, treatment, or distribution infrastructure. Grants are a minimum of $5,000, up to a maximum of $2,000,000. A 50 percent match is required, but this requirement is waived in part or in full for Disadvantaged Communities and small water systems. Community water systems are eligible to receive these funds.

6.4.1.2.3.3 Department of Public Health - Drinking Water Source Protection

Grants are provided for source water protection projects to prevent contamination of the water supply. Projects should prevent a possible contaminating activity from releasing contaminants, or to prevent contaminants that have been released from reaching the water supply. Funds may be used for planning, preliminary engineering, detailed design, construction, education, land acquisition, conservation easements, equipment purchase, and implementing the elements of a surface water protection program. Funds may not be used to clean up contamination or install treatment on existing water sources. Grants are a minimum of $50,000, up to a maximum of $2,000,000. A 50 percent match is required, but this requirement is waived in part or in full for Disadvantaged Communities and small water systems. Public water systems are eligible for these funds.

6.4.1.2.3.4 Department of Public Health – Byproduct Treatment Facilities

Grants are offered by DPH for public water systems in noncompliance with the US EPA Stage 1 Disinfection Byproducts rule. Grants are intended to fund construction of treatment facilities necessary to meet disinfection byproduct safe drinking water standards. Applicants with the greatest health risk from disinfection byproducts will be given priority for funding. Grants are a minimum of $50,000 up to a maximum of $2,000,000. A 50 percent match is required, but this requirement is waived in part or in full for Disadvantaged Communities and small water systems.

6.4.1.2.3.5 Department of Public Health - Small Community Water System Facilities

This grant program provides money to small community water systems that are in non-compliance with a safe drinking water standard. Community water systems with fewer than 1,000 connections or with a population of less than 3,000 persons are eligible to receive these funds. Monies are to be used to upgrade monitoring, treatment, or distribution infrastructure. Grants are a minimum of $5,000, up to a maximum of $2,000,000. No local match is required and up to 25 percent of program funding is set aside to support projects benefiting Disadvantaged Communities.

6.4.1.2.3.6 Department of Public Health - Contaminant Treatment and Removal

DPH offers grants to finance development and demonstration of new treatment and related facilities for water contaminant removal and treatment. Grants are a minimum of $50,000, up to a maximum of $2,000,000. A 50 percent match is required, but this requirement is waived in part or in full for Disadvantaged Communities and small water systems. Public water systems are eligible to receive these funds.

6.4.1.2.3.7 Department of Public Health – Contaminant Removal

DPH provides funds for contaminant treatment or removal technology pilot and demonstration studies for specific categories of contaminants including petroleum, perchlorate, heavy metals, pesticides, and herbicides. Grants are a minimum of $50,000, up to a maximum of $5,000,000. A 50 percent match is required, but this requirement is waived in part or in full for Disadvantaged Communities and small water systems. Public water systems and public entities are eligible for this funding program.

6.4.1.2.3.8 Department of Public Health – UV and Ozone Disinfection

Grants to support projects using ultraviolet or ozone for disinfection of drinking water are also offered by DPH. A funded project must address a drinking water compliance violation, surface water treatment requirements, or other mandatory disinfection requirement. Public water systems are eligible for this funding program.

6.4.1.2.3.9 Department of Water Resources – Water Use Efficiency Grants

This grant program is intended to fund agricultural and urban water use efficiency projects. The program focuses on funding projects that are not locally cost effective, and that provide water savings or in-stream flows that are beneficial to the Bay-Delta or the rest of the State. Consideration is also given to projects that address water quality and energy efficiency. Specific types of projects that can be funded include: water use efficiency implementation projects providing benefits to the State; research and development projects; feasibility studies, pilot or demonstration projects; training, education or public outreach programs; and technical assistance programs related to water use efficiency. Cities, counties, joint power authorities, public water districts, tribes, non-profit organizations (including watershed management groups), other political subdivisions of the State, regulated investor-owned utilities, incorporated mutual water companies, universities and colleges, and State and Federal agencies are eligible applicants. Grants to urban water suppliers are conditioned on implementation of the Demand Management Measures described in CWC §10631. In years 2006 to 2007 $35.3 million was allocated to fund water use efficiency grants.

6.4.1.2.4 Other State Funding

6.4.1.2.4.1 State Revolving Fund

The Federal Safe Drinking Water Act Amendments of 1996 authorized the creation of a revolving fund program for public water system infrastructure needs specific to drinking water. There is similar State legislation and the Safe Drinking Water State Revolving Fund reflects the intent of Federal and State laws to provide grant funding or low-interest loans to correct deficiencies in public water systems based on a prioritized system. Highest priority is given to projects that address public health risk, projects that will assist a public water system with compliance with the Safe Drinking Water Act, and projects that assist those public water systems most in need. Funding is available for construction/enhancement of public water systems, construction of local sewers and sewer interceptors, water reclamation facilities, and related projects such as implementation of nonpoint source pollution prevention projects and water reclamation. The program is funded by Federal grants, State funds (including Proposition 50 and Proposition 84), and revenue bonds. The program is administered by DPH and the SWRCB. Publicly owned treatment works, local public agencies, non-profit organizations, and private parties are eligible for funding.

6.4.1.2.4.2 State Water Resources Control Board – Federal 319 Program

This program, administered by the SWRCB, is a nonpoint source pollution control program that is focused on controlling activities that impair beneficial uses and on limiting pollutant effects caused by those activities. The program is federally funded on an annual basis. Project proposals that address TMDL implementation and those that address problems in impaired

waters are favored in the selection process. There is also a focus on implementing management activities that reduce and/or prevent release of pollutants that impair surface and ground waters. Nonprofit organizations, local government agencies including special districts, tribes, and educational institutions qualify. State or federal agencies may qualify if they are collaborating with local entities and are involved in watershed management or proposing a statewide project.

6.4.1.2.4.3 State Water Resources Control Board – Water Recycling Funding Program

This is a long-term program operated by the SWRCB that offers grants and low-interest loans for the planning, design and construction of water recycling facilities. Grants are provided for facilities planning studies to determine the feasibility of using recycled water to offset the use of fresh/potable water from state and/or local supplies. Pollution control studies, in which water recycling is an alternative, are not eligible. Planning grants are limited to 50 percent of eligible costs, up to $75,000. Construction grants are limited to 25 percent of project costs or $5,000,000, whichever is less. Only public agencies are eligible. The Water Recycling Funding Program receives funding from various sources, including Proposition 50 and the State Revolving Fund. Due to the varying funding sources, preferences for funding can vary. For example, funding from Proposition 50 gives preference to those recycling projects that result in benefits to the Delta.

6.4.1.2.4.4 Department of Water Resources – Local Groundwater Assistance Program

The Local Groundwater Management Assistance Act of 2000 (CWC § 10795 et seq., Assembly Bill 303) was enacted to provide grants to local public agencies to conduct groundwater studies or to carry out groundwater monitoring and management activities. Priority for grant funding is given to local public agencies that have adopted a groundwater management plan and demonstrate collaboration with other agencies in the management of the affected groundwater basin. Eligible applicants are public agencies with groundwater management authority. Grants up to $250,000 are available. This program is funded through various sources; currently, funding is available through Proposition 84.

6.4.1.2.4.5 State Department of Housing and Community Development – Community Development Block Grant Program

The Federal Housing and Community Development Act of 1974 was amended in 1981 to allow each State the opportunity to administer Community Development Block Grant (CDBG) funds for cities with populations of less than 50,000 (except cities that are designated principal cities of Metropolitan Statistical Areas) and counties with populations less than 200,000. Local governments apply for grant funds from the state and can use funds directly or give to private or public water providers. The program seeks to help develop viable communities by providing decent housing and a suitable living environment and by expanding economic opportunities, principally for areas with low income households. Funds can be used to pay for grant administration costs, project feasibility studies, final plans and specs, site acquisition, construction, and hook-up fees for water and sewer facilities. The program will provide up to $70,000 per year per jurisdiction, with two funding cycles per year.

6.4.1.2.5 Pending State Legislation

In March 2008, State Senator Machado introduced SBX2 6, the Safe Drinking Water Act of 2008. SBX2 6 proposes a $6.8 billion bond to fund water supply reliability, Delta sustainability, clean drinking water, pollution prevention, clean beaches, groundwater quality, water recycling, and water conservation. Both direct funding and grants are proposed, with grants focused on water supply reliability projects such as agricultural and urban water use efficiency, conjunctive use, recycling/desalination, and groundwater pollution prevention and clean-up. Grants would be competitive and only projects consistent with integrated regional water management plan standards would be eligible. The proposal is undergoing review and negotiation by the State Senate.

6.4.1.3 Federal

This section includes a discussion of funds available through various federal programs and specifies eligibility requirements. A summary of potential federal funding sources is provided in Table 6-1.

6.4.1.3.1 Environmental Protection Agency, Source Reduction Assistance

The purpose of this program is to prevent the generation of pollutants at the source and ultimately provide an overall benefit to the environment. This program seeks projects that support source reduction, pollution prevention, and/or source conservation practices. Source reduction activities include: modifying equipment or technology; modifying processes or procedures; reformulating or redesigning products; substituting raw materials; and generating improvements in housekeeping, maintenance, training, or inventory control. Pollution prevention activities reduce or eliminate the creation of pollutants via such procedures as: using raw materials, energy, water or other resources more efficiently; protecting natural resources through conservation; preventing pollution; and promoting the re-use of materials and/or conservation of energy and materials. Eligible organizations include units of State, local, and tribal government; independent school district governments; private or public colleges and universities; nonprofit organizations; and community-based grassroots organizations.

6.4.1.3.2 Environmental Protection Agency, Wetlands Program Development Grants

This program seeks projects that promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution. The US EPA has identified three priority areas: (1) the development of a comprehensive monitoring and assessment program; (2) the improvement of the effectiveness of compensatory mitigation; and (3) the refinement of the protection of vulnerable wetlands and aquatic resources. Typically, grant amounts range from $25,000 to $250,000, but there is no set amount. A 25 percent match is required. Eligible entities include States, tribes, local governments, interstate associations, intertribal consortia, and national non-profit, non-governmental organizations.

6.4.1.3.3 National Park Service, Rivers, Trails, and Conservation Assistance (RTCA) Program

The purpose of this program is to conserve rivers, preserve open space, and develop trails and greenways. The program provides staff assistance, but not funding, to meet this intent. Projects will be evaluated on how successfully they meet the following criteria: (1) a clear anticipated outcome leading to on-the-ground success; (2) commitment, cooperation, and cost-sharing by interested public agencies and non-profit organizations; (3) opportunity for significant public involvement; (4) protection of significant natural and/or cultural resources and enhancement of outdoor recreational opportunities; and (5) consistency with the National Park Service mission. Eligible organizations include non-profits, community groups, tribes or tribal governments, and state or local government agencies.

6.4.1.3.4 Natural Resources Conservation Service, Watershed Protection and Flood Prevention Grant

The purpose of the program is to support activities that promote soil conservation and that promote the preservation of the watersheds of rivers and streams throughout the US. This program seeks to preserve and improve land and water resources via the prevention of erosion, floodwater, and sediment damages. The program supports improvement of: (1) flood prevention including structural and land treatment measures; (2) conservation, development, utilization, and disposal of water; or (3) conservation and proper utilization of land. Successful applicants under this program receive support for watershed surveys and planning, as well as watershed protection and flood prevention operations. Funding for watershed surveys and planning is intended to assist in the development of watershed plans to identify solutions that use conservation practices, including nonstructural measures, to ultimately solve problems.

Matching funds are not required; however, applicants must generally provide matches ranging from 0 percent to 50 percent in cash or in-kind resources depending on such factors as project type and the kinds of structural measures which a project proposes.

Eligible entities include: states, local governments, and other political subdivisions; soil or water conservation districts; flood prevention or control districts; and tribes. Potential applicants must be able to obtain all appropriate land and water rights and permits to successfully implement proposed projects.

6.4.1.3.5 US Bureau of Reclamation, Challenge Grant Program

This grant program is intended to fund collaborative local projects that improve water conservation and management through advanced technology and conservation markets. Through this program, federal funding is provided to irrigation and water districts for up to 50 percent of the cost of projects involving conservation, efficiency and water marketing. Eligible applicants include irrigation and water districts and state governmental entities with water management authority. Applicants must be located in the western US (California is an eligible area). Applicants do not have to be part of a Reclamation project but proposals with a connection to Reclamation will receive more weight in the evaluation process.

6.4.1.3.6 US Department of Agriculture, Water and Waste Disposal Program

The Water and Waste Disposal Program provides financial assistance in the form of grants and loans for the development and rehabilitation of water, wastewater, and storm drain systems within rural communities. Funds may be used for costs associated with planning, design, and construction of new or existing water, wastewater, and storm drain systems. Eligible projects include storage, distribution systems, and water source development. There are no funding limits, but the average project is granted $1,800,000. Projects must benefit cities, towns, public bodies, and census-designated places with a population less than 10,000 persons. The intent of the program is to improve rural economic development and improve public health and safety.

6.4.1.3.7 US Fish and Wildlife Service, North American Wetlands Conservation Act Grant

This grant provides funds for projects that provide long-term protection of wetlands, and the fish and wildlife that depend upon wetlands. Applicants must provide local match equal to that requested. Entities that are eligible include organizations and individuals who have developed partnerships to carry out wetlands conservation projects in the US, Canada, and Mexico. Applications are continuously accepted by the US FWS for this grant.

6.4.1.3.8 Federal Legislation

Specific congressional authorizations and funding may be obtained to study, build, and construct specific projects in the Region. Potential sources include legislation and funding associated with renewal of the CWA, SWDA, and appropriations for specific agencies, such as the US ACE and the US EPA.

The Water Resources Development Act (WRDA) authorizes projects and policies of the Civil Works program of the US ACE. The US ACE is a federal agency in the Department of Defense with military and civilian responsibilities. At the direction of Congress, US ACE plans, builds, operates, and maintains a wide range of water resources facilities in US states and territories. The agency's traditional civil responsibilities have been creating and maintaining navigable channels and controlling floods. However, in the last two decades, Congress has increased US ACE's responsibilities in ecosystem restoration, municipal water and wastewater infrastructure, disaster relief, and other activities. WRDA often includes specific authorizations for federal, regional, and local projects. Inclusion in WRDA authorizes a given project but does not guarantee funding for a specific project.

Local projects can also receive authorization and federal funding as part of appropriations for the US EPA. The US EPA will enter into assistance agreements with local agencies to fund studies and projects associated with: (1) various environmental requirements (e.g., wastewater treatment); (2) identifying, developing, and/or demonstrating necessary pollution control techniques to prevent, reduce, and eliminate pollution; and/or (3) evaluating the economic and social consequences of alternative strategies and mechanisms for use by those in economic, social, governmental, and environmental management positions.

TABLE 6-2
IRWMP Projects Vs. Funding Opportunities

Kennedy/Jenks Consultants

				Local Programs		State Programs																								Federal Programs								
Project Sponsor	**Project Name**	**Project ID**	**Summary Project Description**		Metropolitan Water District Local Resources Program	**Prop 84 -** (Ch 2) Safe Drinking Water, Water Quality, and Other Projects	**Prop 84 -** (Ch 3) Flood Control Projects	**Prop 84 -** (Ch 4) Statewide Water Planning	**Prop 84 -** (Ch 5) Protection of Rivers, Lakes, Streams	**Prop 84 -** (Ch 6) Forest and Wildlife Conservation	**Prop 84 -** (Ch 8) Parks and Nature Education Facilities	**Prop 50 -** (Ch 3) Water Security Program	**Prop 50 -** (Ch 4) Drinking Water Source Protection	**Prop 50 -** (Ch 6) Safe Drinking Water Grants	**Prop 50 -** (Ch 7) DWR WUE Grant Program	**Prop 1E -** FloodSAFE California Stormwater Management	**Prop 13 -** Agricultural Water Conservation	**Prop 82 -** DWR New Local Water Supply Construction	**Other -** DPH-SRWCB Drinking Water State Revolving Fund (SRF) Program	**Other -** Community Development Block Grant Program	**Other -** Dept.of Parks and Rec. Land and Water Conservation Fund	**Other -** Environmental Enhancement and Mitigation Program (Wetlands)	**Other -** EPA-SWRCB Federal 319 Program (Nonpoint Source Pollution)	**Other -** SWRCB Water Recycling Funding Program	**Other -** DWR Local Groundwater Assistance	**Other -** EPA-SWRCB Clean Water SRF Program	**Other -** EPA-SWRCB SRF Nonpoint Source Protection Program	**Other -** CA Infrastrucdure & Economic Development Bank Infrastructure SRF Program	US EPA Source Reduction Assistance Program	US EPA Wetlands Program Development Grants	NFWF Five-Star Restoration Program	NPS Rivers, Trails, and Conservation Assistance Program	NRCS Watershed Protection and Flood Prevention	USBR Challenge Grant Program	USDA Rural Development: Water and Waste Disposal Program	USFWS Wetlands Conservation Act
Box Springs MWC	Nitrate Removal System	BS-01	Install nitrate treatment system on well #17 to reduce the nitrate contamination level of the water prior to disinfection and distribution.			x		x				x	x	x						x										x							
Box Springs MWC	Pipeline Replacement	BS-2	Replace existing failed 4" and 6" lines with approximately 36,700 feet of 8" and 12" PVC pipe to reduce water loss, outages, and contamination issues.			x																						x						x		
Box Springs MWC	Pump Station Upgrades	BS-3	Replace pump station with new system to allow the water distribution system to operate more efficiently and increase fire flows within the distribution system.			x																				x		x						x		
City of Corona	El Sobrante Groundwater Treatment Project	C-2	Temescal Basin short term outage supply, 5,000 AFY. Three ground water wells, one raw water pipeline, nitrate treatment plant, product pipeline.		x	x														x						x				x							
City of Corona	Coldwater Subbasin Enhanced Recharge Program	C-1	Project will enhance the quantity and quality of groundwater in the Coldwater Subbasin. Currently the City manages recharge in Coldwater Wash along a reach south of Glen Ivy Road. This enhanced recharge is accomplished through a series of in-stream berms that retain streamflow. Only high flows during wet years are not captured; these flows have been observed to contribute to local flooding of roads and may represent an opportunity for additional recharge water. Project will study recharge opportunities.		x	x											x			x							x					x							
City of Corona	Groundwater Blending Program	C-3	Replace analyzers and SCADA interface for existing groundwater blending program																	x						x											
City of Corona	Groundwater Treatment Program	C-4	The City currently operates the Temescal Desalter to reduce salts in the City's wate supply. Expansion of the groundwater treatment program is needed to maintain long term water quality and usable supply. This project includes drilling and developing two supplemental wells to be pumped when desalter wells are down to routine maintenance.			x														x						x			x		x							
City of Corona	Improvement of Groundwater Quality/Quantity Monitoring Program	C-5	Development of specific monitoring protocols including monitoring locations, frequency, measurements, sampling procedures, data management, and quality assurance/quality control measures in order to improve current groundwater monitoring program.			x		x												x						x					x							
City of Corona	Lee Lake Water District's Discharge to Bedford Subbasin	C-6	Project will discharge recycled water produced by Lee Lake Water District into surface recharge basins or injection wells in the Bedford Subbasin. This recycled water is currently being discharged to Temescal Wash and is lost from the subbasin. The source of the recycled water is wastewater from local residential communities that are supplied with imported water of generally higher quality than ambient groundwater.		x	x																					x											
City of Corona	Lincoln and Cota Street Perculation Ponds Maintenance Program	C-7	Project consists of removing the fine soil particulates (filter cake) from the pond bottom and sides and hauling the filter cake off site for legal disposal.			x																				x											
City of Corona	New Water Wells	C-8	The City plans for the construction of one new water production well every two to three years. Wells will also be located to capture a portion of groundwater discharge that is currently exiting the groundwater basin, thereby increasing the basin yield. This Project includes drilling and equipping one new water well in 2009.		x	x													x	x										x							
City of Corona	Recharge Basins within Main Street Detention Basin	C-9	Project will configure Main Street Detention Basin for groundwater recharge of stormwater. According to a pilot study, a recharge basin constructed within the larger detention basin is capable of receiving and percolating about 500 AF/year or 1,500 AF/year if two basins are constructed.		x	x										x				x							x											
City of Corona	Recharge Basins within Oak Avenue Detention Basin	C-10	Project will configure Oak Avenue Detention Basin for groundwater recharge of stormwater. According to a pilot study, a recharge basin constructed within the larger detention basin is capable of receiving and percolating about 2,500 AF/year or 4,000/5,000 AF/year if two basins are constructed. Recycled water or imported water can also be conveyed to the bain for recharge.		x	x										x				x							x											
City of Corona	Recycled Water Injection Wells	C-11	Recycled water injection wells could be constructed in several areas of the City. Specific components at each site include a well, well head, down-comer pipes, flow metering, piping and valving that are connected to the adjacent recycled water piping, and a flow control and pressure reducing valve.		x	x																				x		x										
City of Corona	Recycled Water Zone 3 to Zone 2 Interconnect	C-12	Connect Zone 3 to Zone 2 to allow conveyance of recycled water to different groundwater storage facilities in the City. Currently, Zone 3 is fed by WWTP3 and is not connected to any groundwater storage facilities such as the Oak Avenue and Main Street detention basins. Therefore, during wet periods the effluent from WWTP3 is discharged to the Temescal Wash rather than stored in the groundwater basin.		x	x									x												x		x										

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City of Corona	Recycled Water Zone 4 to Zone 3 Interconnect	C-13	A pipeline that connects Zone 4 to Zone 3 would allow conveyance of recycled wate to customers in Zone 4. This would provide more flexibility in using Zone 3 recycled water in Zone 4 rather than conveying Zone 1 or Zone 2 water to Zone 4.			x																			x		x										
City of Corona	Replacement Water Wells	C-14	This project includes drilling and equipping one replacement water well. The City's wells service life is 30 years. The City has eight water wells that have exceeded the 30-year service life.			x																							x								
City of Corona	Rincon Groundwater Treatment Project	C-15	The Rincon project is scheduled for fiscal year of 2015-2016. The specific components of the project are three new wells, a raw water pipeline, a treatment facility, a product pipeline, property acquisition, and brine disposal to the SARI pipeline. This project is in an area of historically high nitrate concentrations and the addition of wellhead treatment facilities will allow for expanded use of the groundwater basin.		x	x													x							x				x								
City of Corona	Upgradient Injection Wells	C-16	Enhanced recharge through wells at the upgradient portion of the Channel Aquifer, near Arlington Gap. Potable, recycled, or blended water could be injected into these wells.		x	x																			x	x											
City of Corona	Wellhead Treatment for Wells 6,7, and 17	C-17	Water quality in City Wells 6, 7, and 17 appears to be threatened by a groundwater plume containing trichloroethene (TCE) and other contaminants migrating from the vicinity of the Corona Sanitary Landfill. Project will install groundwater treatment system to mitigate contamination at these production wells.			x														x						x				x								
City of Corona	WWTP1A Upgrade to Tertiary	C-18	The secondary effluent from Wastewater Treatment Plant 1A (WWTP1A) is currently conveyed to the Lincoln and Cota percolation ponds. Upgrades could be constructed at WWTP1A that would route the flows through the WWTP1 tertiary filters and chlorine contact tank to produce Title 22 recycled water. The recycled water would then be stored in the on-site recycled water reservoir or sent to the percolation ponds for recharge.		x	x																			x		x										
City of Corona	WWTP2 Upgrade to Tertiary	C-19	The secondary effluent from Wastewater Treatment Plant 2 (WWTP2) is currently conveyed to the Lincoln and Cota percolation ponds. Upgrades could be constructed at WWTP2 that would provide tertiary treatment and disinfection of the secondary effluent and produce Title 22 recycled water. The recycled water could be connected to the recycled water system in Harrison Street—which is immediately north of WWTP2—or sent to the percolation ponds for recharge.		x	x																			x		x										
City of Riverside	Downtown Groundwater Treatment Plant	R-1	Construct a treatment plant for treatment of contaminated groundwater that can be the used as a potable supply, and producing water from three to five wells in the area of downtown Riverside. The capacity of the plant would be 7.0 mgd with an assumed annual use factor of approximately 90% for an annual production of 7,000 ac-ft/yr. Construction of approximately 10,000 ft of pipeline to convey the product water to the Lynden-Evans reservoir.		x	x													x										x	x							
City of Riverside	Riverside Highgrove Septic Conversion Project - Phase II	R-2	Convert approximately 260 residential onsite wastewater systems (septic) within the County of Riverside's Highgrove community (west of Freeway 215) and connecting them to the City of Riverside's wastewater collection system. The project components include constructing approximately 22,500 linear feet of sewer pipelines and other improvements.			x																					x										
City of Riverside	Pellesier Ranch Barrier Wells and Water Treatment Plant	R-3	Project consists of pumping and treating groundwater contaminated with wastewater effluent and manganese that could potentially migrate towards City of Riverside's domestic water wells. The treated water will be used for non-potable purposes by the City of Riverside (Riverside) and Western Municipal Water District (WMWD). The proposed manganese treatment plant would be located within the Riverside's Garner Tract off Placentia Lane.		x	x													x										x	x							
City of Riverside	Waterman-Gage Intertie	R-8	Water is supplied to the City of Riverside (City) by two main supply lines: the San Bernardino Transmission Main or Waterman line and the Gage Transmission Main. Together, the Waterman line and the Gage line deliver approximately 75 percent of the City's groundwater production. The construction of the Waterman-Gage Intertie Project (Intertie) would increase the operational flexibility and reliability of supplying water to the City and WMWD, helping to ensure the availability of potable water conveyed from the Bunker Hill Basin.			x														x										x								
City of Riverside	Recycled Water Master Plan	R-4	Joint projects between Riverside and WMWD to include 70,000 ft of pipeline, 20-MG reservoir, and ultimate supply of 41,000 AFY of RW.		x	x																			x												

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City of Riverside	Water Recycling Project-Phase1	R-5	Changed from IWP: Construct 11.9 miles pipeline to supply City of Riverside and provide backup source to WMWD for JCSD. Will provide 1.4 MGD to RPU and 0.7 MGD to JCSD		x	x																		x										
City of Riverside	Riverside North Basin Recharge Basin	R-6	Construct 2 recharge facilities to recharge Riverside Basin.		x	x											x																		
City of Riverside	Riverside Pump Station #1 (Raub Regional Emergency Supply Project)	R-7	Emergency supply connection to SBVMWD Central Feeder pipeline.		x	x																						x							
EVMWD	The Avenues Septic Tank Conversion	EV-1	Construct new sewer system for the 'Avenues' area just upgradient of Lake Elsinore to prevent nitrate contamination of the aquifer due to failing septic tanks. Project wil construct 2.5 miles of sewer to abandon 400 septic tanks and connect users to the EVMWD Regional Water Reclamation Facility.			x																			x			x							
EVMWD	Palomar Area Septic Tank Conversion	EV-2	Construct new sewer system for the Palomar area to prevent nitrate contamination of the aquifer. Project will construct 6 miles of sewer to abandon 600 septic tanks and connect users to the EVMWD Regional Water Reclamation Facility.			x																			x			x							
EVMWD	Sedco Hills Septic Tank Conversion Project	EV-3	Construct new sewer system for the Sedco Hills area to prevent nitrate contamination of the aquifer. Project will construct 5 miles of sewer to abandon 500 septic tanks and connect users to the EVMWD Regional Water Reclamation Facility.			x																			x			x							
EVMWD	Wildomar Recyled Water Project-Phase1	EV-4	Construct 32,500 feet of recycled water pipelines and the necessary on-site system conversions to provide recycled water service to thirty (34) sites including seven schools, a cemetery, park, church, and the Diamond Stadium.		x	x											x							x										
EVMWD	Wildomar Recyled Water Project-Phase1A	EV-5	Construct 7,200 feet of recycled water pipelines, two pump stations, and two storage reservoirs, and the necessary on-site system conversions to provide recycled water to six (6) sites including one school and five landscape areas.		x	x											x							x										
EWD	Lakeland Village Water System Improvements	EW-1	Capital Improvements including tank maintenance and upgrade of two tanks to include separate inlets/outlets. The project also includes over 7,000 LF of pipe size upgrades from 1", 2", and 4" to 6" and 8".			x																						x							
HGCSD	Home Gardens Raw Water Supply to Arlington Desalter	HG-1	Construct 3 miles pipeline from Home Gardens well field to Arlington Desalter and upgrade existing wells.		x	x																						x							
JCSD	Joint JCSD-IEUA Water Reclamation Project	J-1	Construct conveyance facilites from IEUA Water Reclamation Facilities to JCSD Eastvale area, and transmission and distribution facilities in Eastvale area.		x	x		x																x								x		
JCSD	Geordie Way - Water & Sewer Services	J-2	Provide 1,100-1,400 feet of water and sewer pipeline to provide service to residents currently served by private wells and septic systems.			x																				x							x	
JCSD	Indian Hills Water Recycling Project	J-3	Construct pipeline to deliver treated effluent from Riverside Regional Water Quality Control Plant south of District's boundary to Indian Hills area and adjacent water purveyor.		x	x											x				x					x								
JCSD	Plant No. 1 - 5Yr and 100Yr Flood Protection	J-4	Provide flood protection improvements including levees to protect sewage treatment plant from SAR flood flows and prevent collection ponds from overflowing into SAR.				x									x										x					x			
JCSD	Teagarden Ion Exchange Expansion	J-5	Upgrade JCSD's Ion Exchange Plant from 8 mgd to 15 mgd		x	x																						x							
JCSD	Selby Street - Water & Sewer Services	J-6	3,520 feet of domestic water pipeline and 1,354 feet of sewer pipeline to serve approximately 60-80 homes and businesses in Eastvale area currently served through private wells and septic systems. Currently, high nitrate levels are found in local private wells. Project will help improve basin water quality.			x		x																	x										
JCSD	Prado Area Wetlands Parks	J-7	Develop wetlands areas upstream of Prado Dam to coincide with efforts to raise dam level							x											x								x	x					x
JCSD	High School Well Renovation	J-8	Project will renovate an existing well and convey the discharge through a converted raw-water pipeline to the Ion Exchange Plant.		x	x												x	x									x							
JCSD	Emergency Services Generators for Water Well Pumps	J-9	The project will equip all District well facilities with backup generators and provide the District with flexibility and lowered dependency on outside resources in the event of emergencies.			x														x								x							
LESJWA	Lake Elsinore Water Quality Improvement Project, Phase I	SJ-1	The Phase 1 project will construct facilities to transfer and treat water to Lake Elsinore as part of a larger effort to meet short and long term water quality and lake levels. The project will provide 8 mgd of chemical phosphorus treatment of reclaimed water to supply Lake Elsinore.			x			x															x				x							

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LESJWA	Lake Elsinore Water Quality Improvement Project, Phase II	SJ-2	The Phase 2 project will construct a 10 mgd remote transfer granular media filtration process at the Elsinore Valley RWRF as part of a larger effort to meet short and long term water quality and lake levels. The filtration system will remove phosphorus from treated water used to supply Lake Elsinore.		x			x														x				x					x				
LESJWA	Lake Elsinore Fishery Enhancement Project	SJ-3	The project is a part of an adaptive fishery enhancement and maintenance program to create a balanced, self-sustaining sport fishery, which complements efforts to rehabilitate lake water quality. Project includes carp control, zooplankton enhancement, aquatic and emergent vegetation restoration, fish habitat improvement, and fish community structure improvement.							x										x	x								x	x					
LESJWA	Lake Elsinore Back Basin Wetlands Rehabilitation Project	SJ-4	The Phase 3 project will construct 100 acres of treatment wetlands as part of a larger effort to meet short and long term water quality and lake levels. The project will construct facilities to modify the Back Basin Wetland for removal of nutrients from water flowing into Lake Elsinore.		x			x															x	x						x	x					x
LESJWA	Lake Elsinore Alum Treatment Project	SJ-5	The project will provide for temporary treatment of in-lake water quality from inputs of phosphorus from stormwater using aluminum sulfate.		x																			x					x						
LESJWA	San Jacinto Urban Runoff Treatment & Contro Study	SJ-6	The project will assess flows and water quality associated with nuissance urban runoff to Lake Elsinore and Canyon Lake and analyze management options to reduce pollutant loads.		x		x	x									x							x		x			x						
LESJWA	San Jacinto River Riparian Habitat Restoration Project	SJ-7	The project will develop floodplains and protect against further degredation associated with urban development within the San Jacinto watershed. Project includes designs to improve water quality and the structure and function of the nativ riparian habitat for wildlife.		x	x		x	x							x							x	x					x						
LESJWA	San Jacinto Manure Management Study	SJ-8	The project will develop a manure management plan within the San Jacinto River Watershed to establish acceptable agronomic rates for manure and fertilizer application. The project will support management of nutrients in the watershed.		x			x									x							x					x						
LESJWA	Lake Elsinore Water Quality Modeling Study	SJ-9	The Project will develop a water quality model of Lake Elsinore will provide information to help stakeholders gain a better understanding of in-lake nutrient processes. Information gained from this model would be used to select effective BMPs to treat/reduce nutrient sources significantly impacting in-lake water quality.		x			x																x					x						
LESJWA	Lake Elsinore & Canyon Lake Nutrient TMDL Monitoring	SJ-10	Project would collect three years of water quality data to support the efforts of local stakeholders in implementing the Lake Elsinore and Canyon Lake Nutrient TMDLs.		x		x	x																x					x						
LESJWA	San Jacinto Watershed Nutrient TMDL Pollutant Trading Study	SJ-11	Study proposed to develop a pollutant trading model within the San Jacinto River watershed to provide a vehicle to establish incentives for voluntary nutrient reductions, address watershed-based initiatives, and facilitate the implementation of TMDL's. The model will be used to determine an optimal pollutant trading strategy from a number of alternative trading scenarios providing planning level estimates for treatment costs, pollutant load reductions, and institutional arrangements.		x		x	x																x					x						
LESJWA	Canyon Lake Dredging Enhancements	SJ-12	The Canyon Lake Dredging Enhancements project will purchase 10 Dewatering Bins, a 950 wheel loader and develop mitigation habitat. Exessive sedimentation has contributed to a loss of overall reservoir storage capacity, an increase in total nutrient levels in lake bed sediments, a decrease in overall water quality of the lake, and a reduction in the recreational use of the lake due to the raising of the lake bed. The project will double the daily porduction of sediment removal in the lake.		x			x	x												x	x	x				x								
LESJWA	Canyon Lake Alum Treatment Project	SJ-13	The Canyon Lake Alum Treatment Project will provide for the temporary treatment of in-lake water quality from inputs of high concentrations of phosphorus from the San Jacinto River Watershed.		x			x																x					x						
LESJWA	Stormwater Treatment Wetlands Study for Canyon Lake	SJ-14	The Stormwater Treatment Wetlands Study for Canyon Lake will investigate opportunities to develop treatment wetlands up-stream of Canyon Lake to treat stormwater and other sources of supply. This study will include an investigation of the current impacts of stormwater on lake hydrology, water quality, habitat and recreational opportunities.					x	x	x					x						x	x	x		x		x								x
LESJWA	Aeration System for Canyon Lake	SJ-15	The Aeration System for Canyon Lake will install an artificial destratification and hypolimnetic oxygenation system and should maintain aerobic conditions throughout the water column in the main body of Canyon Lake all year. This system should achieve expected improvements in water quality including reduced iron, manganese ammonia, hydrogen sulfide, and phosphorus, with probable reductions in algal densities.		x		x	x																x		x			x						

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City of Norco	Water Exchange with City of Corona and City of Riverside	N-1	The project involves a non-potable water transfer and exchange between the Cities of Riverside, Norco, and Corona. The Crestview Memorial cemetery in the City of Riverside could be served by a 1 mile extension of the Norco recycled water system. The City of Norco could receive recycled water from the City of Corona's Zone 2 to provide non-potable supply to the Hidden Valley Golf Course.																					x													
City of Norco	Lake Norconian Water Supply with RW	N-2	Develop an additional 0.5 MGD of capacity at the Western Riverside Regional Wastewater Authority Plant to provide 200,000 GPD of recycled water to replace potable water replenishment of Lake Norconian and provide habitat and recreationa uses.	x				x	x	x											x	x		x												
OCWD	River Road Wetlands	OC-1	The River Road Wetlands Project is an environmental enhancement project that provides water quality enhancement benefits, recreational benefits and wildlife enhancement benefits. The project consists of 192 acres of freshwater marsh area that would be used for water quality enhancement, 134 acres of riparian forest open space and 11 acres of access ways and public trails.						x	x											x	x									x	x	x	x			x
RCSD	Septic System Elimination Water Source Protection	RB-1	Design and construct approximately 15,000 LF of new sewer mains to connect existing development, replacing the need for septic systems. Reducing the number of septic systems will protect local groundwater supplies from contamination.		x		x																			x				x						
RCSD	Emergency Interconnections	RB-2	Design and construct bi-directional interconnection facilities with Jurupa Community Services District and West Valley Water District to improve reliability of local water supplies.		x																						x								
RCSD	Well 17 and 18 Manganese Removal Treatment Facility	RB-3	Design and construct new manganese treatment facility to remove manganese from Wells 17 and 18, allowing for 7,900 AF/year of additional potable water.	x	x		x					x						x										x							
RCWD	Hybrid 1 Alternative - WMWD area only	RC-1	Deliver MF/RO treated recycled water to western area agricultural users.	x	x																			x											
SARWC	Interties with JCSD	SA-1	Outfit Intertie #1 as emergency standby and #2 with PRV for automated control. Interties will serve as emergency source from JCSD.		x																						x								
SARWC	New well supply to Teagarden Ion X Plant or CDA	SA-2	Wells 3, 3a, and 1a are currently shut down because of water quality issues. Wells could potentially serve JCSD Ion Exchange Plant or CDA.	x	x		x					x						x																	
SARWC	Septic System Elimination Water Source Protection	SA-3	Replace septic systems		x		x																			x										
WMWD	Arlington Desalter Expansion of 3.6 MGD	W-1	Enhance and expand existing Arlington desalter by 4000 AF/yr to 10 MGD. Suitable for potable delivery. Also desalinizes and blends water for recharge in the Santa An River (OCWD). Intercept perchlorate-contamined groundwater flows to Santa Ana River and use discharge as Desalter water. Brine discharges to SARI line.	x	x		x	x										x	x																	
WMWD	Chino Basin Dry Year Yield Study	W-2	The project will evaluate the possiblity of developing 25,000 AF of storage North of Jurupa and approximately 8,000 AFY of groundwater pumping yield and nitrate removal in the Chino Basin through extraction/ASR wells as far north as Fontana or Ontario. Facilities will connect this supply with the Riverside-Corona Feeder at the Central Reach. This project would allow water to be stored in the Chino Basin when surplus supplies are available and extracted when needed.	x	x		x	x										x							x											
WMWD	Lake Mathews Water Treatment Plant	W-4	Water Filtration plant treating Upper Feeder (Mathews/CO) water by RO side stream treatment. Locate adjacent to Lake Mathews. Feed 22,340 AF/yr to La Sierra zone and possibly connect to Mills Pipeline to serve as a backup for the Mills Filtration Plant.	x	x														x									x								
WMWD	March Reclamation Facility Phase 2 Expansion	W-5	Expand the March Reclamation Facilty from 1 MGD to 3 MGD and add tertiary treatment in order to provide additional treatment capacity and irrigation water for new developments as well as water for groundwater recharge.	x	x																			x											
WMWD	Murrieta Division Recharge Study	W-6	Study and implement artificial recharge of Murrieta Basin (basins or ASR) using captured storm water.		x										x										x						x				
WMWD	Perris North Basin Groundwater Model	W-7	The Perris North Groundwater Basin contains high TDS and nitrate levels. Water Quality sampling is required. Develop model for groundwater management and wel siting.		x		x																		x										
WMWD	RC Feeder - All Reaches	W-9.0	All reaches of RC Feeder	x	x																						x								
WMWD	RC Feeder - North Reach	W-9.1	Infrastructure from Bunker Hill to Jurupa	x	x																						x								
WMWD	RC Feeder - Central Reach	W-9.2	Infrastructure from Jurupa to Mockingbird P.S.	x	x																						x								

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WMWD	RC Feeder - Southern1 Reach	W-9.3	Infrastructure from Arlington Desalter to Central Reach		X	X																						X							
WMWD	RC Feeder - Southern2 Reach	W-9.4	Infrastructure from Arlington Desalter West to Corona		X	X																						X							
WMWD	Riverside/Arlington Groundwater Basin Model	W-10	A numerical model for the Riverside Basin will be developed in order to facilitate groundwater management. The model will aid in running scenarios including, but ne limited to, new production wells, new desalter production wells, and conjunctive use			X		X																	X										
WMWD	WMWD WUEMP	W-11	Regional implementation of Water Use Efficiency Plan. Project could include components such as aiding small or disadvantaged agencies in carrying out conservation programs.			X		X							X						X												X		
WMWD	Chino II Desalter Expansion	W-12	Expansion from 10 MGD to 20.5 MGD		X	X													X																
WMWD	System interconnections with City of Riverside	W-13	Three system interties with City of Riverside to serve WMWD Retail area average day demands. Will allow WMWD to store water in Bunker Hill basin and access through City of Riverside system.			X																						X							
WMWD	System interconnections with City of Corona	W-14	Interties at Lester WTP PS and Arlington Desalter Turnout to City of Corona to provide aditional reliability to WMWD with the proposed expansion of Arlington and Chino Desalters.			X																						X							
WMWD	System interconnections with EVMWD	W-15	Interite at EVMWD Temescal Pump Station that will raise the HGL and increase capacity of the EVMWD Temescal Valley Pipeline from WMWD to EVMWD.			X																						X							
WMWD	Disadvantaged Communities Conservation Outreach	W-16	The project will provide outreach to disadvantaged communities in WMWD's service area to promote indoor conservation programs, such as shower and toilet replacement incentives			X		X							X						X												X		

Notes:
DPH = Department of Public Health
DWR = Department of Water Resources
Ch = Chapter
EPA = Environmental Protection Agency
IRWMP = Integrated Regional Water Management Plan
NPS = National Park Service
NRCS = National Resources Conservation Service
Prop = Proposition
SRF = State Revolving Fund
USBR = Unites States Bureau of Reclamation
USFWS = United States Fish and Wildlife Service

Section 7: Other Required IRWMP Elements

This section discusses other elements required under the IRWMP Guidelines.

7.1 Technical Analysis and Plan Performance

7.2 Data, Technical Methods, and Analyses Used in Development of the Plan

The data used to develop the plan includes the references Section 8, as well as data that were collected through stakeholder meetings, interviews, and conference calls conducted during the course of this project. The technical methods and analysis used in development of the Plan are documented in Section 5 and include use of spreadsheet matrix analysis to evaluate projects on a one for one basis.

7.2.1 Technical Analysis

The projects identified for implementation in Sections 5 and 6 are supported through technical studies and reports that document their ability to meet the intended objectives. The technical support for these projects and related project concepts on a programmatic level is summarized by IRWMP objective below. Specific technical information collected for individual projects is documented in the project sheets found in Appendix B.

7.2.1.1 Water Supply Reliability

Projects selected to meet this objective could include water conservation, desalination, recycled water projects, and groundwater recharge projects. Water conservation projects typically involve educational programs, ultra low flush toilet change out programs and the use of proven technology, such as irrigation controllers. The technical feasibility of desalting projects has been well established and efficiency is increasing due to improvements in membrane technology. However, economic feasibility of desalting projects needs to be considered on a case-by-case basis and should be compared to the incremental cost of alternative supplies. Recycled water projects utilize treatment processes for producing water that meets Title 22 standards. Groundwater recharge projects would require technical feasibility and hydrogeological studies.

7.2.1.2 Basin Water Quality Improvement

Improving the basin's groundwater quality involves pumping management and monitoring extraction and injection water quality. Projects that support this objective include groundwater desalting projects, monitoring of surface water (local and imported) and recycled water to provide higher quality water which can be used in aquifer storage and recovery projects and groundwater level management projects. Groundwater recharge projects would require technical feasibility and hydrogeological studies.

7.2.1.3 Operational Flexibility (Potable Only)

Projects that would increase the operational flexibility of potable water supplies include desalter treatment plant expansion , developing new infrastructure or upgrading old infrastructure, and conjunctive use projects that allow for a variety of supplies to be used to increase the reliability of potable supplies. The technical feasibility of these types of projects is developed through the preliminary design process, and all applicable design standards (i.e., American Society of Testing and Materials) would be followed.

7.2.1.4 Ecosystem Restoration

The Riverside - Corona Resource Conservation District, and local General Planning documents and local agencies have developed a number of documents that identify potential opportunities for preserving existing open space and creating additional open space and recreation. The Western Riverside County Multi-Species Conservation Plan provides the context for much of the flora and fauna ecosystem in the Region. Projects identified under this objective include ecosystem and riparian habitat restoration.

7.2.2 Plan Performance

The success of the IRWMP will depend on how well the individual plan objectives are accomplished. As described in Section 1, this IRWMP update is the first of many; the process laying the foundation for addressing the water management issues facing these watersheds. As a consequence, IRWMP objectives, regional priorities, and statewide priorities will continue to be reviewed for relevance and modified as needed to ensure the overall IRWMP reflects regional changing needs and continues to be effective. Additionally, the projects identified for future implementation will be reviewed and evaluated on a regular basis to ensure that current plan objectives will be met and that the proposed projects offer the greatest benefit possible. The ongoing review and update described above allows the IRWMP to undergo “adaptive management,” (e.g., allow the IRWMP to evolve in response to changing conditions and as better data are developed).

7.2.2.1 Performance Measures

As projects are implemented in the Region as part of this IRWMP, project performance is assessed and outcomes are monitored, and the results from this monitoring will be used to guide future project implementation. Performance measures are developed to allow progress of the individual projects to be measured and to gauge the impact of the overall IRWMP.

The measures that will be used to evaluate project/plan performance are to evaluate whether:

- the recommended projects (or similar projects) are being constructed/implemented,
- the quantity of local water resources that is being delivered,
- the quantity of desalter production from the groundwater basins, and
- the degree of support received from the stakeholders

Monitoring systems for water quantity that will be used to gather performance data include ongoing water supply monitoring such as Urban Water Management Plan updates and

SB610/221 water supply assessments, watermaster reports for the Chino, SBBA, and the Santa Ana River that will document quantities of water withdrawn and recharged.

Water quality monitoring is occurring through required monitoring for DHS potable water permits, monitoring for groundwater management/adjudication such as the Chino Basin OBMP as discussed Section 3.6.1.1 and the SBVMWD regional groundwater management plan for the SBBA that has been prepared. Other groundwater studies/management plans under preparation in Riverside and Corona are expected to have water quality monitoring.

The Chino Basin OBMP and SBVMWD's regional groundwater management plan and other management plans will be reviewed, probably concurrent with IRWMP review, to evaluate whether the projects recommended are achieving their stated goals in implementing the plan. If changes are required to project operation, they will be recommended during the IRWMP update.

7.2.2.2 Past Plan Performance

The implementation of the 2006 IRWMP includes progress on project development, design, and construction. For example, Western completed the design of the March ARB Wastewater Treatment Plant upgrade which will allow recycled water to be delivered for irrigation. It is out to bid as of April 2008 and planned to start construction later in 2008. Similarly, EVMWD has completed design on Phase 1 of the Wildomar Recycled Water Program and is planning to start construction of the project later in 2008. Studies that will evaluate feasibility of future projects are also underway and several agencies have submitted grant applications to the Local Groundwater Assistance program and are pending decisions. The update of the IRWMP is also accomplishing one of the objectives of the IRWMP, which is to update as conditions change. The impacts of the reductions in Delta pumping are already being felt and judicial decisions made which will have far-reaching effects in Western's service area.

7.3 Data Management

A wide variety of information is necessary to effectively manage water. The kinds of data needed include information regarding water quality, quantity, population demographics, climate and rainfall patterns, treatment plant effluent, habitat locations and needs, water costs, and infrastructure constraints. Data is important to agencies trying to maximize operating efficiency and design projects with limited budgets.

The collection, management, dissemination and utilization of data (e.g., information gathered from studies, sampling events, or projects) are an essential element to creating a sustainable integrated plan. Information needs to be available to regional leaders, stakeholders, and the public to facilitate effective planning and decision-making. A comprehensive data management approach will help to quickly identify data gaps, detect and avoid duplicate data collection efforts, support statewide data needs, and integrate with other regional and statewide programs.

The data that are anticipated to be collected for implementation of this IRWMP is expected to include water supply pumped/delivered and water quality of the supply. Much of these data are already collected by Western, its member agencies and/or project partners such as the watermasters. Extensive water quantity and water quality monitoring exists because of the Chino Basin and SBBA adjudication and it does not appear that significant data gaps exist.

Groundwater studies/management plans underway for Arlington, Riverside and Temescal (Corona) basins will be useful for gathering a more complete set of data for these basins.

Data will be disseminated, as appropriate, to stakeholders and the public through reports at member agency/stakeholder meetings, Western Board meetings as well as posting of any formal data reports and updates to Western's web site. Much water management data are maintained and used by the staff of Western and its member agency to make decisions regarding pumping and treatment needs.

Data collection supports statewide data needs through submitting UWMPs for water supply and quantity to DWR, as well as identifying data collected through groundwater management and adjudication that should be incorporated, if appropriate, into the State Water Resources Control Board's Surface Water Ambient Monitoring Program (SWAMP) and the Groundwater Ambient Monitoring and Assessment Program (GAMAP).

7.3.1 Management and Data Reporting

A requirement of the Proposition 50 Guidelines is the routine reporting on project performance. The routine collection of this data naturally lends itself to the routine collection and reporting that is required as part of the IRWMP process. It is in the best interest of the project proponents and larger Stakeholder group to maintain current data so the most updated information is used to evaluate projects using the project prioritization framework as outside funding sources become available. Data collected or produced as part of the IRWMP can then be presented and disseminated during future meetings.

7.3.1.1 Data Reporting as Part of Municipal Storm Water Permits

The Santa Ana RWQCB has issued three Municipal Storm Water Permits to the three counties (Orange, Riverside, San Bernardino) and all the incorporated cities within its jurisdiction. These Municipal Storm Water Permits provide the waste discharge requirements for the discharge or contributions to discharges of storm water and urban runoff from municipal separate storm sewer systems (storm drain systems). Each entity permitted under the countywide permit must implement a storm water quality management program (SQMP). The data that is collected as part of the SQMP is submitted annually to the Santa Ana RWQCB, which is then compiled in the unified Annual Storm Water Program Report. Each unified report documents the Permittees' progress in implementing the SQMP and the requirements of the countywide permit. Data that is collected, including the annual reports, are available for public review on the Santa Ana RWQCB's website.

7.3.1.2 Data Reporting as Part of Municipal National Pollutant Discharge Elimination System Permits and Waste Discharge Requirements

Incorporated cities in the jurisdiction of the Santa Ana RWQCB are permitted under Municipal National Pollutant Discharge Elimination System (NPDES) Permits. These permits require developers of certain developments/redevelopments to prepare engineering documents to prevent potential pollutants from entering the storm drain system. This regulation is met by requiring engineering documents such as the Urban Stormwater Mitigation Plan (USMP) and Stormwater Pollution Prevention Plan (SWPPP) for these developments. The municipal

NPDES permits require the cities to submit an Annual Storm Water Permit Report and Assessment to the Santa Ana RWQCB. The Annual Reports include the information necessary to assess compliance relative to the permit, and the effectiveness of implementation of permit requirements on storm water quality. In addition, individual point-source NPDES dischargers as required for wastewater treatment plant discharges and the SARI Brine Line also require monitoring which is submitted to the RWQCB. Waste discharge requirements for other discharges such as for recycled water and land application of wastewater also require monitoring of discharges and ambient water quality.

7.3.1.2.1 Annual Water Quality Reports

The U.S. Environmental Protection Agency (EPA) and the California Department of Public Health (CDPH) require that all water agencies produce an annual report to inform customers about the quality of their drinking water. The annual reports include information on a system's source water, the levels of any detected contaminants, and compliance with drinking water regulations, plus some educational material. Contaminants typically reported on include turbidity, coliform, lead/copper, unregulated contaminants, and those contaminants of concern specific to a particular location.

The Annual Water Quality Report for Western is a conjunctive effort with MWD. Thousands of samples on an annual basis testing for more than 150 constituents are documented in the report. All samples are analyzed by an independent CDPH certified laboratory where they are compared to more than 175 state and federal standards providing data on the condition of the water supply's purity and aesthetics. This report contains a detailed summary of Western's water quality monitoring and testing. In addition, individual member agencies prepare Annual Water Quality Reports that document the results of their respective monitoring efforts including the quality of local groundwater and surface water that may occur in each agency's water portfolio.

7.3.2 Existing Monitoring Efforts

This subsection will provide the existing surface and groundwater level and quality monitoring efforts in Western's service area and will identify opportunities for additional monitoring and/or for partnership.

7.3.2.1 Surface Water

Within the Santa Ana watershed are two large surface rivers; the Santa Ana River which is the largest stream system in southern California, and the San Jacinto River, which is tributary to the Santa Ana River. Lake Elsinore is the only natural freshwater lake of any size in the watershed with a surface area of 5 square miles. In addition, the region has a variety of water storage reservoirs (Diamond Valley Lake, Lake Perris, Lake Mathews, Lake Skinner, and Big Bear Lake) and Flood Control areas (Prado Dam area, Seven Oaks Dam area) that have been created to hold surface water.

The Santa Ana River Stipulated Judgment, which is overseen by the Santa Ana River Watermaster, requires the routine collection of data regarding average annual flows and water quality for these surface waters.

Within the Santa Margarita watershed is the Santa Margarita River stream system. The main surface water features within the western boundary within the Santa Margarita River watershed are: Murrieta Creek, Temecula Creek, Warm Springs Creek, and Santa Gertrudis Creek. There is no surface water storage within Western's service area in the Santa Margarita River watershed. Surface water is diverted to surface storage at RCWD's Vail Lake (to the east of Western) and Lake O'Neill (downstream and west of Western). Vail Lake storage can be released and recharged to the groundwater in the Valle de los Caballos spreading basin through Temecula Creek.

MWD owns and operates Lake Skinner, a 44,000 AF reservoir on Tucalota Creek also within the Santa Margarita River watershed, but outside of Western's boundaries. Lake Skinner provides regulatory and emergency storage capacity for water imported to southern California.

The Santa Margarita River Watershed is an adjudicated surface water basin. The SWRCB considers the Santa Margarita River System to be fully appropriated. The Watermaster monitors surface water flows within the system, monitors groundwater pumping, and prepares an annual groundwater balance to evaluate changes in groundwater levels that could impact surface water discharge. The information received by the Watermaster is published in an annual Watermaster report.

7.3.2.2 Drinking Water

Drinking water quality is monitored through the following means:

- Safe Drinking Water Act (SDWA) compliance monitoring and reporting: All public water systems are required to produce water that complies with the SDWA. To this end, specific monitoring information is required and conducted routinely. Results of the monitoring are reported to the California DPH. In addition, monitoring information is required to be published in the annual Consumer Confidence Report (also required by the SDWA).

- Unregulated Contaminant Monitoring Rule Results: The 1996 SDWA Amendments mandate that EPA publish a list of unregulated contaminants that may pose a potential public health risk in drinking water. This list is called the Contaminant Candidate List (CCL). The initial 1998 accounting listed 60 contaminants. USEPA uses this list to prioritize research and data collection efforts for future rulemaking purposes. The 1996 SDWA amendments incorporated a tiered monitoring approach. The rule required all large public water systems and a nationally representative sample of small public water systems serving less than 10,000 people to monitor the contaminants.

7.3.2.3 Groundwater

The Santa Ana watershed contains about 40 groundwater basins (described in Section 2.2.5) and many are interrelated. Some of the larger groundwater basins and their common names are the Chino Basin (Chino/Ontario/Fontana area), the Cucamonga Basin, the Bunker Hill Basin (San Bernardino), the Rialto/Colton Basin, the Riverside Basin (Riverside A through F), the San Timoteo Basin (Yucaipa/Banning/Beaumont area), the Arlington/Temescal/Elsinore Basin, and the San Jacinto/Hemet Basins.

The Santa Ana River Watershed groundwater basins and management zones within Western's service area boundaries are defined in the SARWQCB's Basin Plan.

Several adjudication judgments have been made relating to the Santa Ana River watershed including: Western – San Bernardino Groundwater Adjudication (Judgment 78426 or 1969 Judgment), Santa Ana River Adjudication (Stipulated Judgment), and the Chino Groundwater Basin Adjudication. The Watermasters identified in these adjudications prepare annual reports documenting the previous year's puming and export activities, groundwater elevation measurements, and stream flow and water quality measurements.

As stated above, the Santa Margarita River watershed is an adjudicated surface water basin. The Watermaster identified in this adjudication monitors groundwater pumping and prepares an annual groundwater balance to evaluate changes in groundwater levels that could impact surface water discharge. The information received by the Watermaster is published in an annual Watermaster report.

7.3.2.4 Linkages to Existing State Programs

Data collected from the Watermasters and as part of this IRWMP can be used to support existing state programs such as the Surface Water Ambient Monitoring Program, the Groundwater Ambient Monitoring and Assessment, the California Environmental Resources Evaluation System, and the Statewide Water Analysis Network.

- Surface Water Ambient Monitoring Program (SWAMP). Relevant surface water data collected as part of the IRWMP will be consistent with SWAMP database compatibility guidelines, and relevant data will be exported annually to the state database using the required data submission formats. Where appropriate, IRWMP sampling activities will be performed according to SWAMP quality assurance requirements.

- Groundwater Ambient Monitoring and Assessment (GAMA). Groundwater data collection efforts as part of the IRWMP will be coordinated, as appropriate, with the needs of the GAMA program and will be consistent with database specifications so that the data can be easily submitted, shared, and integrated into the GAMA database as appropriate. Field sampling efforts will be coordinated with the GAMA program to eliminate duplicative data collection efforts and fill data gaps.

- California Environmental Resources Evaluation System (CERES). Relevant data and reports will be sent to CERES so that information will be available and useful to a wide variety of users.

- Statewide Water Analysis Network (SWAN). In an effort to improve the State's analytical capabilities for water management, DWR is organizing a statewide network of local, state and federal agencies, organizations and governments to participate and share data through SWAN. Data collected as part of this IRWMP could be used to support the SWAN effort.

7.4 Identified Data Gaps or Action Items Related to Data Management

Through ongoing agency activities as well as the IRWMP process, a wealth of existing data is collected and reviewed to help identify issues of concern, provide for the development of objectives, and allow for monitoring of project performance. Assessment of this data also identifies the need for additional information. The initial steps in preparing this IRWMP included conducting a detailed review of existing sources and working with the Stakeholders to identify gaps and deficiencies. Data gaps represent information crucial to a greater understanding of the Region and help develop context for future projects and management actions.

There has been a wealth of data collected about the management of water resources within the two watersheds. Aside from identifying gaps or deficiencies in the data, is the difficultly in organizing and interpreting the data to answer specific questions about the issues that have been identified, whether it supply reliability, quality, or ecosystem health. Data evaluation necessary for basin management for water quantity and quality occurs on a basin-by-basin basis. If data gaps are identified, efforts are made to identify additional monitoring sources to fill the gaps.

7.5 Statewide Priorities

The State of California has identified the following priorities as found in Section II.E. of the IRWMP Guidelines:

1. Reduce conflict between water users or resolve water rights disputes
2. Implementation of TMDL's
3. Implementation of RWQCB Watershed Management Initiative (WMI)
4. Implementation of SWRCB's NPS Pollution Plan
5. Assist in meeting Delta Water Quality Objectives
6. Implementation of recommended floodplain management, desalination, and recycling task forces
7. Address environmental justice concerns
8. Assist in achieving the goals of CALFED Bay-Delta Program

The projects in the plan were developed to address as many of the Statewide Priorities as possible.

The implementation of the plan addresses all but one of the priorities at this time as summarized below.

1. The plan directly reduces conflicts between water users or resolves water rights disputes because the plan includes projects and activities which are a part of the adjudication within four adjudicated basins- Chino, SBBA, Santa Ana and Santa Margarita. In addition, by facilitating development of local supply, the plan will reduce the probability that water conflicts will occur in the region.

2. The plan does not directly implement a TMDL. However, the plan has water quality benefits associated with the Regional Board's BPA for TIN/TDS as described in Resolution R8-2004-001.

3. The plan implements the RWQCB's 2004 WMI through the activities in the Chino Basin such as groundwater desalting, and groundwater level management which results in improvements to surface water quality; in the Upper Santa Ana River Basin, and the Middle Santa Ana River Basin which has activities that are linked closely to those of the Chino Basin.

4. The plan implements the State's NPS Pollution plan by presenting projects that reduce salts in the groundwater that resulted from past NPS pollution from irrigated agriculture and dairies and potential stormwater quality improvement projects.

5. The plan assists in meeting Delta water quality objectives by facilitating the use of local water resources which reduces the need to import water, particularly in the dry season and drought years when water quality challenges are greatest.

6. The plan implements the recommendations of the desalination and recycled water tasks forces by including both desalination (Arlington and Chino desalter projects) and recycled water projects (RCWD, EVMWD, City of Riverside, City of Corona, and Western projects).

7. The plan addresses environmental justice concerns by providing projects, such as the expansion of the Arlington and Chino II desalter projects, in locations that benefit disadvantaged communities as defined by the State of California as shown on the map on Figure 7-1 found in Section 7.7.2.

8. The goals of the CALFED Bay-Delta program based on the CALFED Record of Decision (ROD) are:

    a. Provide good water quality for all beneficial uses;

    b. Improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay–Delta to support sustainable populations of diverse and valuable plant and animal species;

    c. Reduce the mismatch between Bay–Delta water supplies and current and projected beneficial uses dependent on the Bay–Delta system;

    d. Reduce the risk to land use and associated economic activities, water supply, infrastructure, and the ecosystem from catastrophic breaching of Delta levees.

The plan assists in achieving the goals of CALFED Bay-Delta Program by improving the water quality of the local water resources through treatment and removal of salts so that the water supply can meet all beneficial uses. In addition, by reducing imported water demands, more water remains in the Bay-Delta so that aquatic, terrestrial habitat and ecological function is improved. Development of local supplies which includes taking wintertime SWP water to recharge local aquifers reduces the mismatch between the Bay-Delta waters supplies, especially during the dry season and drought. Local water supplies also result in reducing the mismatch in the beneficial uses dependent on the Bay-Delta system. The plan does not facilitate reducing the risk of catastrophic breaching of Delta levees.

7.6 Program Preferences

The Proposition 50 Guidelines specify 'Program Preferences' for projects included in an IRWMP. DWR and the SWRCB are looking for projects that will implement one or more of the following IRWM Grant Program Preferences.

1. Include integrated projects with multiple benefits.

2. Support and improve local and regional water supply reliability.

3. Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards.

4. Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas, including areas of special biological significance.

5. Include safe drinking water and water quality projects that serve disadvantaged communities.

The implementation of the plan addresses all 4 of the Program Preferences. As discussed in Section 5, a mix of water supply projects were identified to represent the water management strategies of water supply reliability, groundwater management, water conservation, water quality protection and improvement, conjunctive use, desalination, imported water (for recharge and storage), non-point sources pollution control, water and wastewater treatment, and regional, inter-basin water transfers. These projects have been selected for inclusion in the Plan because they:

- Provide regional benefits for more than one agency (meeting Program Preference 1).

- Represent geographic diversity within Western's service area and provide reliability benefits by providing local supplies close to use areas where they are used (meeting Program Preferences 2 and 5).

- Use primarily groundwater which is pumped from many wells and therefore provides reliability from a supply perspective (meeting Program Preference 2).

- Improve water quality in the Chino, Arlington, and Temescal Basins by desalting and exporting brine (meeting Program Preferences 3 and 4).

- Improve water quality in the SBBA by increasing recharge of high quality SWP water and pumping and treating water impacted by perchlorate and TCE/PCE (meeting Program Preferences 2, 3, and 5).

- Provide conveyance through the R/C Feeder that can integrate both inside the region by conveying Arlington and Chino II Desalter water as well as regionally outside of Western's service area by conveying SBBA water (meeting Program Preferences1 and 2).

- Provide the ability to transfer water between groundwater basins (meeting Program Preference 2).

7.7 Agency Coordination

A substantial number of federal, state and local/regional agencies and jurisdictions are responsible for, or participate in, the development and implementation of plans and programs that satisfy the water management strategies developed earlier in this report. The State or Federal agencies involved with strategies, actions, and projects related to the implementation of the Plan include DWR for funding of the plan and implementation elements, the RWQCB for water quality concerns and any permits, CDPH for treated water delivery permits, and USBR for funding of the R/C Feeder.

The most vital area where a State agency or other agencies may be able to assist in implementation of Plan components or processes are in securing funding for implementation. State or federal regulatory decisions may be required for construction of the R/C Feeder and any other projects that cross the Santa Ana River.

In addition, implementation/construction of the projects will likely require acquisition of permits from local agencies such as city encroachment permits, county well drilling permits, county air quality permits, and others.

Substantial effort will be required to assure cross-agency coordination and integration for the development of regional plans and projects for individual water management strategies or that incorporate multiple water management strategies.

7.7.1 Stakeholder Outreach

The primary stakeholder base associated with Western's IRWMP are the member agencies of Western as listed in Section 2.1. Secondary stakeholders include agencies such as SAWPA, of which Western is a member with SBVMWD, IEUA, OCWD, and EMWD; SBVMWD, with whom Western partners as the SBBA Watermaster; watermasters for the Chino and Santa Ana River basins; the Chino Desalter Authority; and the San Jacinto River Watershed Council (SJRWC). Additionally, the Riverside County Flood Control and Water Conservation District (RCFCWCD), Riverside-Corona Resource Conservation District, Riverside County Regional Park and Open Space District, Regional Water Quality Control Board, and California Department of Public

Health were involved with the IRWMP development process. The stakeholders were identified primarily through existing working arrangements that Western has with these agencies as well as through the regional IRWMP preparation process occurring in the Santa Ana River Watershed. Planning and implementation efforts include bi-weekly stakeholder meetings as well as more focused meetings or conference calls with individual stakeholders, particularly with those in disadvantaged communities, during the preparation of the plan.

Meetings and topics are listed in Table 7-1. Additional outreach is documented in Appendix C.

TABLE 7-1
STAKEHOLDER MEETINGS

Date	Time	Type	Topic
Thursday, January 31, 2008	1:30 p.m.	Meeting	IRWMP Kick-off Coordination with SAWPA, Integration with OWOW Project Solicitation Disadvantaged Community Outreach
Thursday, February 14, 2008	8:30 a.m.	Meeting	Coordination with Riverside-Corona Resource Conservation District Water and Environmental Restoration WUEMP Kick-off
Thursday, February 28, 2008	1:30 p.m.	Meeting	Regional RW Planning Groundwater Recharge Opportunities, Flood Control and Recharge Multi-Benefit Projects
Thursday, March 13, 2008	1:30 p.m.	Meeting	Regional Water and IRWMP Objectives Project Evaluation and Criteria
Thursday, March 27, 2008	1:30 p.m.	Meeting	Future Land Use Projections Impacts of Densification on Water Demand and Sewer Flows Land-Use Based Demand Forecasting Projects Discussion
Thursday, April 24, 2008	1:30 p.m.	Meeting	WUEMP Preliminary Results Draft IRWMP Report Results Draft IRWMP Project Evaluation Potential Project Funding Opportunities
Thursday, May 8, 2008	1:00 p.m.	Meeting	Regulatory Requirements for GW Recharge with Recycled Water
June		Meeting	Adoption of Plan by WMWD Board

Documentation of stakeholder involvement such as inclusion of signatory status or letters of support from non-agency stakeholders, i.e. those who have not“adopted” the Plan will be provided upon plan adoption.

As a result of the integrated nature of water supply and management within the Santa Ana River watershed, decisions are arrived at collectively and require acceptance by stakeholders through the adjudications and other legal processes. Therefore, stakeholders have significant opportunities to influence decision-making.

It is expected that on-going communication regarding plan implementation will be made to member agencies through the quarterly General Managers’ meetings and to the regional

partners through the SAWPA commission and other meetings. Formal documents will be posted to Western's web site. Many of the partnerships that Western has developed existed prior to the preparation of this IRWMP.

Much of the outreach in the region occurs through discussions that occur at the member agency meetings. Several of the member agencies including JCSD and Corona, have disadvantaged communities within their service areas. The agency staff pride themselves on assisting all customers, not just those that reside in disadvantaged communities. However, agency staff also have a sensitivity to those in disadvantaged communities and make every effort to arrive at solutions that are particularly beneficial to disadvantaged communities. Providing a reliable, safe water supply to disadvantaged communities facilitates meeting environmental justice needs.

Outreach by Western is supplemented through the individual activities of the Watermaster and SAWPA (of which Western is a member). SAWPA has approximately 15 workgroups that provide information about the various water quality and quantity issues within the Chino Basin and Santa Ana River watershed. SAWPA has hosted annual Santa Ana Watershed conferences which are open to all participants including agricultural and industrial stakeholders that encompass issues in disadvantaged/Environmental Justice communities.

The most likely obstacles to Plan implementation is securing the funding to construct the projects. Most institutional issues have been addressed through existing mechanisms and through the close working relationships that Western has with its member and partner agencies.

7.7.2 Disadvantaged Community Outreach

Outreach to disadvantaged communities was conducted in a number of ways in order to reach the widest audience. Disadvantaged communities were identified as shown on Figure 7-1 that follows using 2000 Census data provided by SAWPA staff documenting census blocks with income less than 80% of the statewide median household income in accordance to state funding guidelines. Focused, individualized meetings were held with the region's smaller water agencies and the identified disadvantaged communities. These meetings were carefully orchestrated to demonstrate the united efforts being developed through participation in the IRWMP.

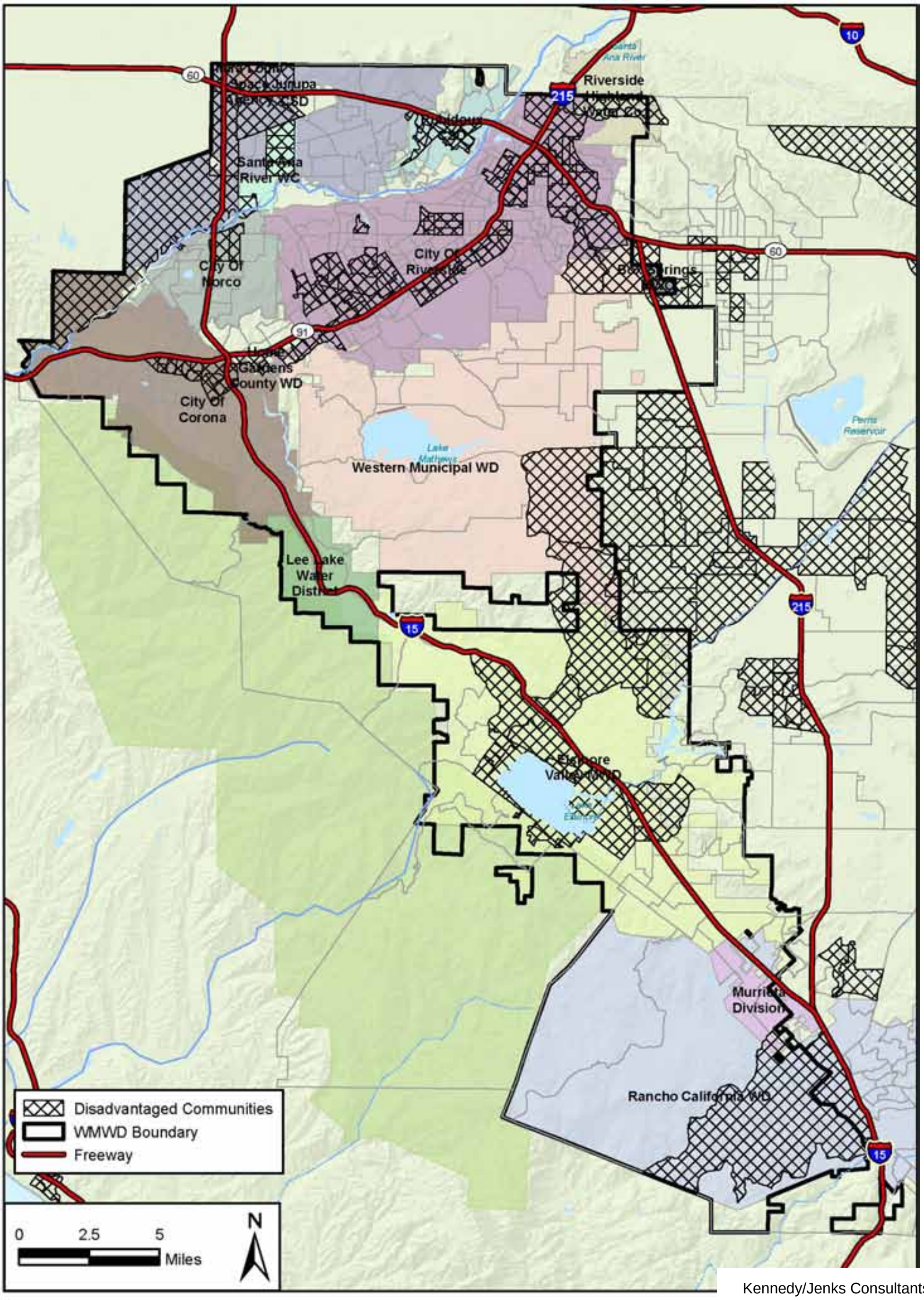
These focused individual meetings allowed for an in-depth discussion of each agency's issues and concerns regarding infrastructure, supply reliability, demographic effects on water use, and funding (both lack of funding for capital improvement projects and inability to access funding opportunities or trouble with grant writing). These meetings allowed for discussion and development of project ideas for inclusion in the IRWMP. The message conveyed was that the project ideas would be evaluated based on their merits and efforts will be made to assist project proponents with locating funding to implement projects. During the meetings, it was emphasized that the IRWMP provides a new way of working together in the region despite traditional barriers or ongoing disputes.

In addition to the PowerPoint presentation given at each meeting, handouts were provided at each meeting that included detailed meeting schedules, project eligibility criteria, IRWMP goals and objectives, and technical assistance listings with contact information. As meetings progressed, outreach materials continuously evolved to reflect the new information received.

The IRWMP meeting materials were also made available on the ftp site, emailed, and/or sent by hardcopy to agencies that could not attend meetings.

The overarching goal for the outreach was to involve those communities and agencies in the region that are typically left out of the IRWM planning process. This includes the identified disadvantaged communities, but also those many communities that do not face the economic constraints of disadvantaged communities but must however deal with similar obstacles due to limited resources and geographic location. These are smaller agencies and towns that are generally very small in population, have fewer resources, a smaller organizational structure, and thus become isolated, both politically and physically from planning processes the IRWMP.

This approach was believed to be the most effective way to reach the largest possible number of stakeholders and gather information from disadvantaged communities, underrepresented, rural communities, and, therefore, all areas within the Region within the short timeframe required by this IRWMP update schedule.



Kennedy/Jenks Consultants

Source: DAC areas are based on the U.S. Census Bureau 2000 Census; < than 80% of the Medium Household Income (MHI), block level data.

Western Municipal Water District
Integrated Regional Water Management Plan 2008 Update

Disadvantaged Communities

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May 2008
Figure 7-1

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Section 8: References

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